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APPENDIX A2

NFC Environmental Statement (2001)

The National Football Centre

Environmental Statement

Byrkley Park Site Area

Burton upon Trent, Staffordshire

Prepared on Behalf of England Football Enterprises Ltd

By Building Design Partnership

June 2001



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EXECUTIVE SUMMARY

1.0 INTRODUCTION

1.1 Purpose of the Report

a. This Environmental Statement has been produced by Building Design Partnership with technical input from Ecological Planning and Research and Marches Archaeology on behalf of England Football Enterprises Limited.

b. The Environmental Statement has been produced to consider the anticipated environmental impacts which will arise as a result of the proposed development of The National Football Centre, at Byrkley Park, Burton upon Trent, Staffordshire.

1.2 Location

1.3 The site of the proposed National Football Centre is at Byrkley Park, which is approximately 7km to the west of Burton upon Trent, Staffordshire. The site is centered on NGR SK165236 and covers an area of approximately 69 hectares.

1.4 Description

1.5 The application seeks consent to develop England's first ever National Football Centre. The design of the facility has been based upon extensive research of the best sporting academies in the UK and abroad, and seeks to set new standards in its field.

a. The scheme comprises outdoor grass and synthetic football pitches and training areas, a covered synthetic pitch and training accommodation, short term residential accommodation for up to 300 students and players, seminar rooms, media facilities and ancillary accommodation.

b. The key environmental impacts which are considered are summarised below.

1.6 Impacts upon Habitat Compartments within the site

a. **North East Wood Pasture** – Impacts in this area will be restricted to the construction of the new access road and the bridge to the Lin Brook tributary. This will result in the loss of a limited number of trees, the loss of semi-improved grassland and the removal of an area of scrub adjacent to Lin Brook. Non of the features which are affected by development are of ecological note. By way of compensation for the envisaged impacts, new tree planting will be undertaken. The Landscape Management Plan will also bring significant benefits to the ecology and appearance of the wood pasture.

b. **Nettlebed Plantation** – Impacts in this area will again be restricted to the construction of the new access road and a bridge crossing to Lin Brook. No tree loss will result. Impacts in this area will be of an insignificant scale. Additional

tree planting is proposed, in locations which do not affect areas of semi-improved grass land. This tree planting, together with the positive benefits of the Landscape Management Plan will again bring significant ecological and landscape benefits.

c. **North Lodge Wood Pasture** – This area of the site is unaffected by development, and will remain in agricultural use as at present.

d. **Lin Brook Pastures** – Impacts in this area will comprise the new access road and one new football pitch with associated remodeling. The new pitch will result in the loss of one tree and an area of improved grassland which in itself is of little ecological value. Extensive tree planting in this area, and landscape management which will seek to improve the nature conservation value of the improved grassland will offer positive environmental benefits to this compartment.

e. **Airfield Pasture** - Impacts in this area comprise the development of two pitches and associated remodeling. The site is currently treeless and its improved grassland is of no ecological importance. Ancient trees on this part of the site will be unaffected by development. Substantial new tree planting and improved management of grassland will present positive ecological benefits.

f. **Front Field** – Impacts in this area will be the creation of car parks, the road access and drop off facilities. The most important ecological feature on this part of the site is an ancient tree, which will be retained and protected. Apart from this tree, the site is largely derelict and includes areas of improved grassland which is of limited ecological value. Again, extensive tree planting will compensate for the loss of existing trees on the site. Appropriate preservation measures have been put in place to ensure the protection of the veteran oak, and the three decaying oak stumps which are present will either be retained in situ or relocated on site to act as an ecological resource.

g. **Entrance Drive Grassland** – Impacts in this area will comprise the partial re-routing of the access road and the development of an underground sewage treatment works. The grassland affected in this area is the least improved, and most natural found on site. In order to minimise the extent of the environmental impact in this area, development and tree planting has been kept to a minimum. Also, where development is to take place, turves of the unimproved grassland will be cut, and re-laid on site. Although there will be a moderate impact upon this compartment, the design of the scheme and mitigation measures set out above, combined with the commitment to the long term ecological maintenance of this area will reduce the long term significance of the impact.

h. **Home Woods** – Impacts in this area will comprise the development of the training house. This will lead to the loss of semi mature and mature native and non-native species, scrub and field layer vegetation. Trees to the east of the site, which include Atlantic Cedars and other species of landscape value are to be retained. The importance of the habitat lost in this area is considered to be moderate, although it should be noted that many of the most important trees in the area are to be retained. It is proposed that wildflowers (particularly bluebell) found within this compartment will be transplanted in other woodland areas of the

site. Mitigation for the tree loss will comprise compensatory planting to the west and east of the Training House and in adjoining car park areas. The net effect on this area is considered to be minor.

i. **Ice House Wood Pasture** - Impacts in this area comprise the development of tennis courts, maintenance stores, staff housing and the kit research facilities. This development will result in the loss of only five trees which are not of ecological significance. All nine ancient trees within this compartment are retained and appropriately protected. Appropriately located compensatory tree planting will be provided in this compartment to mitigate for the minor tree loss experienced. The overall impact on this area will be insignificant.

j. **Western Wood Pasture** – Impacts in this area relate to the circulation track and two pitches. The pitches and associated re-contouring are located in a species poor area of grassland which will result in an insignificant impact and all significant trees in this compartment are unaffected by development. All areas of this compartment which are unaffected by development will benefit from the Landscape Management Plan.

k. **Hall Field** – The only significant tree which is to be lost in the Hall Field compartment is the ash to the south of the Training House. Consideration has been given to its retention, however, it is in poor physical condition and would represent a danger if retained. No other features within this compartment are affected by development. The Landscape Management Plan will lead to positive ecological benefits in this area through tree planting and grassland management.

l. **Pheasant Thicket** - It is proposed that the pheasant thicket should be cleared and replaced with two new ponds. The thicket itself does not contain any features of specific ecological interest. It is considered that the removal of the thicket and creation with two new water features will represent a positive ecological and aesthetic improvement.

m. **Oak Copse** – The copse is unaffected by development, but will benefit from new tree planting and management.

n. **Kidney Plantation** – Development will not affect the Kidney Plantation, and appropriate management will bring positive ecological benefits.

o. **Byrkley Gorse** – Development will not affect Byrkley Gorse, and again positive landscape management will bring positive ecological impacts.

p. **West Field** – This compartment will be affected by the construction of a flexi-pitch area. Although this area of the site has benefited from 'set aside' management, the area lost is species poor and is not of notable ecological value. The area will benefit from substantial tree planting.

q. **Southern Grassland** – Impacts in this compartment will relate to the creation of five new pitches and associated re-contouring. Grassland which is to be lost to pitches in this area is improved and of low ecological quality. The hedgerow to the south of the area is not affected by development. Positive ecological benefits will accrue in this area due to tree planting.

r. **The Dingle** – This area is unaffected by development, and will benefit from positive management.

s. **The Ponds** – These features are again unaffected by development. The FA will take on the long term maintenance responsibility for these features, including the structures of the weir / cascade features and periodic dredging.

t. **Land to the East of Lin Brook** – All land to the east of Lin Brook is unaffected by development, and will be retained in agricultural use.

1.7

Impacts upon Fauna

a. **Badgers** – There is an active badger sett to the east of Lin Brook, and two outlier setts within the application site. None of these setts will be affected by development and works in the vicinity of setts will be undertaken in line with best practice guidelines. Ample foraging habitat will remain following the completion of development and therefore the impact upon badgers is considered to be insignificant.

b. **Bats** – Potential bat roost sites have been identified on site, and an emergent survey is being undertaken to assess whether they are used. Before any work is undertaken which affects potential bat roosts, a detailed visual examination will be undertaken in line with best practice guidance. If required, a DETR licence will be applied for and appropriate mitigation measures implemented to ensure a favourable conservation status for bat populations is maintained.

c. **Amphibia and Reptiles** – Only common amphibia have been identified on site. The creation of additional water habitats will be a significant positive impact. No reptiles have been identified on site.

d. **Fish** – Only stickleback have been identified in Lin Brook. There will be no impact upon fish as a result of the development.

e. **Aquatic Invertebrates** – Only common aquatic invertebrates have been identified. The proposal will not give rise to any significant impact upon aquatic invertebrates.

f. **Terrestrial Invertebrates** – Scarce 'dead wood indicator species' have been identified on site (*Ischnomera caerulea*) along with a diversity of more common species. Ancient trees and dead wood are important habitats which support terrestrial invertebrates. All of the ancient trees are to be retained, and provision will be made for the retention of all significant pieces of decaying dead wood to be retained either in situ or within the site. The overall impact upon terrestrial invertebrates is therefore considered to be insignificant / minor.

1.8

Other Impacts

a. **Visual Impact** – Great care and attention has been paid to the siting, design and appearance of all buildings, pitches and ancillary facilities on the site. Views into the site from publicly accessible locations are limited, and are restricted to the south and east. Much of these views are filtered by the extensive existing

mature tree cover on the site together with the land rising to the north and west. The scale of the permanent visual impact is considered to be moderate, but will be mitigated through extensive tree planting, and natural earth modeling of earthworks around pitch plateaux.

b. **Landscape Character** – The construction of new pitches will introduce a new character type to the landscape, although the naturalisation of earthwork contours and appropriately located planting will reduce this impact. The erection of the main group of buildings will also have an impact upon the landscape character, although it should be noted that since the 18th Century, a dominant building has occupied this landscape position. As such it is considered to be wholly appropriate for a quality, contemporary building to be sited in this location.

c. The new tree planting will be set out informally as individual native trees, small groups and woodland areas throughout the landscape. This will serve to reinstate the historic patterns of this landscape as well provide a new generation of native trees. These will replace the veteran and post mature trees which are currently dominant on the site and likely to disappear within the next 20 years or so.

d. **History and Archaeology** – The site of oldest archaeological interest is the site of the 13th Century Byrkley Lodge which will be unaffected by development. It is proposed that the limited remains of the 19th Century lodge and below ground remains of the 18th Century Lodge will be appropriately recorded prior to the redevelopment. Above ground features of archaeological interest, including the parkland landscape, pond cascades and the ha-ha will be retained and maintained as part of the Landscape Management Plan.

e. **Air Quality** – The proposal will not give rise to significant air quality issues.

f. **Light Environment** – Floodlighting of pitches will give rise to a new significant impact. In order to minimise the effect of floodlighting, peripheral pitches are not to be floodlit. Care has also been in selecting the form and colour of lighting columns, and advanced fittings are to be used in order to maximise efficiency and minimise glare. It is proposed that the hours of operation of the lights will be restricted through planning condition. On balance, and taking into account the screening effect of additional tree planting, it is considered that floodlighting will give rise to a minor environmental impact.

g. **Noise Environment** – The most significant source of new noise resulting from the development is likely to relate to outdoor training activity. A detailed assessment has been made, and it is not considered that this will give rise to a significant environmental impact. It is proposed that appropriate boundary noise level parameters will be agreed with the Local Authority. Similar controls are also envisaged in relation to construction activity.

h. **Demographic, Economic and Social Issues** – The development will give rise to new local employment opportunities and potential contracts for local firms. It is not considered that any significant demographic, social or economic issues will arise as a result of the development.

i. No other significant environmental impacts are anticipated as a result of the development.

1.9 **Landscape Management Plan**

a. In order to minimise the scale of the impacts set out above and where appropriate, compensate for any impacts which may arise, a Landscape Management Plan has been produced and will be implemented as part of a Section 106 Obligation. The Management Plan deals with measures which will be implemented during the construction phase and also in terms of the management and maintenance of the site in the long term. The long term management includes a commitment to the implementation of Conservation Zones for key areas of the site.

8/10/2017

1.0 INTRODUCTION

1.1 Purpose of the Report

a. This Environmental Statement has been produced by Building Design Partnership with technical input from Ecological Planning and Research and Marches Archaeology on behalf of England Football Enterprises Limited.

b. The Environmental Statement has been produced to consider the anticipated environmental impacts which will arise as a result of the proposed development of The National Football Centre, at Byrkley Park, Burton upon Trent, Staffordshire.

c. A planning application for the proposed development has been submitted alongside this Environmental Statement.

d. The Environmental Statement has been produced in accordance with the Town and Country Planning (Environmental Impact Assessment)(England and Wales) Regulations 1999 and DETR Circular 02/99.

1.2 Description of Site

a. **Location** - The site of the proposed National Football Centre is at Byrkley Park, which is approximately 7km to the west of Burton upon Trent, Staffordshire. (See Figure 1). The site is centered on NGR SK165236 and covers an area of approximately 69 hectares.

b. The site is about 4km east of the A515, Lichfield - Ashbourne road. It is bordered on the north-west by an operational airfield, on the north by the B5234, to the east by parkland outside the proposed area for development and, to the south, by farmland.

c. Byrkley Hall, until its demolition in the early 1950's, occupied a central position within the site. A large garden centre (Byrkley Park Centre) occupies the site of a former kitchen garden and glasshouses to the east of the present site entrance. The garden centre is outside the application site boundary.

d. Most of the site is on the western side of Lin Brook, a small watercourse which flows southwards across the site through fields and woodland. There is a fall of some 15 metres from north to south along this watercourse (124m OD to 98 m OD). The land rises to the west of the stream to a maximum of c.125m OD on the airfield boundary and, on east of the stream, towards Brickley Wood which is at similar altitude.

e. Within the site most of the land slopes gently. The only extensive level areas are the site of the former Hall and the plateau occupied by Kidney Plantation, West Field and Byrkley Gorse.

f. **Geology and Soils** The site overlies mudstone and marl deposits with a covering of boulder clay the depth of which has been measured to a maximum of

6.9 metres below ground level (URS Dames & Moore Report, Jan. 2001). Boulder clay is exposed in places along Lin Brook and can be seen to contain rounded pebbles in a matrix of orange-brown and grey - mottled clay. Stiff reddish clay occurs at depth (and has been exposed by recent test drilling). Topsoil is mostly sandy silt with small pebbles.

g. **Surface Water** Surface water is confined to Lin Brook and the two large ponds artificially created in this watercourse. The flow in Lin Brook is regulated by a series of weirs which begins about 160m upstream of the first pond. There are two small, possibly seasonal pools, in the NE Wood-Pasture (Compartment A) to the east of Lin Brook and in a deep hollow in Oak Copse (N) (Fig 2).

h. Lin Brook collects from a small tributary in the NE Wood-Pasture and from a ditch along the southern boundary of the site, (which, in turn, collects from the western boundary ditches, Byrkley Gorse and Kidney Plantation). There is also a small input into the South Pond (T) from a partly - underground flow from Pheasant Thicket (M).

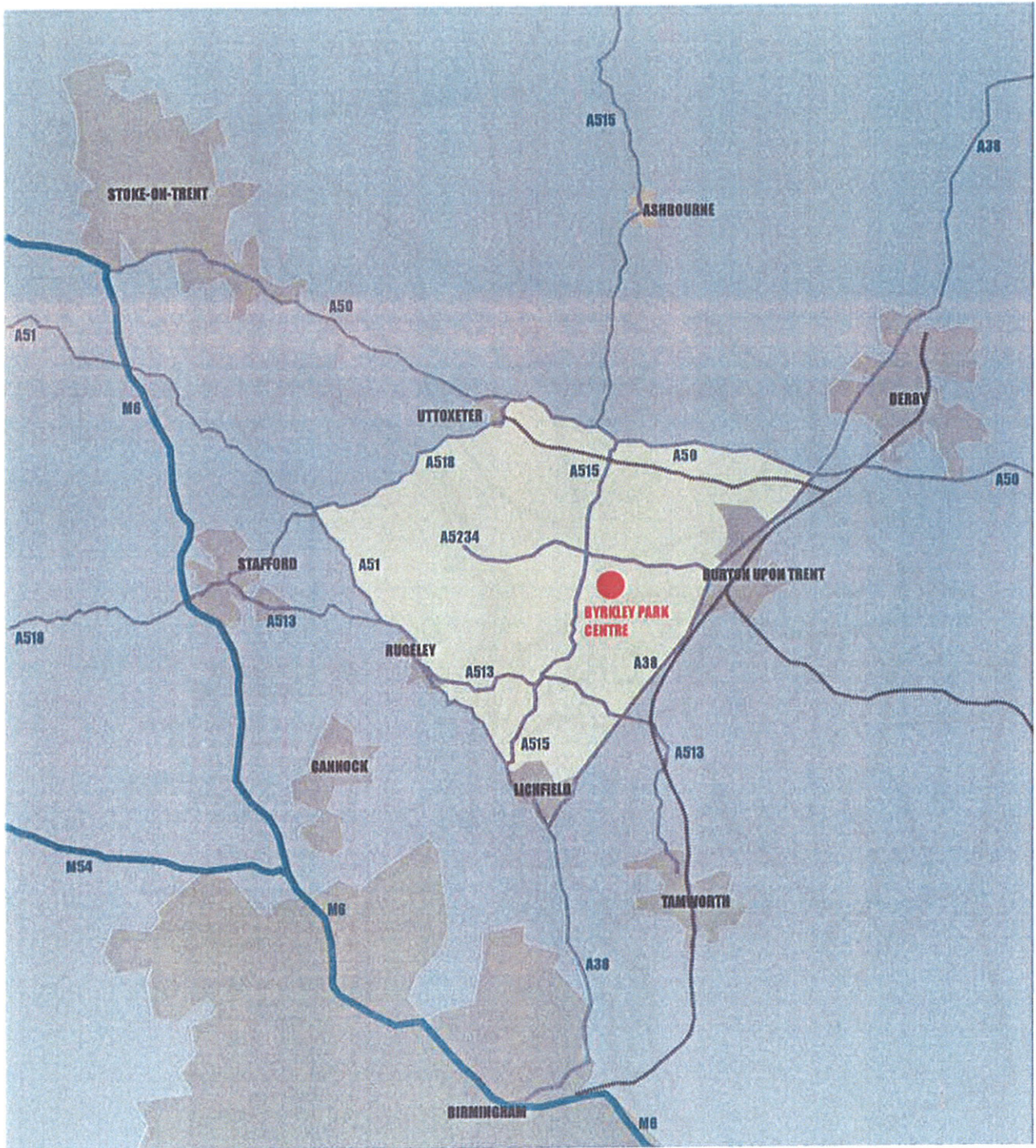
i. Parts of the Ice House Wood-Pasture (J) and Western Wood-Pasture (K), west of the hall site, are poorly drained and retained surface water at the time of the survey.

j. **Land Use History** Byrkley Park originated as a 13th Century hunting preserve recorded as having been being used by Thomas de Berkeley (of Berkeley, Gloucestershire).

k. Needwood Chase, which included what subsequently became Byrkley Park, eventually became the property of the de Ferrers family, Earls of Derby. Needwood was disafforested in 1801, at the time of the Enclosures, which was some 50 years before the Bass family acquired an interest in Byrkley Park.

l. An O.S. map of the early Nineteenth Century shows the layout of the Byrkley Park estate as being similar to what exists today, that is it contained a higher density trees in the northern part, but was sparsely wooded to the south of the Byrkley Lodge. The Lodge occupied what had been the site of the main residence from the late 18th Century until 1952. Prior to the construction of the late 18th Century Lodge, earlier accommodation had been located to the east of Lin Brook. In the early 19th Century the only treeless field was that between the Lodge and Lin Brook, an area corresponding with the present Entrance Drive Grassland (Compartment H).

m. The ponds ("Byrkley Pools") appear on mid 19th Century maps on which the whole area West and NW of the Lodge was known as Great Nettlebeds. Comparison of the mid- and early-19th C. maps indicates that removal of trees was taking place in the intervening period. The present Dingle woodland then extended further east than it does today, though Brickley Wood, NE of the site (probably a synonym of Byrkley which has had various spellings) was of similar extent as it is now.



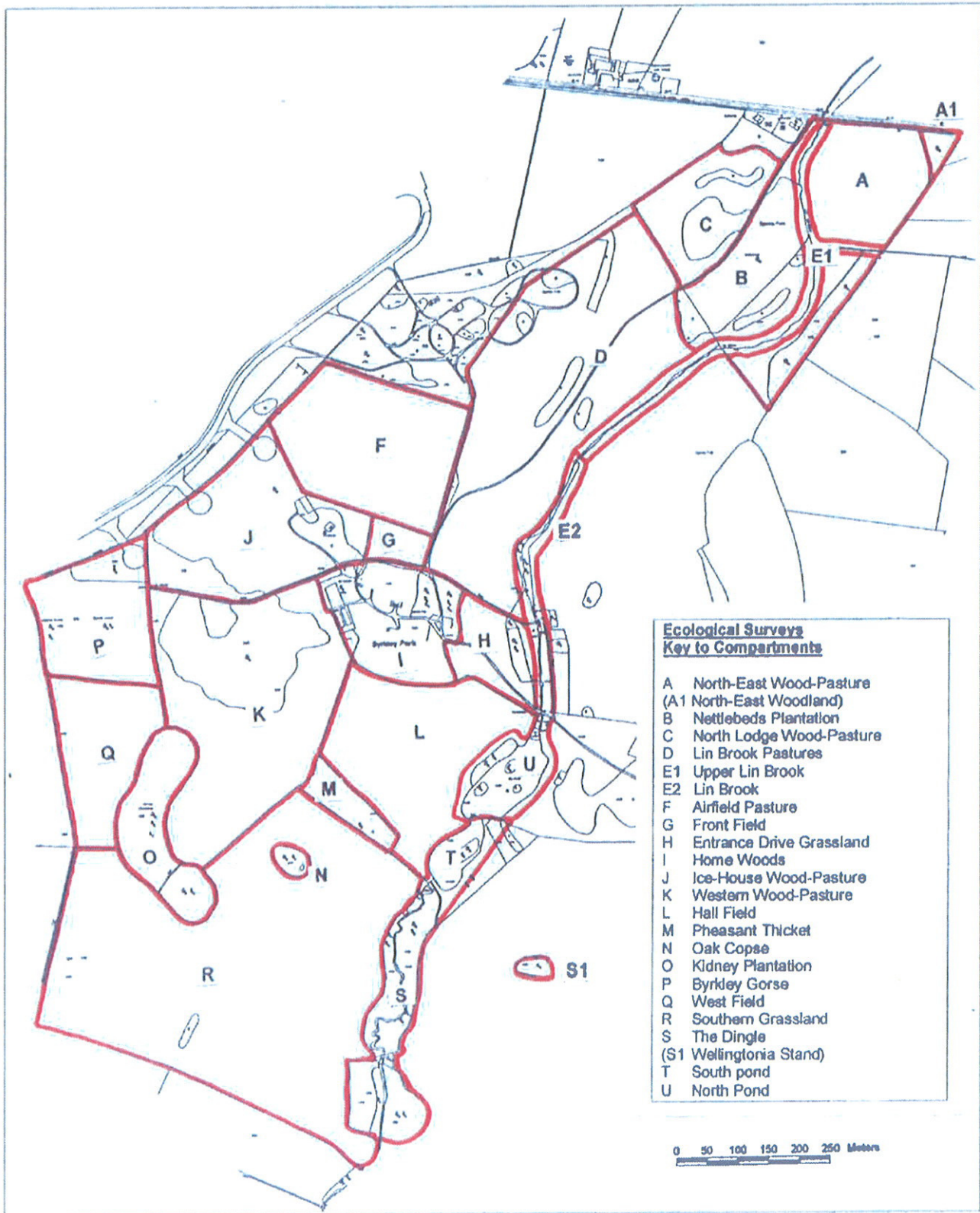
Location Plan

Fig 1

The National Football Centre

Environmental Assessment





Habitat Compartments

Fig 2

The National Football Centre
Environmental Assessment



n. The survival of ancient trees on the site is the consequence of its long, continuous use as parkland, managed as wood-pasture.

o

o. Any surviving old pasture grassland would have been lost in the early 1940's when wartime regulations necessitated ploughing of the parkland for crop production. Just prior to World War II, much of the park, which until then had been managed primarily for game, was covered by scrub and bracken (Information: Mr. Frank Thompstone, former tenant farmer and subsequent owner).

p. In the 1950's, following the death of Sir William Bass, an agricultural regime of arable cropping involving rotation of cereals (and occasionally oil-seed rape) with grass leys was implemented and this has continued until recent times. More recently, the site has been under consideration for redevelopment since 1992.

q. At present the wood-pasture areas are normally grazed, and the open fields - Airfield Pasture (F) and Lin Brook Pastures (D) – are harvested for silage.

r. For the last 10 years a large proportion of the site, including West Field (Q), Hall Field (L) and the Southern Grassland (R), together with other fields east of the Dingle, have been under a "Set-aside" regime. Only one or two cuts of grass after mid-summer are permitted, in order to counter scrub-invasion. The difference between the Set - aside areas and the more managed grassland is visible from a distance as well as from close examination of the sward.

s. In recent times the woodland on the site has largely been managed for game, particularly for rearing pheasant. The Kidney Plantation was initiated in the late 1920's or early 30's. This, together with Byrkley Gorse and Pheasant Thicket, owe much of their present character to use as pheasant coverts. The secondary woodland around the hall site (Home Woods), which has replaced much of the former garden area, has also been in use for rearing pheasant.

1.3

Description of Project

a. This application seeks consent to develop England's first ever National Football Centre. The design of the facility has been based upon extensive research of the best sporting academies in the UK and abroad, and seeks to set new standards in its field.

b. The Football Centre is strictly a private facility for the Football Association and so comings and goings will be limited to staff, visitors by invitation only, and players on educational courses or in training.

c. The scheme comprises the following elements:

- i. Four full size grass football pitches.
- ii. Two full size synthetic football pitches.
- iii. Three 'flexi-pitch' training areas and a goal keeper training area.

- iv. The 'Training House' which comprises a full size indoor synthetic pitch, wet and dry fitness facilities and an area for sports medicine.
- v. The 'Living House' which provides short term residential accommodation of 150 rooms for up to 150 (single occupancy) or 300 (twin occupancy) players and students
- vi. The 'Learning House' with teaching and seminar facilities, media facilities and office accommodation for 75 staff.
- vii. A kit test and storage facility.
- viii. Grounds maintenance storage facilities.
- ix. Three family dwellings for essential 'live in' permanent staff.
- x. Five 'dirty seminar rooms'.
- xi. 250 car parking spaces.
- xii. One helipad on the existing runway hardstanding, adjacent to the airfield.
- xiii. A Pitch and Putt facility
- xiv. Two synthetic tennis courts

d. Access to the facility will be taken from a new entrance at the north of the site off the B5234.

e. All development and activity is focused upon land to the west of the Lin Brook. No development will be undertaken on land to the east of the brook, which will remain in agricultural use.

1.4 Description of Masterplan

a. A Masterplan has been produced for the site. The design is based upon a thorough understanding of the site's value in terms of visual, ecological and historic characteristics. A full description of the Masterplan is set out at Section 2 of this report.

1.5 Consultations Undertaken to Date

a. During the evolution of the site Masterplan, consultation has been undertaken with the following organisations:

- i. East Staffordshire District Council
- ii. Staffordshire County Council
Highways, Landscape and Ecology Teams
- iii. CPRE

- iv. National Forest Campaign
- v. English Nature
- vi. Former site owner
- vii. Author of Birds of Byrkley Park
- viii. Wildlife Trust
- ix. Forestry Commission
- x. Staffordshire Gardens and Parks Trust
- xi. Tatenhill Airfield
- xii. Civil Aviation Authority

b. In addition to consultations with the above groups, an Open Day presentation and Question and Answer session was held for local residents and neighbouring businesses on 20th June 2001.

2.0 Description of Development Being Proposed

2.1 Introduction

a. This section of the report describes each element of the National Football Centre proposal in detail.

b. A Masterplan has been developed for the site which responds to the functional and qualitative aspirations of the Football Association, but more importantly, preserves and enhances the physical environmental and ecological quality of the site and its setting.

2.2 Buildings

a. The main Learning, Living and Training buildings are to be developed on the site of the former Byrkley Hall. The attractive landscape character of the site's parkland estate has been developed and managed over hundreds of years to focus upon the site of the Byrkley Lodge, and it is considered wholly appropriate that this location should again be the focus for the site's main buildings.

b. The design of buildings and selection of external materials are designed to relate to the sensitive landscape within which they will be viewed. A natural palette of coloured rain screen cladding panels, timber panels, areas of textured render and glazing has been selected so that buildings form a harmonious relationship with their rural setting.

2.3 Training House

a. The Training House comprises a full size, covered, synthetic football pitch, wet and dry fitness facilities, sports injury treatment rooms, changing facilities and ancillary accommodation.

b. The ground level of the Training House has been set at 118.5 metres, with the main training hall pressed into the contours by a maximum of 6 metres on the western side. The western side forms a grass bank, gently emerging from the landscape, from which the main roof vault springs to enclose the indoor pitch and create a protective colonnade on the eastern lee side of the building overlooking the Cedar Lawn. The colonnade forms the arrival space to the main entrance of the Living House. A pair of existing mature oaks form the northern gateway to the colonnade.

c. The gentle radius of the timber framed vaulted roof, spans across the covered pitch, providing a clear internal height of approximately 21 metres. This roof has been designed to settle within the level of the existing tree canopies when viewed across the landscape.

d. A computerised daylighting study is to be undertaken on the covered pitch area. If this should indicate that some areas of the pitch surface require additional or more even illumination, this may result in the possible introduction of a small number of translucent rooflights to the pitch roof.

2.4 Living House

a. The Living House is located to the south east of the Training House. The building will provide short stay residential accommodation for up to 300 visitors (in 150 twin occupancy). The Living House also contains dining and recreational facilities for visitors and two secluded gardens. The building is entered at a mid level (118.5 metres) and the accommodation rises four storeys above this level at its highest point.

b. The Living House forms a belvedere set within placed and between the existing group of mature oak, ash and cedar trees. The accommodation will enjoy views south and north along the Lin Brook valley. Shaped in plan as two interlocking cupped hands, the buildings form stepped courtyard gardens, contoured to flow with the existing site slope and create special contemplation spaces for the students and players to enjoy. Set within the elite players courtyard is a dining and meeting tabernacle. The elite players lounge areas are set at the lower courtyard level and also open out onto a new belvedere lawn with southerly views to the valley and lake. The lounge area for the student accommodation is set at the upper courtyard level and opens onto the Oak Lawn defined at its southern edge by the existing stone ha-ha. The colonnade along the south gable of the Training House also looks onto the Oak Lawn within which the existing mature oak acts as a centre piece.

2.5 Learning House

a. The Learning House is a two storey building comprising office accommodation for 75 staff, seminar and teaching accommodation and media briefing facilities for television, press and radio media.

b. As with the Training House the Living House has been pressed into the site contours with a grass bank rising to first floor level, creating a natural point of entry for the media from the west.

c. A glazed mews links the activities of the Learning House and a winter garden at the southern end of the mews looks onto a newly planted tree copse.

2.6 Other Buildings

a. To the north west of the main building complex are three dwelling houses. These will provide family accommodation for essential on site workers. Consideration has been given to housing 'essential on-site workers' and their families in the 'Living House'. However, the short stay visitor accommodation provided in the Living House is not appropriate for permanent family accommodation needs. This part of the accommodation has been designed as a courtyard sited to relate to a group of existing oaks. Ancillary space required for ground maintenance and mechanical plant accommodation forms part of this group.

b. A stand alone kit research pavilion is locate beside the north east corner of the Training House.

c. Five 'dirty seminar rooms' are located adjacent to the main groups of outdoor pitches. These facilities will be used for briefings and discussions held during training sessions. These buildings are relatively small structures designed to cater for small training groups (up to 25 people) and are sited to merge with the landscape.

d. Other miscellaneous buildings include an energy generation house, fuel store, water storage facilities and a sewage treatment works. Details of all buildings and structures indicated here have not been submitted as part of this application. These facilities are generally buried, and full details will be submitted in due course.

e. Details of the essential on-site workers dwellings, storage buildings, dirty seminar rooms and kit research facility have not been submitted as part of this application. Approval is sought, at this time, for the siting, footprint and massing of these buildings. The detailed appearance and form of these buildings will be controlled by means of a planning condition and detailed plans, sections and elevations will be submitted in due course.

2.7 Pitches

a. The National Football Centre proposal comprises one covered synthetic pitch, four outdoor grass pitches, two outdoor synthetic pitches and two flexible training areas.

b. A group of three pitches are located to the north of the site for use in the main by the Under 21 team or alternative team in training. One of these pitches is an synthetic pitch. Each pitch is set onto a separate level plateau. These plateaux each step down towards Lin Brook responding to the natural contours of the site. The group comprises two natural grass pitches (Op 1 and Sec 2) and one synthetic pitch (Syn 2), each 119 x 69 metres with a 5 metre margin.

c. A further group of three pitches and a goal practice area is located to the south of the site, to the east of the Kidney Plantation. These pitches are the 'Elite' rehearsal pitches. These pitches are set within the lee zone of the existing plantation of trees known as the 'kidney plantation' offering a natural shelter from the wind. The plateaux are set into the natural contours of the site leaving the steeper slopes below the existing oak copse intact. The group comprises two natural grass pitches (Elite and Sec 1), one synthetic pitch (Syn 1) and a natural grass goal practice area. The Elite pitch is set on a plateau 105 x 69 metres with a 5 metre margin. The Sec 1 (secluded) and the Syn 1 (synthetic) pitches are each 119 x 69 metres with a 5 metre margin. The goal practice plateau is 85 x 66 metres with a 3 metre margin.

d. Also to the south of the site are three 'flexi pitch' areas which can be used in a variety of configurations for training exercises.

e. Each pitch is served by a narrow track surfaced with grass and gravel to provide access to the pitch accommodation of 'dirty seminar room'. The pitch accommodation comprises a half time discussion/playback facility and toilets.

These small 'buildings' are buried into the landscape to visually reduce the impact with only the entrances visible below a grass roof.

f. Other pitch equipment such as dug outs and goal posts will be stored within the maintenance area to the north west of the main Training House next to the staff houses.

g. The pitches have a sophisticated construction, comprising drainage, under-soil heating and a waterproof membrane that will enable water recycling to be undertaken. The recycling of water from the pitches will be supplemented by the use of rain water run off and grey water recycling from the main buildings on site, and forms part of the sustainable irrigation system which is employed on the site.

h. Due to the specialist nature of the pitches materials will need to be imported for both the grass and synthetic pitches. For all pitches a drainage medium will be required as the foundation and on this for the synthetic pitches a carpet will be laid and for the grass pitches specially formulated topsoil. For the flexi pitches it is hoped to incorporate some of the topsoil existing on site suitably modified. The depth of construction of the pitches will vary from 300 to 500 mm in thickness.

i. A major earth moving exercise involving approximately 175,000 cubic metres of topsoil and subsoil will be necessary to create the plateaux for the pitches. All surplus material left as a result of the balance of cut and fill which is unsuitable for the sub structure to the pitches will be used for landscape ground modeling and none taken off-site. The earth moving will be undertaken with the minimum of disturbance to the surrounding landscape areas. The approximate area of cut and fill operations is illustrated on drawing number (0-)L002. The area of landscaping will be slightly greater to incorporate surplus topsoil.

j. The earthworks operations will be carried out by an experienced earthworks contractor who will be required to prevent nuisance from dust and noise and to protect the Lin Brook and the lakes from pollution.

2.8 Lighting

a. The levels of illumination and uniformity of that illumination play a key role in the success of the external pitch illumination. The figures below are taken from Sports Council and CIBSE design documents for football pitches with facilities for video recording.

i. Design illuminance – 500lux in the vertical and horizontal plane.

ii. Design uniformity – 0.7 across the whole pitch.

b. Design Usage - It is envisaged that the floodlit pitches will be in use on average twice a week to at the latest 9pm. The usage may vary but the latest time would be to simulate an evening kick off for a winter fixture.

- c. **Pitch Floodlighting** - The design must be such that it will enable the floodlighting to work effectively but with the floodlighting columns being as low as possible to reduce the impact on the local landscape. It is envisaged that the columns be a maximum of 20 metres including the head frame. This would enable the pitch to be adequately lit but reducing the size of the columns and head frame will lessen the permanent intrusion on the landscape to a minimum.
- d. Therefore ideal design solution would be for each floodlit pitch to have 6 columns with a head frame of 8 luminaires in a vertical orientation. To limit the overspill and glare the individual luminaires will be photometrically profiled and aimed. The limit of the overspill is intended to be 5 metres outside the pitch plateau at a reduced level.
- e. A computerised daylighting study is to be undertaken on the covered pitch area. If this should indicate that some areas of the pitch surface require additional or more even illumination, this may result in the possible introduction of a small number of translucent rooflights to the pitch roof.
- f. At this stage, initial appraisals indicate this should not be necessary. We will of course keep the Local Planning Authority informed of the final outcome.
- g. **Floodlighting Columns** - The columns would be a fixed static type located at the perimeter of the pitch plateaux. The columns would be constructed of a material that would enable the columns be slimline but strong enough to carry the weight of the luminaires.
- h. The columns will be of a colour that blends in with the local environment and background. Therefore where the background is dark such as wooded areas then the columns would be a similar colour.
- i. **Head Frames** - The floodlighting head frames will consist of 8 luminaires in a vertical orientation of 2 luminaires wide and 4 luminaires high. This will give a design that suits all aspects lighting requirements but also reduces the visual impact of the columns. In this orientation the luminaires can be carefully controlled to minimise all aspects of light pollution.
- j. The luminaires will be a photometrically profiled type such as the Phillips Optivision.
- k. The pitches themselves will not be fenced off with conventional type sports fencing. Instead number of 'ball catcher' type framed nets up to 6 metres height will be used at the rear of goal areas and along the lower slopes of the plateaux. These nets will be fine black mesh similar to golf driving range nets which are virtually invisible when viewed from a distance and integrate well into the landscape.

2.9 Access and Parking

- a. A Transport Impact Assessment has been produced for the site and agreed with the Highway Authority (Staffordshire County Council). The TIA has been submitted as part of this planning application.
- b. The main access to the site is taken from the B5234. Preliminary designs for the site access have been discussed and commented upon by the Highway Authority. Detailed design for the access is ongoing.
- c. From the site access, a vehicular route winds its way towards the heart of the site, avoiding groups of trees and important individual specimens. The road will be five metres wide surfaced with tar spray and chip, which is suitable for a country estate.
- d. There are three car parking areas giving a total of 250 spaces. These car parks will be surfaced with reinforced grass and gravel with an informal arrangement to integrate into the rural landscape of the park. Trees will be planted throughout to reduce the visual impact particularly when the car parks are fully occupied. The car park areas are located to avoid any existing trees.
- e. Other routes through the site (buggy tracks) will be 2.5 metres wide and be designed to have the appearance of farm tracks, with a central grass strip. The buggy tracks will not result in any tree loss, and follow the alignment of an existing track where they pass through the Kidney Plantation.
- f. One helipad will be provided immediately adjacent to the airfield to the north west of the site. This will not result in a new use or impact in the area, and will represent a relatively minor increase in the level of usage.
- g. The helipad will be used occasionally for specific events and in agreement with the Civil Aviation Authority due to the close proximity of the adjacent airfield. The helipad will be sited in the location utilising the existing hard surfaced 'aircraft turning circles' used during the Second World War. These are located at the north western boundary to the site.

2.10 Areas to be retained in Agricultural Use

- a. There are two areas within the ownership of the Football Association which will be continue in agricultural use. These will be fenced off with traditional stockproof type timber post and wire fencing with field gate access between each area. Each area will be leased to the previous landowner farmer who will graze sheep and cattle.
- b. The areas are located as follows:
 - i. North west area -- this field enclosure will occupy an area to the west of the new access road and follow the western boundary of the site, and running south of the North Lodge. A field gate will be located along the boundary to the access road to allow stock to be moved between the two fields.

ii. Eastern area – this field enclosure will occupy most of the land to the east of Lin brook within the Football Association ownership boundary. The fenceline will run approximately 15 metres parallel to Lin Brook with a break line for access by the Football Association to walk up to the Wellingtonia stand on the hill south east of the brook. The fence will run along this access to keep the field fully separated from this 'field footpath'.

2.11 Landscaping and Other External Works

a. In order to ensure that the development blends in with the surrounding landscape, earthwork contours have been designed to take on a natural appearance and will be supplemented by specimen tree planting and shelter belt planting. Full details of these works are provided on the main site Masterplan, site Cross Sections and on the Landscape Strategy Plan.

b. A number of new permanent pond features will be created in one of the natural hollows of the site to promote habitat creation. These will not be used as balancing ponds to avoid excessive freeboard fluctuation. The ponds will add to the nature conservation value of the site.

c. Stock proof fencing will be provided to adjacent to the areas of the site which are to be retained in agricultural use. The position of the stock proof fencing is illustrated on the Masterplan, and details of the fencing will be submitted for approval in due course.

d. There will be no security fencing around the perimeter of the site. There will be a security barrier sited along the access road with intercom and CCTV connection to the reception desk in the main building. Office staff will have swipe cards to enable access as part of their daily routine.

e. There is a pitch and putt course and two synthetic tennis courts proposed in the area to the west of the Training House and the staff houses. The pitch and putt course will be a 9 hole course set within the existing grove of oak and sycamore trees. It is intended to minimise disturbance to this area by creating mainly grass fairways and limiting hazards to small sand bunkers around the greens only. Detailed design proposals for the pitch and putt facility have not been produced at this time, however, the Masterplan identifies its location. It is proposed that detailed layout issues be controlled by planning condition.

f. Two standard tennis courts surfaced with synthetic 'savanna grass', located next to the maintenance area and staff houses. Fencing will be black mesh type to minimise the visual impact with new reinforcement tree planting to the surrounding area within the character of the existing native species.

2.12 Summary

a. This section of the report describes the facilities which are to be provided at the National Football Centre and their proposed disposition around the site.

b. The next section of the report describes the planning policy context within which the proposal will be assessed.

3.0 POLICY CONTEXT

3.1 Introduction

a. The Staffordshire Structure Plan and the East Staffordshire Local Plan, are the relevant Development Plans. The approved Staffordshire Structure Plan 1986-2001 has been under review since 1997 starting with the release of a Consultation Draft Plan in October 1997. The Structure Plan has been prepared jointly by Staffordshire County Council and Stoke-on-Trent Council. It provides a comprehensive, sustainable strategy that relates to land use, transportation and the environment and is in accord with European, national and regional guidance.

3.2 Staffordshire Structure Plan

a. The Staffordshire Structure Plan 1986-2001 has the following policies that are relevant for the development of the sites:

Environment/Agriculture/80: Favourable consideration will be given to the conversion of redundant farm and other rural buildings for the purposes of recreation, tourism, nature conservation and rural employment

Environment/Trees, Woodlands and Forests/83: Its aim is to conserve and increase tree and woodland cover in both the urban and rural areas of the county.

Environmental Improvement/103A The aim is to establish initiatives to rescue and conserve historic landscapes which include scheduled ancient monuments, historic parks and gardens etc.

3.3 East Staffordshire Local Plan - Aims and Objectives

The Borough has a rich natural and historic heritage with a beautiful countryside and historic towns and villages. The Borough Council is committed to protecting and enhancing the heritage of East Staffordshire. The aim is to keep an "attractive, diverse, high quality, accessible, thriving and environmentally healthy countryside." At the same time it will allow development to take place in order to maintain and strengthen the local economy.

3.4 Relevant Policies

a. Environmental policies aim to improve all areas of the Borough, protecting the best of the area's heritage of buildings and countryside and ensuring that when the new development takes place it will enhance the area.

b. The policies that are relevant are:

i. The Natural Environment

En 3 To ensure high design standards, adequate open space and landscaping requirements as set out elsewhere in this Plan, the Borough Council will either prepare detailed design briefs for major

and sensitive development sites, or require the developers to prepare them for the Council to agree.

En 6 Within the Special Landscape Areas development will not be allowed which would adversely affect the quality in these areas.

En 9 A high standard of design, materials and landscaping will be required for development flanking the main traffic routes through the Plan area.

ii. **The Built Environment**

En 19 All public and private buildings that will be visited by the public (including employees) should be designed so that they are accessible to the disabled. This should include level or ramped approaches facilitating wheelchair access with suitable signposted car parking spaces and routes for disabled people.

iii. **Landscape Design**

En 30 Throughout the Borough established trees will be retained wherever possible and Tree Preservation Orders made where necessary.

En 31 Development schemes proposing the retention of existing trees on the site need to include detailed proposals for the protection of these trees during development, to the appropriate British standard, currently BS5837.

En 32 The Local Planning Authority will require a detailed landscaping scheme to be submitted and approved before development commences.

En 33 The Borough Council will include conditions on planning permissions requiring landscaping associated with the proposal to be completed concurrently with the appropriate phase of development, and thereafter to be maintained for a specific period.

iv. **The National Forest**

v. The development site is part of the National Forest that encloses 194 square miles of the East and West Midlands including some 40 square miles of the Borough. Burton upon Trent to the east of the Site is the largest town within the Forest. The development site lies to the south of the B5234 and is part of the Needwood Forest. To the east lies an airfield. The whole area site is designated as Special Landscape Area.

vi. Needwood Forest is a landscape of strong unity and historic character. The approach here is to enhance the existing landscape which should result in a mix of forest planting and rural farmland, new estate forestry, farm woodlands and shooting woods blending

with ancient woodlands as well as hedgerows trees and replanted parklands. It should develop into an area which provides an extensive network of forest trails and paths.

En 36 The Council will have regard to the National Forest Strategy published by the Countryside Commission in 1994 and assist in its implementation wherever possible.

vii. **The Countryside**

En 37 The Council will seek to conserve and enhance the landscape and character of the countryside. Planning permissions will not be granted for development that would result in the loss of trees, hedges or other features which contribute to the character of the landscape.

viii. **Pollution**

En 41 Planning permission will only be granted if adequate arrangements for foul sewage, trade effluent and surface water are made.

3.5 **National Forest**

a. The Borough Council aims to ensure that new investment in this area is complementary to the protection and enhancement of its natural environment. Therefore the Local Plan identifies those parts of the Forest where development would be acceptable, the form that the development could take and the contribution the development should be expected to make to the continuing improvement of the Forest.

b. The Borough Council welcomes developments if the following policies are met:

NF 1 Planning permission will be only be given to developments of high quality which should reflect the local architecture and the Forest setting.

NF 2 In assessing the adequacy of a planting scheme for individual development proposals, the Borough Council will have regard to the existing landscape character, the extent to which planting guidelines are followed, constraints, the approach to the setting and the type of development.

NF 4 Implementation of planting and landscaping schemes for approved new development will be secured by means of conditions, or the negotiation of a planning obligation Agreement, or a combination of those measures appropriate to the individual circumstances of the application.

NF 5 The Local Planning Authority will seek to negotiate an Agreement with the developer to make secure arrangements for the management and maintenance of such landscaped areas.

NF 7 The Council supports proposals for the change of use of existing buildings for appropriate Forest-related development.

NF 8 Planning Permission will be granted for the re-use or adoption of a rural building if the proposal is sympathetic to the Forest character and it conforms to the policies of the Local Plan.

3.6 Rural Employment

E24 The Council will approve small scale, local employment if it fulfils certain criteria.

3.7 Environment and the Environment

E26 Planning permission will be granted if the development is well designed, provides adequate servicing and car parking spaces and provides a comprehensive landscaping scheme.

3.8 Landscaping and Open Space

L11 The Council will only give permission for the development of tourism and outdoor leisure activities in the rural areas of Needwood ... where its scale, intensity of use and location are in keeping with the character and appearance of the surrounding countryside.

Local Plan Review Draft Deposit-February 2001

3.9 The East Staffordshire District Local Plan is currently undergoing a review and a revised version of the Local Plan was placed on deposit in Spring 2001.

3.10 The following policy changes which are of relevance to the proposed National Football Centre are as follows:

a. Landscape Protection

NE4 (former En 6) Proposals for development within East Staffordshire should be informed by and be sympathetic to the character of the surrounding landscape, and should contribute to the regeneration, restoration, enhancement, maintenance or active conservation of the landscape.

b. Landscape Design

NE13 (former En 30 / En 31) **NE14 (former policy En 32 with a few amendments in the explanation of the content of the policy)**

En 33 This policy will be incorporated in the Supplementary Planning Guidance

En 36 This policy has been deleted as it repeats the provisions of other policies on the National Forest

En 37 This policy is covered by policy En 6 and En 32 and has therefore been deleted.

NE24 (former policy 41 with a few changes in the description of the policy)

c. Built Environment

BE1 The Borough Council will approve applications for development which respond positively to the context of the area surrounding the site of the application and in themselves exhibit a high quality of design which corresponds to or enhances surrounding development. Such considerations will apply equally to new development and development which involves the re-use of existing buildings. The developer must prepare a detailed design statement involving the layout, the density, heights, materials etc.

BE2 former NF1

BE5 (former policy text En 19 has been changed completely) Permission for non-domestic developments will only be granted where appropriate provision has been made to allow people with restricted mobility to gain access to the premises as customers, visitors or employees.

BE16 (former NF 8) The former policies NF 2, NF 4, NF 5 and NF 7 have been canceled.

d. Rural Employment

E18 the policy content of former policy E24 was extended.

e. Employment and the Environment

E21 (former policy E26) with the addition that all developments have to be in accordance with BE1

3.11 Planning History

a. The most relevant element of the planning history is the outline planning permission which was granted in 1989 for the development of two 18 hole golf courses, a 150 bed hotel, leisure and conference facilities and 29 detached dwelling houses.

b. This outline approval has been periodically renewed since 1989. It is understood that an application to renew the consent is currently lodged with ESBC.

c. In considering the environmental impacts which may arise as a result of the National Football Centre, the consideration of alternative development scenarios should be taken into account. This would include the possibility of the 1989 approval being implemented.

4.0 **ANTICIPATED ENVIRONMENTAL EFFECTS LIKELY TO ARISE AS A RESULT OF THE DEVELOPMENT**

4.1 This section of the report reviews the anticipated environmental effects which are likely to arise as a result of the proposed development. The anticipated effects have been broken down into the following sections:

- a. The direct effects of physical development upon the site.
- b. The effect of physical development upon the visual amenity of the area.
- c. The effects which are likely to arise as a result of the use of the site, in terms of noise, vibration, the effects of human activity, light pollution, air pollution and drainage and irrigation.
- d. The effects of land contamination and land which may already be contaminated.
- e. The effects of construction.

4.2 **Physical Development**

a. Figure 3 illustrates those areas of the site which will be affected by physical development. These are the areas of the site which are to be disturbed due to the construction of buildings, roads, playing pitches, associated earthworks and the creation of new water features.

b. Within the areas affected, the existing habitat will be lost. The Masterplan has been deliberately developed to minimise the areas affected and to ensure that those areas which are affected by physical development are the least sensitive in terms of their environmental and ecological importance.

c. In particular, veteran trees, mature trees and significant groups of trees, areas of unimproved, species rich grassland, water features and features of historic importance have been retained unaffected by development. These ecologically and historically important features are considered in detail in Section 5 of this report.

d. Physical development may also have indirect impacts upon features of acknowledged importance. For example, a lost habitat may affect the food source for fauna foraging on the site.

e. Where indirect impacts are likely to occur, they are discussed and considered at Section 7 of this report.

4.3 **Visual Impact**

a. Visual impacts arising from the development of the National Football Centre include the following:

- i. The effect of new buildings;
- ii. The effect of earthworks and pitch construction;
- iii. The effect of roads and tracks within the site;
- iv. The effects of equipment such as floodlights, dug outs and goal posts etc.

b. Careful consideration has been paid to the visual impact of the proposal. In order to minimise the visual impacts arising, the following measures have been incorporated:

- i. Careful consideration has been given to the siting of proposed buildings.
- ii. A palette of materials has been selected which complements and blends in with the surrounding landscape.
- iii. Roads and pitches have been sited so as to fit within the existing topography of the site.
- iv. The contours of new earthworks have been 'naturalised' to prevent them appearing alien or artificial.
- v. Portable external equipment (dugouts, goalposts etc) will be portable, wherever practicable. These facilities will therefore only have a visual impact when in use.

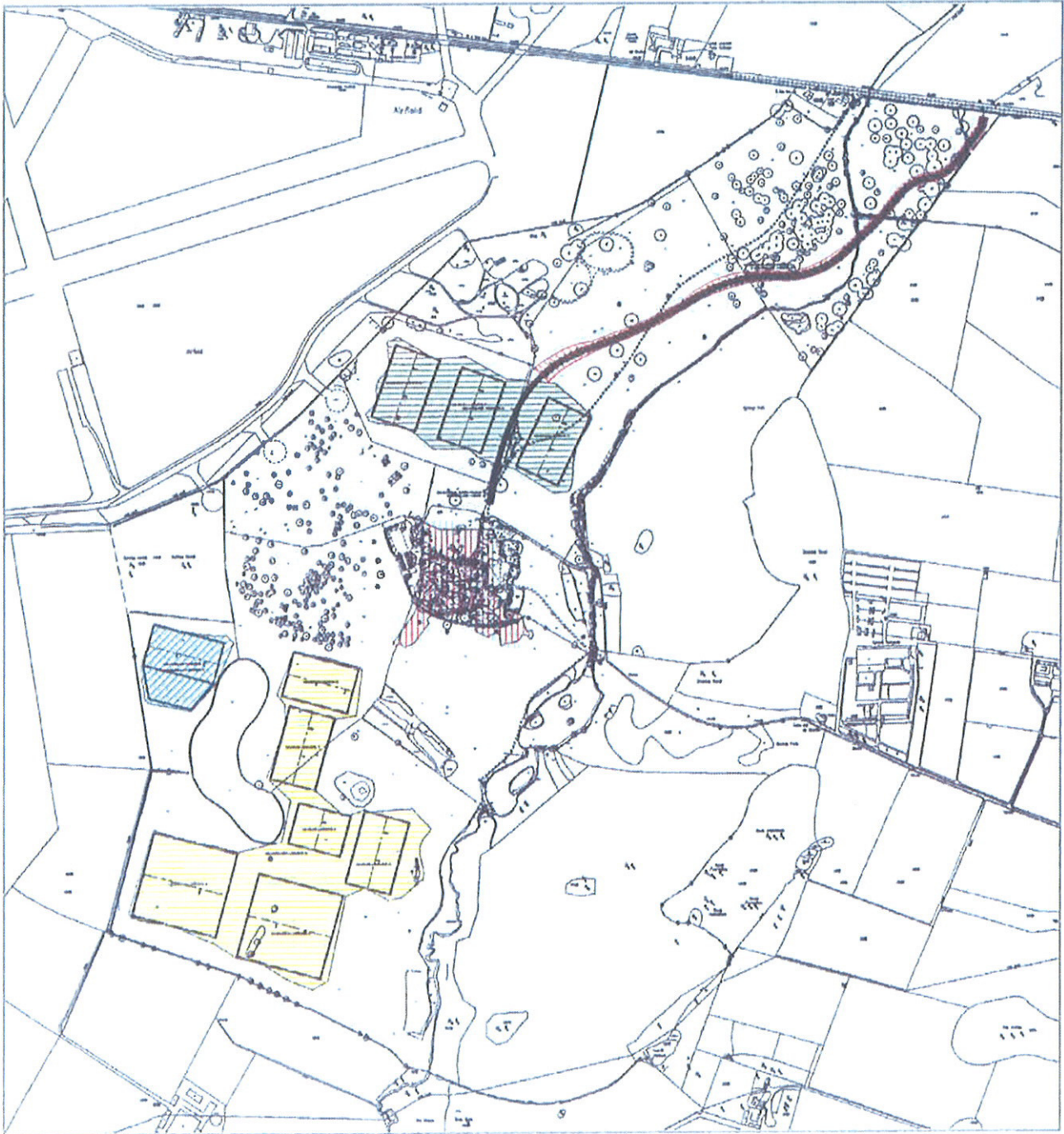
c. A visual assessment has been undertaken to determine the extent of the current baseline site visibility. The standard two stage practice of establishing the zone of visual intervisibility (ZVI) together with an appraisal of existing views into the site has been adopted for this assessment. The extent of the ZVI is considered in detail in Section 6 of this report.

d. The site is relatively contained by surrounding woodland blocks, tree groups, dense hedgerows and the topography of landscape. Therefore the ZVI does not extend beyond the northern and western boundaries other than in localised places where there is a break in hedgerow.

4.4 **Effects which are likely to arise as a result of the use of the site.**

a. The following potential effects arising from the use of the site have been assessed and appraised:

- i. Noise and Vibration
- ii. Physical Impacts of Human Activity
- iii. Air Pollution
- iv. Light Pollution



Areas of Site Physically Affected by Development

Fig 3

The National Football Centre

Environmental Assessment



v. Drainage and Irrigation

- b. Each of these potential impacts are considered in turn.

4.5 **Noise and Vibration**

a. Noise and vibration emissions from site equipment include: vehicles using the new access road, occasional helicopters, mechanical and electrical equipment from fixed plant serving the main building and ground maintenance vehicles such as sit-on mowers.

b. **Vehicles on new access road** - The predicted number of vehicles (including private cars, mini buses and coaches) using the new access road into the site is relatively low. The majority of students and players are likely to arrive or leave outside usual rush hour periods, since course programmes tend to reflect a start time around mid-day or 4 p.m. The closest properties to the new access road are Linbrook Cottage and North Lodge which are situated close to the B5234 and lie approximately 200m away from the new site entrance. Since these properties are exposed to traffic noise from the B5234, the additional traffic associated with The National Football Centre is unlikely to significantly change the existing noise levels near these properties.

c. **Helipad** - The level of helicopter activity associated with the National Football Centre is predicted to be very low at about five landings per week.

d. The existing airfield, lying close to the site boundary, receives fuel by helicopter approximately seven times a week and there is no fixed pattern to deliveries.

e. Although the combined number of helicopter landings from the airfield and football centre may effectively double the existing number of helicopter movements in the local area, the landings will be dispersed, following no regular pattern and the change is only marginally significant.

f. The only change that may cause a significant impact would be if helicopters started landing or taking off regularly during night-time hours. Therefore it would be reasonable to apply a management policy that restricts helicopter movements to day-time hours.

g. **Building services fixed plant** - Mechanical and electrical services may produce noise and vibration. However since the main building is in the centre of the site and therefore remote from any sensitive receivers, noise and vibration from this equipment is not likely to be an issue.

h. It will be necessary to limit plant noise and vibration levels so as not to affect the residential facilities or other facilities on site.

i. **Ground maintenance vehicles** - Grass cutters and other maintenance equipment will be in frequent use during daylight hours.

j. Noise levels from a sit-on grass cutter have been measured at Lilleshall, and noise levels were found to be relatively low (less than 50dB $L_{Aeq(5mins)}$) with the

source moving within a range of 100m to 200m away from the measurement position.

k. Considering that the land use surrounding the site is agricultural and hence tractors are frequently in use, it is unlikely that noise from ground maintenance activities would be perceived to be a nuisance.

l. **Human Impacts** - In order to predict and understand the nature of outdoor football training sessions, a similar multi-sports training ground was visited at Lilleshall. Typically, each training session lasts approximately 1 hour followed by a short break for refreshments. The greatest part of the session involves a coach and physiotherapist demonstrating controlled skills, each lasting a short period (less than 1 minute), which are then repeated. The distance between coach and players is short (5 – 25m) and therefore the coach generally uses a raised voice, rather than shouting. Only half of the total football pitch was in use during training sessions and activities were observed at a position just outside the side-line. Noise level measurements were taken at a position on the side of the pitch approximately 25m from training activities and also at a further distance of approximately 50m from the pitch (75m from the training location). However, the more distant measurements were affected by grass cutting machinery and therefore, rather than showing lower noise levels, they actually show slightly higher levels. The data relating to grass cutting noise is still considered useful as it captures a typical site activity that will occur regularly.

m. The average noise level results from these measurements were as follows:

	$L_{Aeq}(5minutes)$	$L_{A90}(5minute)$	L_{Amax}
25m from training activities @ side of pitch.	48.5	40.1	67.1
100 to 200 from sit-on grass cutter (mobile source).	48.7	41.6	63.1

n. The above results confirm that noise levels from training activities are generally very low.

o. However, it is understood that hired PA equipment is used at Lilleshall to amplify the coach or referees voice.

p. At the new centre, fixed PA equipment is likely to be installed at the side of each pitch and in order to establish the likely noise emissions it is proposed to return to Lilleshall when equipment is on hire. The baseline noise levels taken in and around the site will also be considered in determining a suitable specification for fixed PA equipment. The nearest sensitive property is Lower Linbrook Farm, situated approximately 150m from the closest football pitch. Measures to reduce the noise levels received at this property are likely to include directing speakers away from the southern boundary, and limiting overall noise levels produced.

The landscaping between the pitches and this property will also include a 2.5m high earth bund approximately 20m wide, surmounted by trees.

q. **Physical Impacts of Human Activity** - The use of the external areas of the site, will result in a limited degree of physical compaction and erosion of earth and fauna. Training activity will focus upon external and internal pitches, although open areas of the site may be used for running etc. Considering the number of players using the National Football Centre, and the area of land available, it is likely that the scale of physical impact likely to arise as a result of training activity will be less than that experienced if it were to remain in agricultural use.

r. A nine hole pitch and putt course is proposed for use by residents at the centre. The facility will be located to the east of Byrkley Gorse. The course will be low key and will be established between existing tree positions with a minimum of disturbance to the character of the grassland habitat.

s. The fairways and greens will be sensitively integrated within the natural contours of the site.

t. Hazards such as bunkers will be limited to reduce the visual impact of the course.

4.6 **Air pollution**

a. Air Quality in the Burton upon Trent area is generally good, although it is affected by emissions from Birmingham and other urban centres in the West Midlands.

b. No Air Quality Management Areas have been declared in the East Staffordshire Borough area.

c. The potential for air quality impact associated with the proposal would be limited to the effects of increased traffic to and from the new residential area, and the potential for dust emissions during the construction phase.

4.7 **Light Pollution**

a. At present there are no sources of artificial illumination on site.

b. Sources of light arising from the proposed development include:

- i. Pitch floodlighting
- ii. Lighting on the access road at the site entrance.
- iii. Low levels of light spilling out of buildings on the site.

c. The success of the National Football Centre will be dependent upon the provisions and facilities made for the footballers, coaches, trainers and the worlds media. Not least of these facilities will be the artificial lighting of the training facilities and pitches both internal and external. This report confines itself

to the external lighting considerations, a similar report will be produced for the internal lighting provisions.

d. Whilst many hours of training and football will be carried out using natural lighting as the sole illuminant, nevertheless with the prevailing overcast sky conditions of the United Kingdom, there will equally be a high demand for the artificial lighting of these facilities even during day-light hours, examples are overcast autumn, winter and spring afternoons. Obviously outside of daylight hours, artificial lighting will be the only illuminant available.

e. Good lighting is a pre-requisite for the success of any football match or training activity - whether it is carried out in during daytime, night-time or a combination of both. The design and characteristics of lighting introduced into the centre and facilities must provide the best possible conditions for the multiple football pitches, spectator and media functions. These same lighting systems and philosophies must also contribute to the surrounding environs in a positive rather than deleterious manner and contribute to the rural location of the area, considerate to neighbours, the surrounding environs and the national need to limit obtrusive light.

f. A balanced and sensitive approach must therefore be integrated into the lighting design and the solutions to be adopted for implementation. Consideration must be given to all aspects of lighting such that the centre when in its various operational modes is an environmental asset to the area as well as satisfying the needs of a national football centre with all its attendant needs.

4.8 **The need for good lighting**

a. Football at any level is a fast and skillful game. At national and international level the skills and fitness standards of players are extraordinary. The tactical, strategic and physical skills of individual and collective members of teams require immense concentration, instancy of decision and speed of physical response. It is these attributes that make football such an exciting sport not only for player but for also for spectators be they present at the game or viewing using TV and film media.

b. Football is also a physically demanding contact sport where even small errors of judgement or decision by players can give rise to serious injury. Injuries that at worst can end a players career or cause long-term absence.

c. The need for good lighting is obvious from the players, trainers and coaches point of view. Artificial lighting systems provided must promote players skills at the highest possible level, minimising injury risk by the implementation of lighting to produce excellent viewing . These same lighting systems must also produce excellent viewing conditions for spectators.

d. Artificial lighting must also provide excellent viewing conditions for film and TV media both for live transmission and for recording. Within a national football centre the film or video recording of matches and training sessions is essential to provide interrogative and feedback facilities to trainers, coaches and players.

e. With the rural and open site location of the national football centre artificial lighting must also meet the functional, operational, amenity and social needs of neighbouring businesses, facilities and residencies.

f. These 'good lighting' requirements are not necessarily the same for all user groups. However, the holistic approach being taken for the lighting design will allow the provision of lighting to satisfy the varying needs of the national football centre without incursion on the amenity or habitats of the surrounding areas and environs.

4.9 **Lighting Design Parameters**

a. The lighting design parameters for the national football centre include quantitative and qualitative aspects. These will necessarily include:

- i. Illuminance
- ii. Uniformity
- iii. Luminance
- iv. Colour Appearance
- v. Colour Rendering
- vi. Glare
- vii. Contrast
- viii. Obtrusive Light Limitation

b. The above indicate the physical and subjective lighting considerations and are dealt with individually below.

4.10 **Illuminance**

a. Illuminance levels for football pitches vary between 150 lux for small clubs to 250 lux for senior league clubs. The requirement for television broadcast varies dependent on the camera positions and distance to the pitch. Typical illuminance values for TV broadcast are:

- i. 750 lux
- ii. 1000 lux
- iii. 1400 lux

b. These values generally refer to the vertical or near vertical plane.

c. In consideration to the national and international use of the national football centre, the need for TV and film broadcast and rural nature of the surrounding areas the following illuminance value is proposed.

- i. 500 lux TV/Film broadcast or recording

d. This value refers to the maintained illuminance, the initial illuminance being nominally higher. It is expected that maintenance of the lighting systems will be good. Both spot replacement of premature failed lamps and bulk lamp replacement are anticipated, bulk lamp replacement being carried out to ensure a maintenance factor greater than 0.9.

e. The plane of measurement refers to both the horizontal and vertical planes.

f. The area over which the average illuminance extends will include the whole of the playing area with a reduced illuminance of 250 lux maintained average across a five metre strip immediately adjacent to the touchline. Spill light will be required to illuminate the ground horizontal plane outside of the playing area and five metre strip. This spill light is necessary to allow retrieval of footballs kicked into these areas and to illuminate spectators and generally reduce the contrast between playing area and surrounds. Illuminance of surrounds will generally be in the range 10 - 20 lux average for a depth of 20m from the touch line.

4.11 Uniformity

a. Irrespective of whether TV/Film or non TV/Film recording is being carried out, it is essential that a high level of uniformity is achieved across the illuminance reference plane.

b. The objective uniformity proposed for the national football centre is:

- 0.7 across reference playing area
- 0.5 across 5.0m adjacent strip
- 0.2 across 20.0m surrounding area

4.12 Luminance

a. Luminance is not a physical quantity prescribed for football pitches. However it is still the physical quantification of the subjective sensation of brightness. It will depend upon the playing surface i.e. natural or synthetic turf, the reflectance of these surfaces, and whether wet (semi-specular) or dry (semi-matt).

b. With an illuminance value of range 500 lux it is anticipated that the corresponding range of luminance will be:

- i. 30 - 50 cd/m²

c. This physical property is generally outside of the control of the lighting designer and is a consequence of other factors. It is important however that it is able to be predicted as it is the characteristic that is perceived by players, coaching staff, spectator and from the surrounding environs. Its final evaluation will be carried from physical measurement of other installations.

4.13 Colour Appearance

a. It is important where TV/Film broadcast or recording is carried out through the day into the night period that the correlated colour temperature of the luminous flux is in the range 4000⁰ K - 6500⁰ K. This is to minimise the apparent colour change when the daylight component is removed.

b. For the national football centre a correlated colour temperature of 4000⁰ K - 5600⁰ K is proposed. Commercially available lamps are available in these correlated colour temperatures, the 5600⁰ K offering improved colour rendering, albeit at some loss of efficacy and luminous flux.

c. It is proposed that the final choice of lamp correlated colour temperature is made following site comparison tests.

4.14 Colour Rendering

a. Colour rendering is important to football. Recognition of the colours of the football strips being worn, similarity of recognition when matches extend through daylight into night and the quality of the illuminated scene perceived when lamps with good colour rendering properties are used.

b. Lamps are proposed for the national football centre that are within the Colour Rendering Group 1A ($R_a \geq 90$) or Group 1B ($R_a \geq 80 \geq 90$). Both are available commercially. Lamps within Group 1A tend to have a correlated colour temperature of 5600⁰ K, thus better portraying and simulating the characteristics of daylight.

c. It is proposed that the final choice of lamp colour rendering characteristics is made from comparison tests, where correlated colour appearance is also considered.

4.15 Glare

a. The limitation of glare is essential to players, coaching staff, spectators and to the surrounding environs. Its control will be by careful location and mounting heights of floodlights, aiming angle of floodlights, intensity distribution and photometric control of emitted luminous flux.

b. Cut-off cowls can be attached to floodlights to further assist in the limitation of glare, however with modern lamp technology and optical design, the addition of cowls and other screening devices is seldom required.

c. The six column array currently proposed for the lighting of the selected pitches with maximum height of 20.00m satisfies the beam intensity angles to produce the required illuminance and uniformity across the playing surface. This array also produces the optimum angles (23 - 27⁰) to limit glare.

4.16 Contrast

a. Contrast across playing surfaces is an unwanted characteristic, pitches and training surfaces need to be uniformly illuminated. In their rural setting where the

ambient background light is low, it would look 'odd', when viewed from the surrounding environs, for these pitches and training surfaces to visually stop at the touchlines. It would make playing almost impossible, balls kicked past touchlines would 'disappear' into the blackness of the surrounding landscape.

b. The proposals for illuminating pitches and training surfaces provides for controlled spill light to illuminate the adjacent touchline surfaces and a defined area surrounding pitches. This treatment of adjacent surfaces provides the correct visual conditions to players and coaching staff and provides a soft contrast transition to the surrounding landscape producing visual pleasantness.

c. To produce a visually cohesive night-time scene it is important that pathways, buggy tracks, roadways and other amenity facilities are carefully illuminated. The same care in glare limitation will be applied to the lighting of these other amenity provisions such that the completed national football centre when operating in its various night-time modes is a visual asset to the surrounding environs.

4.17 **Obtrusive Light Limitation**

a. In lighting the national football centre for its various operational modes, cognisance has been given to the limitation of 'light pollution' and obtrusive light limitation.

b. Objective limitations have been considered for an E2 Environmental Zone (Low district brightness areas) and limiting obtrusive light values for this category environmental zone targeted. When the pitch and training surfaces are in night-time operation the limiting obtrusive light values may have to be considered as those for a E3 Environmental Zone (Medium district brightness areas). This limitation of 'light pollution' and obtrusive light limitation is an on-going design consideration and will be further reported as the design develops.

4.18 **Drainage and Irrigation**

a. Potential environmental impacts may arise from the use of water to irrigate pitches, and from the disposal of waste and run off from the site.

b. Careful consideration has been given to these issues in order to minimise any potential environmental impact.

c. On the site there will be a sustainable drainage system that will serve the living accommodation and from which water will be recycled to irrigate the pitches. There will be a mains water supply to the site that will provide potable water for the living quarters and other uses as required.

d. There will be a small sewage treatment works on the site, the effluent from which will be treated and stored in underground tanks for irrigation purposes, together with the run-off from the car parks suitably treated. There is a network of land drains existing on the site, and this will be extended to drain the pitches and adjacent banks. The water collected will be stored in the underground tanks and used to irrigate the pitches.

e. Rainwater from roofs will be collected and stored in a separate tank and used for washing and flushing toilets.

f. Water will continue to flow to the Lin Brook and the flow rates will be designed to be similar to those existing at present to prevent any increase in flooding downstream. Any water discharging to the Lin Brook will be treated to prevent pollution.

4.19 Land Contamination

a. A soils and groundwater investigation was carried out by URS Dames and Moore in February 2001. The objective of the investigation was to identify any residual contamination on the site due to the former gas works (domestic), aircraft aprons, the destruction of the lodge by fire, the munitions storage area and the buried animal carcass pit.

b. The report concluded that there is unlikely to be a requirement from the authorities to address the observed limited contamination. There is a recommendation in the report to remove the remains of the gas holder and to carry out some further exploratory investigations on the former munitions storage area.

c. These areas of ground contamination could potentially give rise to significant impacts to flora and fauna on the site, and potential to humans.

d. Appropriate remediation measures are proposed as part of this application to address these concerns, and are described at Sections 7 and 10 of this report.

4.20 Construction Effects

a. It is anticipated that construction will commence on site during September 2001 with an advanced earthworks contract. The centre is due to open in the summer of 2004. During this time, the level and nature of construction activity will vary in terms of its environmental effects.

b. Construction phase noise can arise from the use of construction plant, machinery and equipment and from vehicles bringing construction materials to and from the site. However, these effects would be temporary, lasting only for the duration of the construction phase.

c. Although considered in detail later in this report, these temporary impacts are not anticipated to be significant. This is due to the proposed location of construction activities in relation to neighbouring residents, the phasing of the development, the proposed construction methods and potential mitigation measures which could further reduce any insignificant impacts which may occur.

d. During the construction phase there is also the potential for temporary air quality impacts to arise associated with dust emissions and construction traffic.

e. The construction programme will be phased to ensure that any tree felling or demolition is undertaken so as to avoid impacts upon nesting birds or potential roosting bats (if current survey works shows bats to be present).

4.21 Conclusions

- a. This section of the report has highlighted the key sources of environmental effects which are to be considered in the Environmental Statement.
- b. There are no other anticipated environmental impacts which raise significant impacts in relation to the proposed development.

5.0 BASELINE ANALYSIS OF ENVIRONMENTAL RESOURCES AND CHARACTERISTICS

5.1 Introduction

a. This section of the report outlines the characteristics of existing environmental resources on the site. Particular attention is afforded to ecological resources (including habitats, flora and fauna) and features of the site which are of historic or archaeological importance.

b. Environmental resources and characteristics described in this section of the report comprise the following:

- i. Wood-Pasture areas
- ii. Grasslands
- iii. Woodland
- iv. Scrub and Hedgerows
- v. Wetlands and Water Features
- vi. Mammals
- vii. Birds
- viii. Amphibia and Reptiles
- ix. Fish
- x. Aquatic Invertebrates
- xi. Landscape
- xii. History and Archaeology
- xiii. Air Quality
- xiv. Light Environment
- xv. Noise Environment
- xvi. Demographic, Social and Economic Issues

5.2 The Wood-Pasture Areas

a. Sections A, B, C, J & F are included in this category (see Figure 2). Together they contain the majority of the 300 or so mature broadleaved trees recorded on the site and nearly all of the surviving ancient trees. Individual tree descriptions are provided in a separate report.

b. The trees are the main feature of interest within all the wood-pastures. The trees of great age (estimated as 400-500 years) are readily identifiable by the diameter of the trunks, which is, in most cases, 2-3 metres. In nearly every such tree, there is crown damage, often giving the tree a "stag-headed" appearance, as well as dead, sometimes detached boughs, and sometimes loss of bark. Such "Veteran Trees" provide irreplaceable habitat for certain specialised invertebrate and epiflora (lichen, bryophyte) species. The value of such trees is becoming more widely recognised and appreciated as their numbers decline, and with them the populations of dependent flora and fauna.

c. It is relevant to note that the UK holds more than 80% of the Veteran Trees of Western Europe.

d. Byrkley Park contains 19 trees (see Figure 4) which have been identified as Veteran Trees in the recent East Staffordshire Parklands & Wood-Pasture Survey (Bowler & Webb, 1999). This included land in Byrkley Park which is outside the area covered by this report.

e. To be categorised as Veteran, a tree must be old, still alive, in decay and it must "have meaning" (English Nature, *Veteran Tree Initiative*, 1997). "Meaning" can, in this context, include landscape & aesthetic significance and historical interest as well as biological and ecological importance.

f. The largest cluster of trees classified as Veterans is in Area J – (Ice-house Wood-Pasture), NW of the Hall site. 10 Veteran Trees are present here and an eleventh occurs in the adjacent NW corner of the Airfield Pasture (F).

g. A further cluster of 8 Veteran Trees occurs just outside the site boundary among old airfield standings and bunkers to the east of Area F.

h. It should be appreciated that there are other very old trees which may not have satisfied all the criteria used in the 1999 survey, but which possess most, if not all, of the ecological characteristics of Veteran Trees. Examples are Trees 078, 079, 080, 118 & 126 all old, over-mature oaks in The North Lodge Wood-Pasture (Compartment C), adjacent to the area of bunkers.

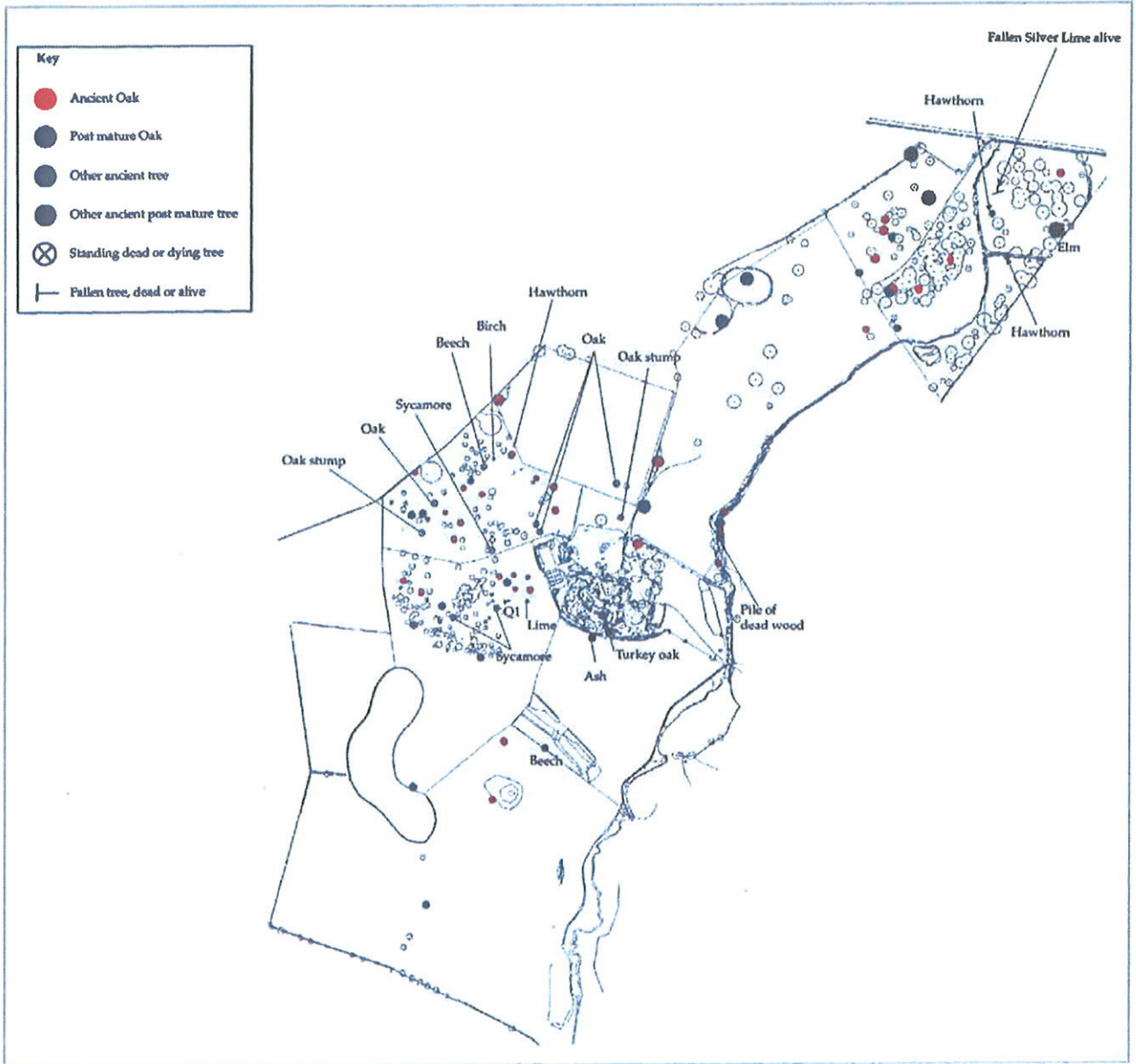
i. In the present survey, a much larger number of trees have been identified as Veteran, on the basis of the following assessment of physiological age (condition), adapted from Harding, & Alexander, (1993)

i. Young tree: a tree which has not yet reached its full stature.

ii. Mature tree: a tree which has reached its full height but is still growing vigorously.

iii. Post - mature tree: a tree which is no longer growing vigorously. This can be seen in the die back of minor branches in the crown and in the presence of rot holes indicating the start of heart rot.

iv. Ancient tree: a tree which has experienced major die back, loss of main limbs and large-scale hollowing.



Veteran Trees

Fig 4

The National Football Centre

Environmental Assessment



v. Dead tree

j. This classification is an estimate of physiological age and is not simply proportional to true age. For example a post- mature tree could easily be chronologically older than an ancient tree of the same species where damage or disease has aged the latter prematurely. For short - lived trees such as Birch, an "ancient tree" may be younger than a mature individual of a longer- lived species. Physiological age is more important than true age in assessing habitat value. The classification is fairly subjective and some trees which are passing from one stage to another will always be difficult to place.

k. The majority of the trees in the wood-pasture areas are not Veterans and, in some areas, a high proportion of the trees (e.g. Horse Chestnut and Sycamore) are not native species. Ornamental cultivars and hybrids such as Copper Beech and Common Lime are also strongly represented. While these trees are of undoubted landscape value, their ecological interest is relatively modest.

l. Ground cover vegetation in all the wood-pastures is almost entirely agriculturally improved grassland which, apart from the dominant sown grass species, contains a very limited variety, and limited abundance, of other plant species, all of them common.

m. Generally the vegetation beneath the tree canopies in the wood-pastures is not significantly different from that in more open places. There are a few Bluebell patches in the Western Wood-Pasture (K). A few patches of less-improved grassland occur in the Ice House Wood-Pasture, mostly near the boundaries and around the old aircraft standings. They are generally identifiable by the presence of occasional clumps of Soft Rush (*Juncus effusus*) and a high frequency of Creeping Bent (*Agrostis stolonifera*) in damp areas, or in some drier places, by species such as Sweet Vernal-grass (*Anthoxanthum odoratum*), Cat's-ear (*Hypochaeris radicata*), Creeping Buttercup (*Ranunculus repens*), Common Mouse-ear (*Cerastium fontanum*) and others.

Summary of Wood-Pasture Assessment

n. Byrkley Park has been recognised as one of the best remaining wood-pasture sites in Staffordshire.

o. An area encompassing about one third of the site has been registered as a Grade 1 Site of Biological Importance (SBI) in recognition of this (Figure 5).

p. **The SBI includes all the trees identified as Veterans in the 1999 survey. It does not include all ancient trees on the site. Survey compartments included in the SBI are: - Ice-House Wood-Pasture, Western Wood-Pasture (northern part only), Front Field, Home Woods, Entrance Drive Grassland, Pheasant Thicket, the two ponds, some land to the east of the ponds and (perhaps inappropriately) Hall Field and Airfield Pasture (which contain improved grass swards and only one or two trees at the margin) The SBI also includes the area of old bunkers, by the airfield which are outside the**

site. Presumably the two fields have been included because they lie between areas of wood-pasture.

q. In general the grassland in the wood-pasture areas has little intrinsic ecological interest. Much of it has been re-seeded or has been otherwise intensively-managed.

r. Outside the SBI boundary, there are important ancient trees in the North Lodge Wood-Pasture.

s. For the most part, the areas of parkland (NE Wood-Pasture & Nettlebeds Plantation) contain only younger (but mostly mature) trees. These areas have lower ecological value because a large proportion of the trees in them are not non-native or cultivars, but they are still significant habitats in the local context.

t. The importance of preserving Veteran and other ancient trees has been emphasised in the responses to the proposal, and to earlier development proposals for the site, from English Nature, the Staffordshire Wildlife Trust, and the National Forest.

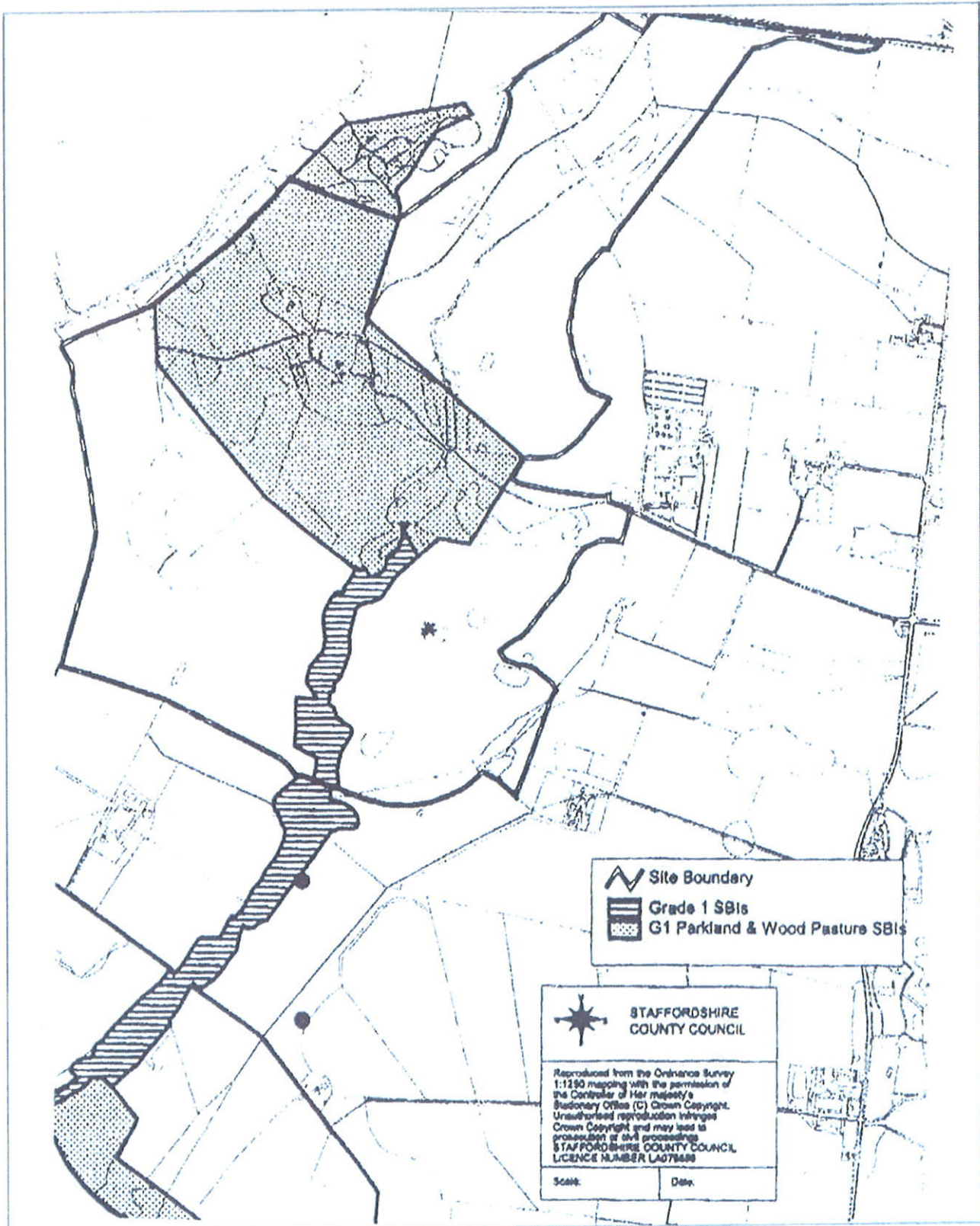
u. Wood-pastures have been surveyed throughout the Borough of East Staffordshire (Bowler & Webb, 1999) and Byrkley Park is given pride of place in the list of sites surveyed for its combination of size (69ha: 3rd largest), number of mature trees (300 : 2nd largest), the number of Veteran Trees present (19 : 4th) and its abundance of dead wood, of which there is apparently more on this site than on any other site surveyed.

v. Lowland Wood-Pasture is currently the subject of Biodiversity Action Plans (BAPs) for future management and conservation of the habitat. Lowland Wood-Pasture BAP's have been drawn up for the UK as a whole, for Staffordshire and for the area covered by the National Forest. Species Action Plans for several individual animals likely to be associated with ancient wood-pasture have also been drawn up.

5.3 Grassland

a. The following grassland habitats have been appraised:

- i. Improved Pastures
- ii. Set aside Grasslands
- iii. Semi-improved Grassland
- iv. Unimproved Grassland
- v. The Front Field



SBI Boundaries

Fig 5

The National Football Centre

Environmental Assessment



5.4 Improved Pastures

a. Compartments E (Lin Brook Pastures) and F (Airfield Pasture) would probably, in normal times, be grazed by cattle, or a grass crop would be grown for silage. At the time of survey there was no livestock on any part of the site. The pastures are almost entirely covered by sown grassland with minimal floristic variety. There are a few scattered mature trees, including a Veteran Tree (No. 185) in the NW corner of F. The treeless southern half of Compartment K, the Western Wood-pasture, has similar species-poor grassland.

5.5 Set-Aside Grasslands

a. Compartments L (Hall Field), Q (West Field) and R (Southern Grassland) as well as the fields to the east of Lin Brook, have been part of a Set-aside regime for the past 10 years. This means that they have received only minimal management.

b. In May 2001 the difference between these fields and the more intensively-managed wood-pasture and pasture areas was immediately apparent, even from a distance, by the high frequency of Dandelion seed heads in the sward. All the set-aside fields had a similar flora characterised by the following species:

Broad-leaved dock, *Rumex obtusifolius* (o)

Cocksfoot, *Dactylis glomerata* (a)

Common Mouse-ear, *Cerastium fontanum*,(f)

Common Vetch, *Vicia sativa* (lf)

Cow Parsley, *Anthriscus sylvestris* (o),

Creeping Bent, *Agrostis stolonifera* (a)

Creeping Thistle, *Cirsium vulgare* (lf)

Creeping Buttercup *Ranunculus repens* (a),

Dandelion, *Taraxacum officinale* (f),

Germander Speedwell, *Veronica chamaedrys* (o)

Hogweed, *Heracleum sphondylium* (o)

Meadow Buttercup, *Ranunculus acris* (o)

Nettle, *Urtica dioica* (f)

Ragwort *Senecio jacobaea*,(o)

Soft Brome, *Bromus hordeaceus* (a),

Sorrel, *Rumex acetosa* (o)

Sweet Vernal-grass, *Anthoxanthum odoratum* (lf)

Yorkshire Fog, *Holcus lanatus* (a)

White Clover, *Trifolium repens* (o)

Seedlings of Bramble (*Rubus fruticosu*), Pedunculate Oak (*Quercus robur*) Hawthorn (*Crataegus monogyna*), and Guelder Rose (*Viburnum opulus*) were noticeable in places.

5.6 Semi-improved Grassland

a. Alongside Lin Brook there are several small areas with semi-natural grassland which have apparently escaped high fertiliser inputs and/or re-seeding. These patches mostly occupy low, seasonally-parched knolls bordering the stream .

b. Good indicators of these semi-improved stands are the grass Crested Dog's-tail (*Cynosurus cristatus*) and Field Woodrush (*Luzula campestris*). These occur in association with other plants which, while not uncommon, are of rather restricted distribution on this site. Examples are Germander Speedwell (*Veronica chamaedrys*), and Sweet Vernal Grass (*Anthoxanthum odoratum*)

5.7 Unimproved Grassland

a. The only substantial area is the Entrance Drive Grassland (Compartment H). This occupies a south east-facing slope above Lin Brook. This area is species-rich by comparison with other grassland on the site. The existing sward may have developed from an unmanaged lawn.

b. The turf was matted and springy and the sward contained a high proportion of mosses in places.

c. East of the entrance drive this grassland included the following species:

Alopecurus pratensis Meadow Foxtail *

Anthoxanthum odoratum Sweet Vernal-grass*

Conopodium majus Pignut*

Deschampsia cespitosa Tufted Hair-grass

Festuca pratensis Meadow Fescue

Festuca rubra Red Fescue

Holcus lanatus Yorkshire Fog

Hyacinthoides non-scripta Bluebell

Luzula campestris Field Woodrush

Narcissus pseudonarcissus Daffodil

Plantago lanceolata Ribwort Plantain

Pseudoscleropodium purum moss

Ranunculus bulbosus Bulbous Buttercup

Rumex acetosa Sorrel

Rumex crispus Curled Dock

Rhytidiadelphus squarrosus moss

Veronica chamaedrys Germander Speedwell

Vicia sativa Common Vetch

(* indicates species mentioned in the Staffordshire Habitat Action Plan for Unimproved Neutral Grassland as characteristic of the community-type)

d. Lower down the slope the sward was more rank and less diverse. It contained patches of Nettle and Broad-leaved Dock.

e. On the west side of the entrance drive the grassland on the slope contained most of the listed plants, but Pignut, in particular, was less abundant (This species is very slow to colonise new grassland and is an indication that the sward is of long-standing)

f. At the top of the slope., on damper ground, Creeping Buttercup was abundant in the sward, which ended abruptly at the edge of a dense belt of tall herb vegetation (Nettle, Creeping Thistle, Hogweed, Bramble and Broad-leaved Dock) in front of a row of tall Leyland Cypress bordering Home Woods (Compartment I).

5.8 The Front Field (Compartment G)

a. This is a varied area, partly improved grassland, partly derelict garden. The former is species-poor and resembles the grassland in the adjacent parts of F and J, though with more weeds (Dock, Nettle, Creeping Thistle). There is one ancient Oak (276) and three oak stumps.

b. Mole hills were frequent.

c. The derelict area contained a 3m - high mound of rubble and a varied assemblage of surviving garden plants, common weeds of disturbed ground and colonising shrubs and trees – Common Sallow, Elder, Birch, Sycamore and Gorse. Rabbits were plentiful.

5.9 Summary of Grassland Appraisal

a. Improved Pastures & Wood-Pasture Grassland - The limited quality of the grasslands has been mentioned already. There is little difference between the swards in the treeless pastures and in most of the wood-pasture areas. Exceptions exist, there are for example some bluebell patches in the Ice-house Wood-Pasture.

b. Grassland in the Set-aside Fields - These are essentially improved pastures which have been modified by constructive neglect.

c. The diversity of plant species in the swards has increased as has the proportion of dicotyledons to grasses, but the diversity of species remains modest and they have not developed a close-knit turf. In some places tree and shrub seedlings have established, but the annual cutting regime is intended to keep woody plant colonisation in check. There is evidence that the set aside fields favoured by small mammals, and by pheasants. Most of the Southern grassland is of this type, but its use for football pitches will not be a major ecological loss.

d. Semi-improved grassland - This is present only as scattered, mostly small patches in a matrix of improved grassland. In a less-managed landscape these patches would be insignificant, but here they attract attention by contrast with their surroundings. Their value lies in the indication they give of what might be developed under conservation management.

e. Unimproved Grassland - The Entrance Drive Grassland site merits individual attention as the only grassland which can reasonably be called unimproved. In the context of the site it is outstanding in size and diversity, though it is not especially rich in species. It certainly merits conservation.

f. The Importance of grassland for badgers - The grassland in the southern part of the site is criss-crossed by badger tracks. These lead to foraging areas. Although badgers are omnivorous, their major food resource in most parts of the country is earthworms and grassland in which these are plentiful is crucial. Rich turf which is not too long, (as in cattle-grazed pastures), is ideal. Woodland is more important in providing cover than as a foraging habitat.

5.10 Woodland

a. Five discrete areas of closed-canopy woodland are present on the site and another is immediately adjacent to it. Each has its own distinct characteristics reflecting different ground conditions, history and management.

5.11 The Dingle (Compartment S)

a. This is the most natural of the woodlands. It borders the lower reaches of Lin Brook and extends along most of the eastern side of the ponds.

b. The least natural part is that just south of the ponds. Crack Willow (*Salix fragilis*) is dominant here, over an understorey of Rhododendron, Lawson's Cypress, Sycamore, Wild Cherry (suckering), and Elder, and a ground cover of tall herb species.

c. Further south, on the drier valley - sides, Birch and Oak are locally co-dominant, with representation of Wych Elm, Hawthorn and Elder and a tall herb field layer with Rosebay Willow-herb, Hogweed, Nettle and Bramble. Along the western edge of the woodland, extending along the boundary for 30m and occupying the slope down to the stream. there is a small plantation of Spruce.

d. Where the valley bottom widens, Alder dominates the lower, level ground by the stream, with Elder and occasional Rowan constituting an incomplete sub-canopy. The field layer is quite species-rich and includes Bramble, Broad Buckler - fern (*Dryopteris dilatata*), Bluebell (*Hyacinthoides non-scripta*), Dog's Mercury (*Mercurialis perennis*), Enchanter's Nightshade (*Circaea lutetiana*) Ground Ivy (*Glechoma hederacea*), Lesser Celandine (*Ranunculus ficaria*), Male Fern, (*Dryopteris filix-mas*), Red Campion (*Silene dioica*), Rosebay Willow-herb (*Chamerion angustifolium*), Wood Avens (*Geum urbanum*), Wood Speedwell (*Veronica montana*) and, confined to the streamside, Marsh Marigold (*Caltha palustris*).

e. The woodland bordering the eastern banks of the South Pond and part of the North Pond is similar.

f. At the southern end of the Dingle there is another a stand of Crack Willow by the stream.

g. Birch dominates the slope in the south-east over a field layer of Bracken (*Pteridium aquilinum*) and Bramble. At the south-west corner of the woodland there is a dense thicket of tall Blackthorn scrub (*Prunus spinosa*) which extends westwards out of the wood.

h. The various species assemblages in this wood are relatively natural and characteristic, reflecting local topographic and soil variations.

i. The woodland continues south of the site.

5.12 Kidney Plantation (Compartment O)

a. This is a relatively recent creation, dating from the late 1920's or early 30's. At least two mature oak trees on the western side pre-date the plantation, but these are exceptional.

b. At the southern end, the tree canopy consists mainly of Sycamore, Birch and Oak with some Scots Pine, Wych Elm, Common Lime and Silver Fir (*Abies alba*). The understorey contains Holly, Hawthorn, Rhododendron and saplings, mostly

of Sycamore. Wild Clematis (*C. vitalba*) and Honeysuckle (*Lonicera periclymenum*), also occur.

c. The field layer is species-poor and consists of Bramble, with occasional Dog Rose (*Rosa canina*), and Oregon Grape (*Mahonia aquifolium*), and a rather sparse herbaceous complement of Bluebell, Broad Buckler-fern and Yorkshire Fog.

d. A 5m-wide ride runs East-West through the plantation and separates the southern end from the rest. Another ride, partly overgrown, runs N-S through the centre.

e. In much of the wood, Rhododendron is dominant as an understorey / shrub layer, making some parts virtually impenetrable.

f. Honey Fungus (*Armillaria mellea*), a serious tree parasite, was noted on some stumps and fallen trees.

g. The northern part (about two thirds of the whole) has a high proportion of conifers – mostly Scots Pine (*Pinus sylvestris*) and Silver Fir (*Abies alba*). Where these dominate the canopy, the field layer is very species-poor, consisting mostly of Bramble, and the shrub layer, where present, is of scattered Elder.

h. The plantation supports a thriving rabbit population and much of the ground is tunneled and disturbed by burrowing. Signs of badger and fox were found. Pheasant feeders and shelters are positioned in the rides, but were not in use at the time of survey, though some birds were seen.

5.13 Byrkley Gorse (Compartment F)

a. This area is not affected by the current development proposal, and the survey was extended mainly to ascertain whether badgers were present.

b. The northern third of the area contains extensive Bramble thickets, Hawthorn scrub and more localised thickets of Gorse. Trees in this part of the area are generally small, scattered Birch and Oak. The field layer is of Bracken, with abundant Bluebell.

c. This part of the Gorse has been managed until recently as a pheasant covert, with feeders and a piped water supply provided along a ride.

d. The rest of the Gorse consists of closed - canopy woodland. Common Lime is dominant at the western end with tall Hawthorn and Elder. The field layer has locally- dominant Nettle and frequent Male Fern. The central part is densely shaded by a Sycamore and Hawthorn canopy, the underlying woodland floor bare or mossy except for a few Bluebell patches. The southern side of the wood has a more varied range of trees and shrubs which includes most of those already mentioned, together with Horse Chestnut and Blackthorn.

e. The survey revealed no convincing evidence of badger or fox being present, but tracks in the Western Field show that it is regularly visited from Kidney Plantation, possibly because it provides effective cover.

5.14 **Byrkley Hall Home Woods (Compartment I)**

a. This is now a complex of naturally regenerated woodland within and around what remains of the ornamental plantings which once occupied a greater proportion of the area.

b. Prominent to the south and west of the hall site is a row of tall Leyland Cypress (*x Cupressocyparis leylandii*), three tall Wellingtonias (*Sequoiadendron giganteum*), and Rhododendron and Azalea cultivars. The central part of the woodland consists mainly of a mixture of Birch and Ash with a few large Oaks and Bluebell abundant in the field layer. The south – eastern part is dominated by self-regenerated Birch trees, their thin canopy allowing rank growth of field layer Bramble, Nettle, Hogweed, Cleavers etc. Hornbeam is locally-dominant and Yew and Scots Pine occasional. Ivy is locally - dominant as ground cover in parts of the woodland.

c. In the centre of the woodland is a clearing which has been used until very recently for pheasant rearing. Much of the ground here is bare, with weedy vegetation around the margins.

d. To the NW of the hall site is a stand of Japanese Knotweed (*Fallopia japonica*) bordering an open area which, until fairly recently, housed a beef production unit. Two tall Poplars and some Sallow (*Salix cinerea*) scrub, accompanied by Soft Rush and Great Willow-herb, are present in a damp area nearby.

e. On the site of the former beef-production unit is a slatted concrete floor, now partly overgrown, with standing water beneath it and, north of this, a yard partly - vegetated and surrounded on three sides by high earth embankments densely planted with Leyland Cypress, and also supporting Gorse, Hawthorn, Elder, occasional Broom with dense undergrowth of Bramble, Raspberry, and rank tall herb species.

f. East of the former hall in an area where garden plants still predominate, there are three mature Atlantic Cedars (*Cedrus atlantica*), numerous young Oak and two rather unusual gnarled trees, by the entrance drive, which were not identified. Associated with these is a variety of large garden shrubs and small trees:- *Buxus*, *Forsythia*, *Ilex*, *Lonicera nitida*, *Philadelphus*, *Prunus lusitanica*, *Prunus laurocerasus*, *Prunus* cultivars, *Rhododendron*, *Ribes sanguineum*, *Sorbus*, and *Syringa*, accompanied by natural regeneration of Ash and Sycamore.

5.15 **Oak Copse (Compartment N)**

a. A relatively small wooded site surrounding a deep dell which has a seasonally damp area at the bottom. At the time of survey this was almost dry and contained Woody Nightshade, (*Solanum dulcamara*), surrounded by dense

Nettle and Elder. The drier, upper slopes are covered with Rosebay Willow-herb, Bramble, Yorkshire Fog and Cocksfoot with Bluebell fairly frequent locally.

b. One old oak (427) stands about 10m. from the copse, at the SW corner. Younger mature oaks surround the rim of the dell. The stump of a very large oak tree is also present and some distance away, the fallen hollow trunk. There are saplings of Hawthorn, Holly and Rowan.

c. This small feature has landscape value and some good quality, native trees.

5.16 Woodland adjacent to NE corner of the site (A1)

a. This is immediately adjacent to Compartment A, the North-East Wood-Pasture. It is dominated by Oak, Common Lime and Beech, has a sub-canopy of tall Hawthorn, Birch, Hazel and Rowan and some young Birch, Cherry and Hornbeam, quite recently planted. The field layer is grassy, with accumulated leaf litter in places.

b. This area was examined to ascertain whether badgers made use of it, but no evidence was found. Rabbit tracks were plentiful.

5.17 Summary of Woodland Appraisal

a. The Dingle - This is natural in location and composition, and contains woodland of long-standing. It is predominantly an Alder wood and contains three variants of NVC W6 *Alnus glutinosa-Urtica dioica* Woodland, namely:-

i. NVC W6d :*Alnus glutinosa-Urtica dioica* Woodland; *Sambucus nigra* sub-community covers much of the damper valley bottom, .

ii. W6e, (*Betula* subcommunity) is found on slightly drier valley-side slopes .

iii. W6b, (*Salix fragilis* subcommunity) exists here in more localised stands, of which one at the northern end of the woodland is less natural, containing introduced species.

b. The woodland has a varied structure throughout and contains a good variety of characteristic woodland - floor plant species. A small part of the area has been replanted as a Spruce plantation and is of very limited interest.

c. The northward extension of the woodland along the eastern side of the ponds and on the islands is also equally valuable.

d. The wood is an important part of badger territory. It supports a rich bird fauna, (c.f. Bird Report).

e. The Dingle (including the areas within and south of the site) is registered as a Grade 1 SBI. The designation includes part which is outside the site. The SBI boundary is contiguous at its northern end with that of the Wood-pasture SBI,

- f. The Home Woods area is included in the Wood-pasture SBI.
- g. Kidney Plantation, Byrkley Gorse and Oak Copse have no conservation designation.
- h. Oak Copse contains many mature oaks, but the associated flora is limited at present and mostly consists of species associated with secondary woodland.
- i. Kidney Plantation provides dense cover and contains many tall trees, but its relatively recent origin (estimated at c. 70 years), the absence (apart from one or two peripheral oaks) of old trees and their obviously- artificial arrangement limit its ecological value. At one time, badgers were apparently resident here and the plantation continues to be used by badgers.
- j. There is much scope for improvement of its structure and habitat quality, by selective thinning and replanting
- k. It is an important landscape feature, by virtue of its size, orientation and its prominent position.
- l. Byrkley Gorse has a varied structure and contains some good trees. The abundance of bluebells in the more open, northern part is noteworthy. Being fairly isolated, and undisturbed the Gorse is a good wildlife refuge. Although It does not form part of the site of the Football Centre, its proximity is makes it very relevant to future of wildlife conservation in the locality

5.18 **Scrub and Hedgerows**

- a. Six areas of scrub and hedgerows are identified on the site comprising:
 - i. Pheasant Thicket
 - ii. Scrub to West of the Ponds
 - iii. Fenced Thicket bordering the Dingle
 - iv. Northern Hedgerows
 - v. Western Hedgerows
 - vi. Southern Boundary Hedge
- b. These habitats are described in turn.

5.19 **Pheasant Thicket (Compartment M)**

- a. This is a rather complex area of scrub, an overgrown hedgerow, and grassland all within shallow valley between the Southern Grassland (R) and Hall Field (L).

- b. A small stream, possibly with a seasonal flow, runs through the Thicket, but sinks underground at its lower end. Presumably the water flows underground to South Pond or directly to Lin Brook in the north end of the Dingle.
- c. The southern side of the thicket is bordered by an unmanaged hawthorn hedge which has Bramble thickets and very dense tall herb stands adjacent to it. One old Beech tree (428) is associated with this hedge. On the northern side, and also across the southern end of the Thicket, are rows of young Spruce, dense enough to screen the site.
- d. A 3m-high, 15m-wide mound divides the Thicket from E-W. The mound supports dense Elder, Nettle and coarse grasses: the stream passes beneath.
- e. The central area of the Thicket is more open, with rank grassland and scattered scrub, mostly consisting of Hawthorn and Dog Rose.
- f. There is a narrow band of wetland vegetation alongside the small stream. It consists of Great Willow-herb (*Epilobium hirsutum*), Soft Rush (*Juncus effusus*) with Nettle (*Urtica dioica*) and Meadow Foxtail (*Alopecurus pratensis*) adjacent. Drier grassy areas are weedy and include Creeping Thistle, Nettle, Cocksfoot, Hogweed etc. Smooth-stalked Sedge (*Carex laevigata*) was present.
- g. It is known that this area was once used as a "pig run" and that drain pipes are installed beneath it. It is also thought that a similar, parallel valley may have once existed in the Hall Field and that this may have been filled in with spoil removed from excavation of the ponds. (Mr. F. Thompstone, pers. comm.)
- h. The area is of some ecological interest for the dense cover it provides (which is probably made use of by Badger, certainly by Rabbit and Fox) and its semi-natural vegetation, which contrasts with the intensively-managed grassland around it. None of the species recorded are of special interest.

5.20 Scrub on West Side of Ponds

- a. Natural scrub consisting of Osier and Sallow borders the west shore of North Pond (U), backed by Hawthorn, Elder, young Oak young Alder, Gorse, Dog Rose, Field Rose and Bramble. The canopy is discontinuous and grassy areas occur within the scrub. Red Clover (surprisingly infrequent on the site) was noted here. Some woodland field layer species, including Bluebell and Foxglove are present.
- b. The area is used by badgers and contains a small sett. The scrub extends south, alongside South Pond where it is dominated by Sallow.

5.21 Fenced thicket bordering the Dingle (in Compartment S)

- a. Near the SW corner of the site is a rectangular enclosure with iron post & rail fencing. It is overgrown with Bramble and rank tall herb vegetation including locally-dominant Raspberry, (*Rubus idaeus*), abundant Broad-leaved Dock (*Rumex obtusifolius*), Nettle and Hogweed. Badger tracks circumvent the area except for one track which crosses the middle.

5.22 The Northern Hedgerows

a. These include the hedges bordering Compartments A (N & E sides), C, D, F & J (N sides). All the hedges are rather similar in composition and structure – more-or-less continuous, well-maintained and species-poor. They consist largely of Hawthorn, with occasional Elder and Holly and scattered Gorse bushes, which are mostly alongside, rather than forming an integral part of the hedges. There are few herbaceous plants specifically associated with these hedges, though a few common wildflower species do occur more plentifully in the grassland close to them than elsewhere in the compartments (C,D & J.) Examples include Sweet Vernal-grass, Germander Speedwell, Common Sorrel and Cleavers. The hedges afford good cover and rabbits are plentiful. No badger trails or crossing points were found in any of these hedgerows.

5.23 Western Hedgerows

a. Included in this category are the hedges bordering the western sides of Byrkley Gorse (P), West Field (Q) and the Southern Grassland (R). A similar hedge, which separates Q and R, and links the western boundary with the Kidney Plantation, is also included.

b. All these hedges have ditches alongside, providing drainage towards the southern end of the site and along the southern boundary to Lin Brook.

c. They are more varied in composition than the northern hedges. Hawthorn is the main shrub component, but other shrubs are quite frequent and well-dispersed within the hedges, and make up a significant part of the structure. They include willows (Sallow (*Salix cinerea*) & Goat Willow (*S. caprea*), Elder, Holly, Dog Rose & Field Rose (*Rosa canina* & *R. arvensis*), Blackthorn, Honeysuckle and Bramble. A solitary mature Oak (413) and a mature Holly (414) are present in the hedge linking Kidney Plantation. This hedge also contains some Bluebell, the inference being that this, (and possibly the other western hedges), are older than those in the northern part of the survey area.

5.24 The Southern Boundary Hedge

a. A good boundary and habitat feature, this hedgerow has a similar composition to the western hedgerows and also has a ditch alongside. The western part, (i.e. that to the west of the three oak trees in the southern grassland which are, presumably, relics on the line of a former hedge) is intermittent and kept low - cut. This contrasts with the eastern section, which is tall (to 5m) and contains several mature oak trees.

b. Shrub composition in both sections is of Hawthorn, Elder, Holly, Dog Rose, Field Rose, Sallow, Goat Willow, all of which are dispersed along the hedge. The eastern part also has a single large thicket of Osier (*Salix viminalis*).

c. The ditch is deeply incised (to 1.5m) and, at the time of survey, contained a shallow flow of water. There was a badger track parallel to the hedge and other indications of badger activity alongside and through the hedgerow.

d. The hedge merges with the southern end of the Dingle.

5.25 Summary of Scrub and Hedgerow Appraisal

a. Scrub bordering the west side of the ponds - This is the most diverse in composition and structure, of any stand of scrub within the site. It is also the most species-rich. It encloses a badger sett and provides the only confirmed area of terrestrial habitat of Common Frog, Common Toad and Smooth Newt. It is immediately adjacent to the one known amphibian breeding area.

b. Overgrown area south west of the Dingle - This is an area on the edge of the Dingle, bordered by an iron post & rail fence. It appears to contain plants common on neglected land. It is crossed by at least one badger track, but most badgers seem to use tracks on the outside of the fence which circumvents it. Although untidy and of limited ecological value at present, it offers potential for native tree and shrub planting which would increase the extent and value of the Dingle.

c. A dense Blackthorn thicket bordering the southern end of this area is a valuable feature in its own right and for the cover it provides.

d. Pheasant Thicket - Although it contains a variety of habitats, this area has limited botanical interest. The hedgerow on the south side is the best habitat feature. This, and other thickets, afford dense protective cover. area. The small watercourse is locally important as regards drainage. There may be for making use of it to improve drainage of the Western Wood-Pasture and Hall Field, and, at the same time, increasing its wetland habitat value. The planted conifers are of no particular ecological significance, apart from possibly affording some bird nesting habitat.

e. Hedgerows - All the hedgerows are structurally sound and well-maintained. They provide good cover for birds and small mammals. The most diverse, and by inference the oldest and most mature hedges, are those which form the southern and western boundaries of the site. The northern hedges are equally well managed and structurally sound, but have less floristic interest. With few exceptions the hedge-bottom flora is quite species-poor throughout.

f. Badgers clearly make use of the southern hedgerow.

5.26 Wetlands and Water Features

a. The following wetland areas and water features have been identified on the site and assessed.

- i. Lin Brook and Associated Habitats
- ii. Pond / Marsh in NE Wood-Pasture
- iii. The Ponds

b. Each area is assessed in turn.

5.27 Lin Brook and Associated Habitats

a. Lin Brook is quite a small watercourse, but being the principal drainage artery within the site, it is of considerable hydrological and ecological importance. The brook enters the site from under the B 5234 and, for the next 500m flows between in an open course through grassland in Compartments A & B. Occasional Hawthorn and Gorse bushes occur alongside this part of the watercourse.

b. A tributary stream from the east joins the brook about midway along the section. Its course is more shaded, by shrubs and occasional mature Oak and Sycamore trees. There is also a rudimentary woodland flora on the banks, including Foxglove (*Digitalis purpurea*), Red Campion (*Silene dioica*), Cow Parsley (*Anthriscus sylvestris*), and Herb Robert (*Geranium robertianum*).

c. Both watercourses have steep, often undercut banks. Mostly the vegetation on top of the banks is the same as in the surrounding pasture, except on low knolls with the semi-improved grassland (mentioned earlier under Wood-Pasture). There are a few small marshy patches, but the extent and variety of wetland vegetation is limited. The most frequently encountered species are Brooklime (*Veronica beccabunga*), Reed Canary-grass (*Phalaris arundinacea*), Great Willow-herb (*Epilobium hirsutum*) and Lady's Smock (*Cardamine pratensis*).

d. The first 300m of the next stretch of Lin Brook, through Lin Brook Pastures (Compartment E), are in open grassland. A tree-lined section follows in which Ash, and thickets of Hawthorn and Rose, cast some shade on the watercourse.

e. In all the above sections there are many riffles with shallow water flowing over a pebbly bed. In the deeper parts, with a more sluggish current, sand banks occur and the stream bed is often silted. Water depth varied up to a maximum of about 0.6m. The banks of the stream are generally cliff-like and prone to undercutting and slumping. There are a few cattle crossings where the banks are open and bare.

f. Downstream of Lin Brook Pastures, water flow is regulated by a series of 5 small weirs, some of which retain deeper pools. Between the two bottom weirs the stream widens from c. 2m, which is characteristic of most of its course, to about 10m. This wider stretch is shallow and muddy. Several of the weirs are in need of repair to prevent water flowing round the ends.

5.28 Pond / Marsh in NE Wood-Pasture

- a. There is a small, possibly seasonal pool just south of Lin Brook close to the point where it leaves Compartment A. When surveyed it had no open water, the surface being completely covered by Flote Grass (*Glyceria fluitans*) and Common Water-crowfoot (*Ranunculus aquatilis*). Other plants recorded were Brooklime (*Veronica beccabunga*), Marsh Yellow-cress (*Rorippa palustris*) and Lesser Duckweed (*Lemna minor*). Near the pond is a large log pile, a nettle bed and low knolls with semi-improved grassland.
- b. No amphibia were detected, but the pool and adjacent features could be a possible habitat for amphibia, at least for Common Frog and Smooth Newt.
- c. Lin Brook itself does not appear to be suitable for breeding amphibians.
- d. The brook was sampled at four points. All four sample sites had varied flow conditions – shallow riffles with adjacent deeper pools. Invertebrates were collected by "kick sampling", using a fine sieve while disturbing the substrate.
- e. There was remarkably little variation between samples and no significant change in water quality was apparent. The samples yielded no Stoneflies (Plecoptera). Mayfly nymphs (Ephemeroptera) were of modest frequency and were limited to one (possibly two) species. Caddis larvae (Trichoptera) were abundant at all sample sites and included forms with cases attached to stones and free-moving, cased forms. Among Crustacea, Freshwater Shrimp (*Gammarus*) was abundant at all sites; *Asellus* (Water Louse) was present, but infrequent in the habitats sampled. Blackfly larvae and pupae (Diptera-Simuliidae) were abundant on stones throughout. Leeches (Hirudinea) were more varied between sample sites: Site 1 yielded large numbers of family Erpobdellidae and relatively few of Glossiphonidae. Lower downstream, there appeared to be fewer Erpobdellidae, but abundance of Glossiphonidae was consistent throughout.
- f. Sticklebacks were observed in the stream at many places.
- g. From the evidence of this limited biological sampling exercise, the brook is considered to be free of serious pollution. Its water quality seems reasonably good for a stream of this size and situation, though the invertebrates with the highest oxygen-demand (stonefly nymphs and the more-demanding groups of mayfly nymphs) are lacking.
- h. It is reliably reported that parts of Lin Brook dry out in prolonged periods of dry weather, though not every year.

5.29 The Ponds

- a. The ponds are understood to have been created in the late 18th Century as part of a Capability Brown-style landscaping scheme. Both are large enough to be validly called lakes. Lin Brook provides the main input to the ponds, probably supplemented in the South Pond by a small flow from Pheasant Thicket. In times of heavy rain, surface run-off from the surrounding slopes will augment the supply.

b. The North Pond is the larger of the two ponds, has an open, grassy slope on its eastern bank. This is grazed by a resident flock of Canada Geese and several Greylag (about 34 geese at the time of survey). The western bank is bordered by scrub described previously. There are three islands, which afford relatively safe refuge for the resident waterfowl. The largest island has a dense cover of shrubs and trees – Ash, Alder, Copper Beech, Sallow and Snowberry. The smaller central island appears to have little vegetation other than mature Alder trees. The third is close to the west shore and only perceptible as an island on close examination, as its dense cover of willows merges with the scrub on the bank.

c. At the northern end of the North Pond, below the weir which regulates the flow from Lin Brook, there is a well-developed swamp dominated by Reedmace (*Typha latifolia*) with frequent Great Willow-herb (*Epilobium hirsutum*) and Reed Canary-grass (*Phalaris arundinacea*). A smaller reedswamp is forming on the upstream side of the weir around a group of Osier (*Salix viminalis*) and the hybrid *Salix x meyeriana*.

d. The water in the pond was turbid and its depth has not been measured. It is understood that both ponds are quite shallow as a result of prolonged siltation. It is reported (Mr. F. Thompstone, pers. comm.) that the ponds have not been desilted for about a century (though an unsuccessful attempt was made in the mid 1970's) and in dry summers, when water depth has been much reduced or, occasionally dried up completely) there has been high fish mortality.

e. Apart from the reedswamp at the northern end there is not much emergent aquatic vegetation. The narrow and discontinuous fringing vegetation along the eastern shore is subjected to heavy trampling and grazing by the waterfowl (which included 3 pairs of Tufted Duck, 1 pr. Teal, at least 1 pr. Coot and 2 prs. of Moorhen, in addition to the geese, at the time of survey).

f. Plants recorded were: Soft Rush (*Juncus effusus*), Hard Rush (*J. inflexus*), Gypsywort (*Lycopus europaeus*), Watercress (*Rorippa nasturtium-aquaticum*), Brooklime (*Veronica beccabunga*), Marsh bedstraw (*Galium palustre*), Water plantain (*Alisma plantago-aquatica*), Water Forget-me-Not (*Myosotis scorpioides*), Curled Dock (*Rumex crispus*) and several saplings of *Salix fragilis*. The western shore is mainly obscured by dense willow scrub.

g. The Southern Pond is less accessible, being almost entirely surrounded on the east side by woodland (the northward continuation of the Dingle) and on the west side by dense scrub, mostly Sallow. There is a single, large, wooded island close to the east shore separated from the bank by a narrow, shaded creek. The woodland on the island appears to be of much the same composition as that on shore.

h. The waterside to the Southern Pond is accessible only at the SW corner. At this point there is a limited area of open, shallow water supporting emergent aquatic vegetation. Species present include Amphibious Bistort (*Persicaria amphibia*), Water Mint (*Mentha aquatica*), Flowering Rush (*Butomus umbellatus*) and Hard Rush (*Juncus inflexus*).

- i. A fragment of Spiked Water - milfoil (*Myriophyllum spicatum*) was collected here and this provided the only indication of submerged aquatic vegetation, (which may prove to be extensive when the ponds are further investigated).
- j. This was the only place where amphibia were found(see below).
- k. The flow of water flow between the ponds is controlled by a weir with a fall of approx. 2m. Another large weir, with a track across the top, regulates the outward flow into the lower reach of Lin Brook, in the Dingle. This weir is in a dilapidated condition and is considerably overgrown by scrub. Much of the water flow at present does not follow the intended course resulting in local flooding on the track and leakage round the end of the weir.
- l. The water quality in the ponds appears to be rather poor. There were large expanses of floating brown scum against the weirs at the time of survey. This may be a consequence of eutrophication from fertiliser run-off upstream and /or nutrient release from organic detritus accumulated in the ponds.

5.30 Summary of Wetland and Water Feature Appraisal

- a. Lin Brook - A key feature within the site as regards drainage, water supply to the ponds and as a sustaining feature of the woodland in Dingle.
- b. The brook, being quite small appears to support a fairly limited variety of aquatic life.
- c. It is, nevertheless, a good quality stream for a lowland farming area. Its future quality could be affected by management regimes applied to the surrounding grasslands, (particularly as regards fertiliser treatments) and by the installation of a sewage treatment plant.
- d. The extent and variety of the streamside vegetation is rather limited, but could be increased by appropriate planting.
- e. If water vole should be found to be present (which seems unlikely on present information), the stream would acquire legal protection.
- f. Small Pond (in Compartment A) - This feature and its associated habitats – marshy grassland, tall herb etc. are significant in so far as this is the only small field pond on the site. Although not yet confirmed as such, it should be capable of providing suitable breeding habitat for amphibia. There is potential for improving it.
- g. The North and South Ponds - The quality of habitat in these large ponds appears to have deteriorated since they ceased to be used as a fishery. Water quality can be presumed to be intrinsically good at the inflow, but it may be adversely affected by nutrient release from accumulated silt. Nutrient levels will also be constantly augmented by the substantial numbers of waterfowl which occupy the ponds throughout the year. The treated effluent from the proposed sewage works will discharge via Lin Brook into the ponds with possibly adverse effects and this probably makes it more necessary for de-silting to be carried out.

- h. The complex of habitats bordering the ponds – woodland, scrub, reedswamp and grassland is a good feature of the site which should be retained.

5.31 Mammals

- a. The following species of mammal have been identified and assessed in this statement:

- i. Badger
- ii. Fox
- iii. Weasel and Stoat
- iv. Mink
- v. Brown Hare
- vi. Grey Squirrel
- vii. Rabbit
- viii. Moles and other Small Mammals
- ix. Water Vole
- x. Bats
- xi. Birds

5.32 Badger

- a. Please Note: Information on badger localities has been treated confidentially in this report.
- b. There are no permanently-occupied badger setts within the areas described, but the survey revealed plentiful evidence of badger activity on the southern part of the site - in The Dingle, Southern Grassland, Kidney Plantation, West Field, Byrkley Gorse and alongside the western margins of both ponds.
- c. The main breeding sett is located in the Wellingtonia stand east of the Dingle. The sett has at least 21 entrances, all apparently in use in May 2001 - with fresh spoil, tracks and discarded bedding. The choice of this site is thought to be largely determined by soil texture. On this hilltop the soil is sandy and better-drained than on most, if not all, the survey area. Badger setts have never been known on most parts of the area affected by the proposal.
- d. Very well-used tracks lead from the main sett to the Dingle, both directly downhill and also, to the SW reaching the Dingle by way of a Sycamore copse. These and other features are shown on Figure 6.
- e. One of the two most-used exits from the western side of the Dingle emerges from the dense Blackthorn thicket the woodland edge and continues alongside

the southern hedgerow. There is another well-hidden exit further north from which one track leads westward around the periphery of the fenced plot and another leads northward along the edge of the wood.

f. Tracks lead westward into the Southern Grassland alongside the southern hedge and also directly across to the Kidney Plantation entering it near an old badger sett. Tracking badgers through the plantation proved impossible but a track emerges from the northern end, crossing West Field directly to Byrkley Gorse.

g. The track along the western edge of the Dingle leads to South Pond where fresh footprints were found at the end of the weir. There is an outlying sett, under an abandoned rowing boat half-hidden in dense bushes on the W side of North Pond. This had fresh tracks and dung pits nearby. This sett is likely to be intermittently occupied, as a base for foraging.

h. Although no survey was carried out outside the southern boundary, it is apparent that badgers cross the southern hedgerow to make use of the farmland beyond.

5.33 **Fox** No foxes were seen in the course of survey, but a strong fox scent was evident near a rabbit warren in the base of an old Oak in Compartment C (North Lodge wood-Pasture). The district around Byrkley Park is covered by hunts and the thriving rabbit population should be capable of supporting a local fox population either within, or close to the site.

5.34 **Weasel and Stoat**

a. Mr. R. Gibbons, Gamekeeper, states that both species are plentiful on this site and in areas outside it.

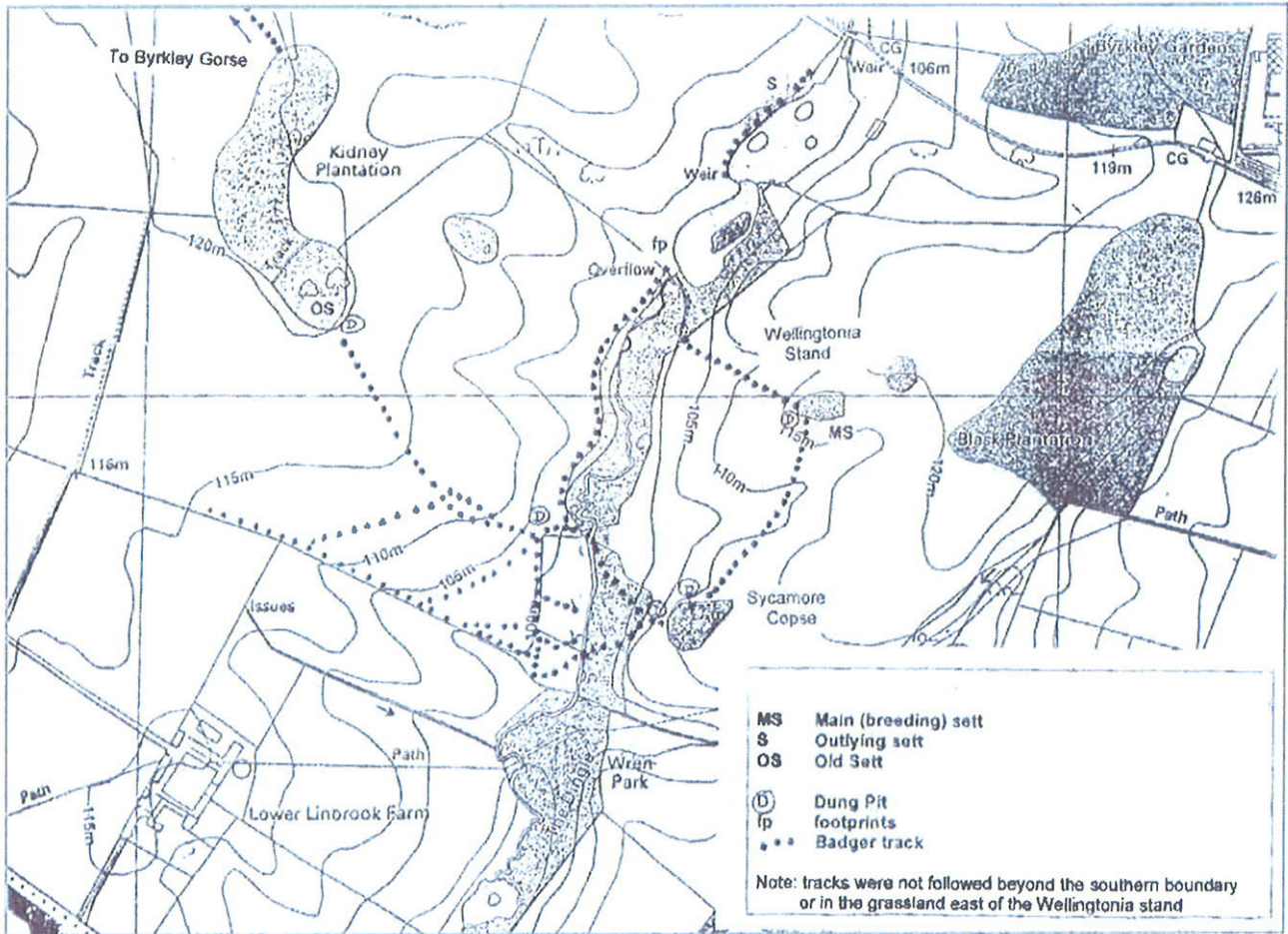
b. He also reported having seen Polecat on the site, though not recently.

5.35 **Mink** Mr. Gibbons reports that mink are regularly present along parts of Lin Brook.

5.36 **Brown Hare** Brown Hare was sighted several times in the course of habitat surveys - in the field immediately adjacent to the site entrance, east of North Pond (U), at the western end of Ice-House Wood-Pasture (J) and in the Southern Grassland (R). This is a declining species and the subject of Action Plans

5.37 **Grey Squirrel** One was sighted in Kidney Plantation. They can be assumed to be plentiful

5.38 **Rabbit** Rabbits were abundant in most parts of the site, but were particularly conspicuous in Kidney Plantation, Byrkley Gorse, North Lodge Wood-Pasture, and the woodland (A1) bordering the NE corner of the site.



Badger Habitats

Fig 6

The National Football Centre
 Environmental Assessment



- 5.39 **Moles and other small mammals**
- a. Moles are present in many parts of the site (with mole hills as evidence).
 - b. Mr. R Gibbons, gamekeeper believes that Kestrels have increased, Weasels are plentiful and, so too are small herbivorous mammals, which have thrive in the Set –aside grassland.
- 5.40 **Water Vole**
- a. This species is protected under Schedule 5 of the Wildlife & Countryside Act 1981, (as amended) in respect of Section 9. This protects the animal's places of shelter, but not individual animals). Water Vole has not been detected on the site.
 - b. Lin Brook is favourable in some respects, but its limited water depth and tendency to dry up at times are adverse factors for water voles. So too is the occurrence of Mink which has been the main cause of the national decline of Water Vole populations. The gamekeeper reported never having seen a water vole on the site.
 - c. *(A thorough search for signs of Water Vole along the whole of Lin Brook will be made).*
- 5.41 **Deer.** The Gamekeeper reported having seen **Muntjac** on the site, but only occasionally.
- 5.42 **Bats** *(A dedicated bat survey has been carried out. Details will be incorporated as soon available)*
- 5.43 **Birds**
- a. The bird life on the site has been studied for many years by Mr D.I.M Wallace, who has kindly made available the following report and the very comprehensive list of species recorded in the last five years. Mr Wallace has been an active field ornithologist for many years. He is a member of the RSPB, British Trust for Ornithology and British Ornithologists Union and has served on committees and as a Council Member of the RSPB. He has been an editor of *British Birds*, and *Birds of the Western Palearctic* and also Chairman of two bird observatories. He lives near the site and is the most local regular surveyor of winter and farmland birds.
 - b. The method of recording used in Byrkley Park has been to walk a standardised route through the site at frequent intervals (usually 2-3 times a week in the most relevant periods and c. 75 visits annually).
 - c. (*Surveying has been curtailed in the current year as a result of the national epidemic of foot & mouth disease, but is expected to resume when access is again possible).
 - d. The list below is taken from a BWP Field Checklist completed by Mr. Wallace. The comments which follow it are his, reproduced from a report

prepared for the Football Association in April 2001 and supplemented in May for this report. His co-operation is gratefully acknowledged.

Bird List 1995 -- 2000

Abbreviations:

(Breeding birds)

- RB Resident Breeding on site.
 SVB Summer Visitor, breeding
 SVb Summer visitor, breeding probable.

(Non-breeding)

- WV Winter visitor
 PM Passage migrant
 V Occasional visitor
 va Vagrant

For breeding birds (names in **bold**) the numbers given represent numbers of pairs.

For visiting species, the numbers are the maximum nos. of individuals recorded on site at one time (max. one day)

Name	Status on Site	No. Recorded	Notes
Little Grebe	SVB	1-3	Since 1997
Cormorant	V	1-2	
Grey Heron	V	1-3	Nearest Heronry at Bagot's Wood, nr. Abbots Bromley
Bewick's Swan	va	1	11.95
Greylag Goose	RB/ SVB	1-5/up to 50	Feral, since 1996
Ross's Goose	va	1	Escape, 7-10 1999
Canada Goose	RB/SVB	3-10/up to 90	Feral
Lesser Canada Goose	va	1	Escape 9.95
Mandarin Duck	SVB	1	Feral, since 1996
Wigeon	V	1-3	
Falcated Duck	va	1	Escape 8.97
Gadwall	V	1-2	
Baikal Teal	va	1	Escape 8.99
Common Teal	WV/PM	1-150	Mainly early Autumn if ponds dry out
Mallard	RB/WV	3/ 5-80	
Pintail	va	1	10/2000
Shoveler	SVb/va	1/1-3	1991 (b)
Pochard	V	1	
Tufted Duck	SVB/WV	1-4/1-15	
Goldeneye	va	1	

Ruddy Duck	SVB	1-3	
Honey Buzzard	va	1	9.95 ; reported 2000
Goshawk	va	1	1995/99/2000
Sparrowhawk	RB	1+	
Buzzard	RB	1-3	
Kestrel	RB	1	
Red-footed Falcon	va	1	1997
Hobby	V	1	Breeds Rolleston Park
Peregrine Falcon	V	1	Huts Teal in November
Red-legged Partridge	va	2	
Grey Partridge	RB	2+	
Quail	va	1	
Pheasant	RB	c.5	Reintroduced 1999 (Wild sp. and Japanese Green variety RT)
Moorhen	RB/WV	5-10	
Black-headed Gull	V	1-50	(all gull spp. mostly in flight)
Common Gull	va	1	
Lesser Black-backed Gull	V	1-20	
Herring Gull	V	1-5	
Yellow-legged Gull	va	1	1998
Common Tern	va	1-2	Fishes ponds. From colony in Trent Vale
Rock Dove	V	1-5	Feral
Wood Pigeon	RB/WV/PM	25+ /25 - 400	
Collared Dove	V	2-5	
Turtle Dove	va	1	2000
Cuckoo	SVb	1-2	
Barn Owl	RB	1	
Little Owl	RB	2+	
Tawny Owl	RB	4-5	
Nightjar	va	1	9.1998
Swift	V	1-5	
Kingfisher	SV(b)	1/ 1-3	Late summer fledging visits
Green Woodpecker	RB	1	
Great Spotted Woodpecker		RB	1-2
Lesser Spotted Woodpecker		RB	1
Short-toed Lark	va	1	4/1998
Skylark	RB/PM	2-3/few	

Sand Martin	V	1-3	
Swallow	SV/PM	1-50	
House Martin	PM	1-20	
Tree Pipit	V	1	
Meadow Pipit	WV/PM	1-20	
Yellow Wagtail	V	1-5	
Grey Wagtail	WV/P<M	1-3	
Pied Wagtail	RB/WV	1/1-3	
Wren	RB/PM	5/4	
Dunnock	RB	10	
Robin	RB/WV/PM	6/1-5	
Common Redstart	SVb /PM	1/ 1	
Ring Ouzel	va	1	
Blackbird	RB/WV/PM	6 / 30	
Fieldfare	WV/PM	1-500	
Song Thrush	RB/PM	4/ 1-5	
Redwing	WV / PM	1-300	
Mistle Thrush	RB/ PM	3 / up to 50	
Grasshopper Warbler	SVb	1	1997/1998
Reed warbler	va	1	1996
Lesser Whitethroat	SVb/ PM	1/ 1-2	
Common Whitethroat	SVb/ PM	1/ 1-3	
Garden Warbler	SVB	2	
Blackcap	SVB /PM	5/ 1-6	
Yellow-browed Warbler	va	1	9/2000
Chiffchaff	SVB/PM	1-9	
Willow Warbler	SVB/ PM	4/1-6	
Goldcrest	RB/ PM	3+ / 1-6	
Spotted Flycatcher	SVB/ PM	1-3/1-4	
Pied Flycatcher	va	1	
Long-tailed Tit	RB	6+	
Marsh Tit	RB	2-3	
Willow Tit	RB	1	
Coal Tit	RB	3-4	
Blue Tit	RB	10+	
Great Tit	RB	6+	
Nuthatch	RB	2	
Treecreeper	RB	2	
Short-toed Treecreeper	va	1	1998
Golden oriole	va	1	1996
Jay	RB	2	

Magpie	RB	2-3
Jackdaw	RB	8+
Rook	V	1-10
Carrion Crow	RB	3+
Starling	RB/WV	3+ / 50
House Sparrow	RB	2
Tree Sparrow	RB	1-3
Chaffinch	RB/WV/PM	6+
Brambling	va	2
Greenfinch	RB	2-3
Goldfinch	SVB/WV	up to 30 / 3
Siskin	WV/PM	up to 65
Linnet	SVB	up to 25 / 2
Lesser Redpoll	WV/ PM	up to 15
Common Crossbill	V	up to 9
Bullfinch	RB/WV	2/ up to 9
Yellowhammer	V	1-3
Reed Bunting	SVb /PM	1 / 1-7

e. The assessment of the ornithological importance of Byrkley Park provided by Mr. Wallace is included in the Evaluation Section of this report.

5.44 **Summary of Mammal and Bird Appraisal**

a. Badgers - The site has a reasonably rich complement of resident mammals. The population of badgers appears to be thriving and secure. One outlying sett has been found within the site and it is clear that badgers forage over at least a quarter of the entire area and almost certainly use land south and east of the site.

b. Badgers are protected under the Badgers Act 1992 which gives protection to the animals and to their setts. The Act defines a badger sett as "*any structure or place which displays signs indicating current use by a badger.*" It does not directly protect wider habitat or foraging areas.

c. The presence of Brown Hare is significant, this being a species covered by Biodiversity Action Plans.

d. Bats - All bat species are fully protected under Schedule 5 of the Wildlife and Countryside act (1981) The Act applies to "any structure or place the animal uses for shelter or protection" Since bat roosts tend to be re-used over long periods of time, legal opinion is that a bat roost is protected whether it is occupied or not.

e. The other mammals are unexceptional and include what would be expected on a site of this size, character and history.

f. Birds - The recorded list of birds is impressive and largely self-explanatory. The following commentaries have been provided by the recorder.

The value of Byrkley Park as a Wildlife Habitat . D.I.M.Wallace, April 2001

g. Within East Staffordshire, the park provides an above average selection of niches for wildlife. Its denser population of animals is immediately obvious. In particular, the park has presented - with Crossplain (the airfield) to the north-west and Yoxall Park to the south - an arc-shaped sanctuary or reservoir of bio-diversity.

h. Bird populations readily reflect such natural wealth and at least 108 species have been identified in the park since 1995. This figure is 2 to 3 times greater than those in similarly sized areas of the surrounding farmland.

i. Within the park, the most valuable sector for birds is the wooded part of Lin Brook, from the start of the hawthorn bushes 0.5km north of the upper pond to the southern boundary in The Dingle including the two ponds with their islets and surrounding thickets.

j. 69 of the 108 species have occurred in this "riverine gallery".

k. Important breeding birds - It is accepted conservation practice to protect species whose local populations reach or exceed 1% of a regional total, or which are known to be in general decline.

l. Within Byrkley Park, 15 species are particularly valuable in a West Midlands (WM) context:

Little Grebe (Dabchick): Up to 3 pairs breed on the ponds, with good success, 1-1 1/2% of WM population.

Mandarin: 1 pair raised juvenile in 2000 (nest probably in tree hole near ponds); species feral in Britain but population important as wild birds in Far East are threatened.

Shoveler: Nest with eggs in June 1991 (outcome not monitored); only c. 5 pairs in WM.

Tufted Duck: Up to 4 pairs breed annually but with low success (cause of losses unknown): maximum of 220 pairs in WM.

Buzzard: Up to 3 pairs breed, with one to three juveniles reared annually since 1992 (possibly some years previously). Important forerunners of the recently expanding population in WM. Feeds on rabbits and carrion.

Grey Partridge: Small coveys of up to 9 birds seen along north-western boundary with airfield, but breeding success not known. The only native sp. of partridge and in serious national decline.

Barn Owl :One pair bred in the one remaining building of old hall complex in 1995 and birds are occasionally seen near Byrkley Gorse and at east end of the airfield. Almost exterminated in E. Staffs, but national decline now halted.

Kingfisher: Both adults and young birds come to the ponds in late summer/autumn, a clear indication that ponds constitute a "fledging water" - one of only two in Needwood Forest.

Woodpeckers: All three British breeding species - Green, Great Spotted and Lesser Spotted - occur throughout No attempt made to prove breeding. The presence of mature and decaying trees is crucial to reproduction for the family.

(Great Spotted seen visiting nest, May 2001 (RT)).

Spotted Flycatcher: Up to 3 pairs breed in mature oaks, occasionally bringing young to ponds (where insects abundant), a rarity elsewhere in Needwood Forest and in serious national decline.

Marsh and Willow Tits: Both black-capped tit species occur regularly, the latter being particularly dependent on rotting trees for nest holes. The pond-side thickets are one of only 3 remaining sites for Willow Tit in Needwood Forest. Both species are in serious national decline.

Redpoll: Not proved to breed, although frequent in autumn, but the "riverine gallery" of Lin Brook is likely to harbour this finch which is in serious national decline.

m. Other important bird records - In general, Britain offers more sanctuary to birds in autumn and winter than in spring and summer. The park's habitats are important to the following non-breeding groups:

Migrant/wintering duck: Up to 8 wild species use the ponds for rest and feeding, with up to 150 Teal on passage in early autumn, representing a significant WM gathering.

Diurnal birds of prey: 8 wild species have occurred. Visits by Hobby and Peregrine significant given recent breeding in surrounding areas of Staffs and Derbys.

Wintering thrushes: Up to 500 Fieldfares and 300 Redwings feed on the northern cow pastures, roosting in the old hall woods and nearby coverts.

Passerine nocturnal migrants: Arrivals of up to 20 individuals, of 6 species, indicates the attractiveness of ponds to small birds which use the nearby thickets to recuperate.