Historic Farmsteads

Preliminary Character Statement:

East of England Region

ENGLISH HERITAGE

The Countryside Agency
Landscape
Access
Recreation

Acknowledgements

The text of this document was prepared by Jeremy Lake and Bob Edwards with contributions to the regional and national sections from Susanna Wade Martins and additional assistance by Peter Gaskell and Julie Ryan. It was designed by Steve Dent and edited by Nicki Marshall of BiscuitBox Ltd. The research project was commissioned by English Heritage and the Countryside Agency and managed by Peter Gaskell of the University of Gloucestershire. The assistance of the following people is gratefully acknowledged: Steve Podd, Freya Edwards and the many farmers and owners of buildings who gave their time to discuss their farm buildings and allowed access for photography.

This document is one of eight Preliminary Character Statements, which provide information on the characteristics of traditional farm buildings in each Region. They can be viewed and downloaded at **www.helm.org.uk/ruraldevelopment** and at **www.ahds.ac.uk**.

English Heritage is the Government's adviser on the historic environment. Central to the role of English Heritage is the advice it gives to local planning authorities, government departments and others on the conservation of historic buildings, sites and areas, archaeology on land and underwater, designed landscapes and the historic aspects of the landscape as a whole. English Heritage also has a duty to enhance people's understanding and enjoyment of their heritage and, as part of this, it manages an estate of over 400 historic properties open to the public.

The Countryside Agency is the statutory body working to conserve and enhance England's countryside. The aim of the Countryside Agency's Landscape, Access and Recreation division is to help everyone respect, protect and enjoy the countryside, protect natural landscapes, and encourage access to, enjoyment of and sustainable management and use of the countryside.

In accordance with the Natural Environment and Rural Communities Act 2006, English Nature, the Rural Development Service and the Countryside Agency's Landscape, Access and Recreation division are working towards integration as a single body: Natural England. It will work for people, places and nature with responsibility for enhancing biodiversity, landscapes and wildlife in rural, urban, coastal and marine areas, promoting access, recreation and public well-being, and contributing to the way natural resources are managed so that they can be enjoyed now and for future generations.

The document should be cited as:
Historic Farmsteads. Preliminary Character Statement: East of England Region.

Published in August 2006 by the University of Gloucestershire in association with English Heritage and the Countryside Agency.

Countryside and Community Research Unit
Dunholme Villa
The Park
Cheltenham
Gloucestershire
GL50 2RF

Cover image: The Fens – the characteristic flat landscape crossed by straight roads and drains with isolated farmsteads either sitting alongside the road or set back from the road and accessed by tracks. Large-scale reclamation of parts of the Fens was carried out from the 17th century, mainly to produce grazing lands. Improved drainage systems introduced in the 19th century allowed the rich peat soils to be extensively used for arable and led to the construction of many new farmsteads. Shrinkage of the peat often resulted in structural problems so few of the early farm buildings survive. © *Countryside Agency / David Burton*

Contents

Illustrations

Summary: East of England Region

I LANDSCAPE AND AGRICULTURAL CONTEXT

NATIONAL FRAMEWORK

Patterns of land use were very varied, reflecting cultural factors as well as climatic conditions and the physical structure of the landscape. The distribution of farmsteads, their dates of foundation and their relationship to the farming landscape are intimately linked to **historical patterns of fields** and **settlement** in the landscape. Areas of nucleated settlement, concentrated in a central band running from Northumberland into Somerset and Dorset, are associated with villages whose communally farmed townfields were subject – at varying rates – to amalgamation and enclosure by tenants and landlords from the 14th century. This process was often associated with the creation of new holdings and farmsteads within the new enclosures. Areas of dispersed settlement, where farmsteads are either isolated or grouped in hamlets and surrounded by originally smaller townfields and more ancient patterns of enclosure, are most strongly characteristic of western and parts of eastern and south-eastern England. Between the two extremes are areas that contain both nucleated and dispersed settlement to varying degrees.

Agricultural development in England can be divided into the following major periods:

- *Up to 1750* Economic boom in the 12th and 13th centuries, which included the development of large farms on monastic and secular estates, was followed by contraction of settlement and the leasing out of estates after the famines and plagues of the 14th century. The period from the 15th century was characterised by a general increase in agricultural incomes and productivity and the emergence – particularly from 1660 – of increasingly market-based and specialised regional economies. Substantially complete farm buildings of this period are rare, and provide the first evidence for the development and strengthening of regional traditions and building types. Many surviving farmsteads in upland areas, with farm buildings attached to their farmhouse, survive from the later 17th and 18th centuries. It is otherwise very rare for farmsteads to have more than a house and barn dating from this period.

- *1750 – 1880* This is the most important period of farm building development, the production of farmyard manure by cattle playing a major role in increasing agricultural productivity. The increased output of this period was encouraged by rising grain prices and the demands of an increasingly urban population, and was enabled by the expansion of the cultivated area (especially from the 1790s to 1815), the continued reorganisation and enlargement of holdings and the final phase of the enclosure of open fields – concentrated in the Midland counties. Substantial improvements in animal husbandry were made with the development of improved breeds and a greater awareness of the importance of the need for housing, particularly for cattle, which hastened fattening and meant that manure could be collected and stored better. The high-input/high-output systems of the 'High Farming' years of the 1840s to 1870s were based on the availability of imported artificial fertilisers, manures and feeds.

- *1880 – 1940* There was little fresh investment due to the long farming depression in this period, notable exceptions being some estates and continuing developments in dairying areas. Hygiene regulations in the inter-war period resulted in intense forms of housing for pigs and poultry, and the replacement of earlier forms of housing for dairy cattle by new forms of cow house with concrete floors and stalls, and metal roofs and fittings.

- *1940 to present* The 1937 Agriculture Act anticipated the need to increase self-sufficiency, and the Second World War witnessed a 60% rise in productivity. This was the result of the growth in livestock numbers, increasing scientific and government control and guidance, more specialised systems of management and the conversion to arable of permanent pasture. The Agriculture Act of 1947 heralded the intensification and increased specialisation of farming in the post-war period, accompanied by the development of government and industry research and guidance. The Government provided grants to cover the capital cost of new building under the Farm Improvement Scheme (introduced 1957). The introduction of wide-span multi-purpose sheds in concrete, steel and asbestos met increasing requirements for machinery and for the environmental control of livestock and on-farm production, particularly of milk.

REGIONAL PATTERNS

In most of the Region, settlement is a mixture of villages, hamlets and dispersed farmsteads; many of the latter are often clustered around commons and greens. Across the fenland, much of which – particularly to the south – was unsuited to settlement until extensive drainage operations reclaimed large tracts of land, the density of

settlement is relatively low with small, nucleated villages and isolated farmsteads. On the anciently enclosed claylands to the south and east the density of dispersed farmsteads and hamlets increases, with high numbers of moated sites through Essex and Suffolk in particular. Bedfordshire, the western part of Cambridgeshire and the northern edge of Hertfordshire lie within the Central Province where nucleated villages are the predominant settlement type.

Much of the Region had good access – via its rivers, ports and extensive coastline – to London and foreign markets. Mixed farming was very strong, but parts of the area were suited to specialise. Thus the lightest soils were particularly suited to the growing of corn and keeping of sheep. These are concentrated in the north and west of Norfolk and Suffolk, where 18th- and 19th-century large-scale enclosure – and associated farmsteads built for great estates such as Holkham – now dominates the landscape. The claylands were best suited to dairying. Farmers throughout the Region had fattened cattle for export, and they pioneered major improvements in crop rotation from the late 17th century, which used winter feed crops (notably turnips) and artificial grasses and had a significant impact on the agricultural development of England. Higher land prices close to London meant that farms and estates in the south of the Region were generally smaller than elsewhere, often specialising in fruit growing and the export of a great variety of products to the capital. During the 19th century the influence of London was even more firmly felt, with market gardening and dairying increasing in importance. Railways became a major factor from the 1840s. Intensive bullock and cattle feeding (with oilcake) was increasingly widespread in the period up to the 1870s, a major aspect being the fattening of livestock bound for Smithfield market imported into Norfolk from Scotland and Ireland. The 19th century also saw the application of steam power to the drainage and reclamation of the peat-based southern fens, which led to the creation of distinctive new landscapes with new farmsteads placed at regular intervals along the roads.

2 BUILDING MATERIALS

NATIONAL FRAMEWORK

The use of locally available materials, combined with local vernacular traditions, makes a fundamental contribution to local and regional diversity.

Long-rooted traditions such as earth walling, thatch and timber frame, survived much longer on farm buildings than farmhouses. Buildings in stone and brick, roofed with tile or slate, increasingly replaced such buildings from the later 18th century.

Standardised forms of construction, including softwood roof trusses, developed across the country in the 19th century, often reflecting the greater availability of materials such as Welsh slate transported along the canals and, later, the railways. Corrugated iron was used from the late 19th century as a cheap means of replacing or covering roofs (particularly thatch) in poor condition.

REGIONAL PATTERNS

Only on the extreme edges of this Region is any building stone found, such as limestone on its western boundary, flint (intermixed with brick), carstone, chalk and clunch in north-west Norfolk.

The claylands of the Region have varied traditions of building in earth, including the highly distinctive clay lump concentrated in south Norfolk and north Suffolk.

Timber-framed buildings – once extensive in their distribution – remain a distinctive feature across the claylands, which retained a large proportion of both woodland and hedgerow timber into the 18th century. Agricultural buildings are either clad in lath and plaster – as in Suffolk, Cambridgeshire and south Norfolk – or more commonly weatherboarded.

Brick was used from the medieval period in East Anglia but did not become widespread for farm buildings until the early 19th century.

Almost all farm buildings were thatched with longstraw, a consequence of the importance of arable farming. During the 19th century much of the Region's thatch was replaced with plain clay tiles or pantiles, but reed thatching continued in the Broads and parts of the Fens and straw thatching in other areas such as south Cambridgeshire. The replacement of longstraw by combed wheat reed has led to a different appearance.

3 FARMSTEADS

NATIONAL FRAMEWORK – FARMSTEAD TYPES

The scale and form of farmstead plan types are subject to much variation and are closely related to farm size and status, terrain and land use. It was far more common for the houses on farms in northern and western England to be attached to the farm buildings. By contrast, even small farms in the South East and East Anglia were characterised by detached houses and separate buildings, often loosely arranged around the sides of a yard.

- *Linear plans*, where houses and farm buildings are attached, were ideally suited to small farms (usually stock rearing and dairying), especially in northern pastoral areas with little corn and longer winters where there was an obvious advantage in having cattle

and their fodder (primarily hay) in one enclosed building. They now display a wide range in scale, from large steadings of independent Pennine yeoman-farmers to the smallholdings of miner-farmers.
- *Dispersed plans*, comprising clusters and unplanned groupings of separate buildings, were more widespread. They now range from those of hamlets, where the buildings of different owners were often intermixed, to large-scale individual steadings, some of which were of high status.
- *Loose courtyard plans* became most strongly associated with large and/or arable farms. The buildings are built around a yard with or without scatters of other farm buildings close by.
- *Regular courtyard plans*, where the various functions were carefully placed in relation to one another in order to minimise the waste of labour, and where the manure could be conserved, were built – at first on large estates – from the later 18th century.

REGIONAL PATTERNS – FARMSTEAD TYPES

In common with the South East, the Region has some very early surviving entire complexes of loose courtyard steadings dating from the 17th century, often distinguished by groups of two or more barns, granaries and stabling. Many of these loose courtyards are found in the claylands, where dispersed plans are common also. Regular courtyard farms are documented in the Region from the mid-18th century, although no surviving groups can be dated before the 1780s. They are concentrated in areas of post-1750 enclosure, and are strongly associated with the activities of estates. Some of the largest examples of mid-19th century steam-powered industrial farms are found on the Duke of Bedford estates. On smaller dairy farms such re-planning was less likely and a scattered group of buildings around a yard remained typical.

NATIONAL FRAMEWORK – BUILDING TYPES

The functions of crop processing and storage and the accommodation of animals and birds determine the variety of building types, which could house one or a combination of functions. The principal types are listed below.

Barns are generally the largest farm buildings to be found on farms. They were either designed solely for storing and processing the corn crop, these being most common in areas of arable production, or as combination barns to incorporate many functions. Threshing machines, usually powered by horses accommodated in a projecting wheel house, were introduced from the later 18th century. Split-level mixing barns developed in many regions from the later 18th century as a result of the widespread introduction of machinery for processing corn and fodder. The introduction of the portable steam engine and threshing machine in the 1850s heralded the end of the traditional barn as a building for storage and processing.

Field barns were built in areas where farmsteads and fields were sited at a long distance from each other, and where holdings were intermixed. **Granaries** were either detached or built over stables and cart sheds. **Cart sheds** often faced away from the farmyard and were typically close to the stables and roadways, giving direct access to the fields. **Stables** were normally two-storey well-lit buildings with a hayloft above. **Cow houses** were typically built for dairy cattle. The folding of stock in strawed-down yards and feeding them with root crops became more general from the later 18th century, together with the subdivision of yards into smaller areas and the construction of **shelter sheds** and **loose boxes.** **Pigs** were undoubtedly kept on most farms and particularly on dairying establishments, where there was a ready supply of whey on which to feed them. **Dovecotes** were built to house pigeons, which provided variety to the diets of high-status households and a rich source of manure.

REGIONAL PATTERNS – BUILDING TYPES

In common with the South East, the Region has some major concentrations of pre-1550 and pre-1750 farmstead buildings. Early (pre-1750) farm buildings are largely absent from the acidic coastal and heathland soils affected by post-1750 improvements, being instead concentrated on deeper soils and in valley bottoms. There is a marked concentration of pre-1750 farm buildings (predominantly barns) on the Flegg Loams, across the claylands of South Suffolk and North Essex and South Norfolk and High Suffolk.

Barns in arable areas, as in the South East, were large in scale. A distinctive characteristic of the Region, shared with the South East, is the concentration of timber-framed aisled barns dating from the 12th to the 19th century. Many are the result of a massive rebuilding programme underway between 1550 and 1650. Aisled barns are particularly concentrated in the western half of Suffolk, the Broadland fringe in Norfolk, Essex, Hertfordshire and east Cambridgeshire. The majority are four to six bays in length with slightly larger barns of seven to eight bays found in the main cereal-growing areas. Some of the largest manorial farms had two or three separate barns while typically medium-sized farms had two, allowing for the wheat and barley to be housed and threshed separately. Smaller multi-functional timber-framed barns, often including stables or cow houses at one end, were built on the dairy farms of the South Norfolk and High Suffolk Claylands although often the animal housing has since been removed.

The Region also has some very early examples, dating from the 17th century and earlier, of granaries, cart

sheds and stables. Associated with the dairy industry of the High Suffolk clays are so-called neathouses for milking and feeding, identifiable by their lack of lofts, internal subdivision and window openings. Some of these, and subdivisions in multi-functional barns, are the earliest evidence for cattle housing in the country. Cattle houses located on the edge of the grazing marshes of the Norfolk Broads are highly specialised in their form, in which cattle were housed down side aisles facing into a central nave where root crops were stored. Increases in the price of fatstock from 1840 encouraged more intensive fattening systems such as loose boxes being widely introduced. Shelter sheds around straw yards were also increasingly common from the mid-19th century, particularly on estate farms such as those of north Norfolk.

In this predominately arable Region it is not surprising that hay barns are rare. Malting barley (for export to London and abroad) was a significant crop in Norfolk and Hertfordshire and both were important malting counties. A few farms retain maltings but by the 19th century the industry was concentrated in towns where large industrial maltings were built. A type of building associated specifically with the traditional market-gardening economy of the gravel soils of Bedfordshire is the onion shed.

1.0 Introduction

If the land is best suited for tillage, then the outhouses must be adapted to the purposes of keeping cattle for plowing; of holding and thrashing corn; and of preserving straw, &c. for winter food. In the counties where oxen plow, ox-houses must exceed the quantity of stabling: if where horses only are used, stables alone will be sufficient. If the land seems to promise fairest for pasturage, then cow houses, suckling-houses, sheepcots, dairies, and fattening houses must predominate; and if for grass, much barn-room seems unnecessary.

The Complete English Farmer, 1771, quoted in Wiliam 1986, p.67

Farm buildings are the leitmotif of the countryside. It seems appropriate to describe them with a musical term for they are thematic, and the resonance of their forms, colours and textures within the scenery is that of sound, overall and orchestrated. Here and there is the solo instrument, spectacular in its own right, but much more important is the orchestral effect.

Darley, Gillian (1981) *The National Trust Book of the Farm*, The National Trust, London, p.7

Historic farmsteads and their buildings make a fundamental contribution to the richly varied character of our countryside, and illustrate the long history of farming and settlement in the English landscape. England displays a huge diversity in geology, with a greater variety in small areas than anywhere else in Europe, which combined with varied farming practices has resulted in a great diversity of materials and types of farmstead.

It is clear, however, that we know far more about the nature and processes of change affecting land cover and field pattern than we do about agriculture's built environment and its contribution to countryside character and local distinctiveness. Furthermore, we know far less about the working than the domestic buildings of the farmstead. Recent research has made initial efforts to address this issue, and has made it clear how the domestic and working buildings of the farmstead are subject to very different processes of change (Gaskell & Owen, 2005).

English Heritage is now undertaking to develop this knowledge base in order to inform diverse future outcomes, such as the targeting of grant aid and the development of character-based policies for the sustainable reuse of farm buildings. This document is one of eight regional *preliminary character statements* that aim to promote better and more accessible understanding of the character of farm buildings. It is important, as a first step in this process, to present an information base for a broad diversity of users with an interest in researching, understanding and managing historic farmsteads. It has therefore been written as a sourced synthesis of information, drawing together information that will enable the farmsteads of each Region to be better understood within the national context of farmstead and agricultural development, and their surrounding fields and settlements. As this is a preliminary statement, it and future work will benefit greatly from information and comments. These will be gratefully received at the following e-mail address: **jeremy.lake@english-heritage.org.uk**.

The objectives of this document are:

- To provide an information base and introduction to the subject.
- To place the development of the farmsteads and farm buildings of the East of England Region within their national context.
- To demonstrate, with examples, how the *present* stock of farmsteads and their buildings reflects the diversity of farming, settlement and landscape character in the East of England Region.
- To provide broad guidance on the value and survival by period and functional type.

An accompanying policy booklet has also been prepared, which makes the case for urgent action and considers

the importance of historic farm buildings, their value and their future. See *Living buildings in a living landscape: finding a future for traditional farm buildings*, at **www.helm.org.uk/ruraldevelopment**.

In each of the following sections, the national overview is presented immediately before the regional statement. For example, on the topic of barns, the national overview describes the development, variety and uses of barns nationally while the regional statement describes the variety that can be seen in the barns of the Region.

Section 2 provides an introduction to characterisation and briefly describes the landscape character of the Region, examining the pattern of rural settlement across the Region.

Section 3 describes the predominant building materials used for farm buildings nationally and in the Region.

Section 4 provides a brief introduction to the agricultural history of England with particular reference to the development of farmsteads and farm buildings divided into the major periods, supported by statements relating to the survival and significance of farm buildings from each period. This is followed by a summary of the agricultural history of the Region.

Section 5 provides a national and regional background of types of farmsteads and farm buildings.

Sections 6, 7 and 8 provide a national and regional overview of key building types.

Section 9 provides a Glossary of terms both familiar and unfamiliar to the reader (e.g. dairy, linhay, enclosure).

Section 10 provides a list of national and regional sources for further reference.

It is also important at this stage to outline a distinction in terminology. 'Traditional' is a term often used to describe farm buildings pre-dating 1940, after which modern building materials (concrete, steel, asbestos sheet) and revolutions in farming technology and farmstead planning marked a sharp divide with previous practice. 'Historic' is more encompassing, as it includes farmsteads of all dates, irrespective of changes in form and material; it has been used in this document in order that the reader can view the history of farm buildings, and their change and adaptation over the centuries, within their broad historical context.

2.0 Understanding Context and Character

2.1 LANDSCAPE CHARACTER AND CHARACTERISATION

Landscape character is defined as a distinct and recognisable pattern of elements that occur consistently in a particular type of landscape. Particular combinations of geology (Figure 1A), landform, soils, vegetation, land use, field patterns and human settlement create character. Character makes each part of the landscape distinct, and gives each its particular sense of place. Landscape-scale techniques for understanding and guiding future change, now brigaded under the heading of characterisation, have developed since the 1990s. These have developed as multi-disciplinary and holistic tools for understanding the whole rural environment, its capacity to absorb change and its links to community values and needs.

During the 1990s the Countryside Commission worked with English Nature and English Heritage to identify Joint Character Areas (159 in total) for the whole of England, each of these resulting from a combination of factors such as land cover, geology, soils, topography, and settlement and enclosure patterns. These are now being used as the framework for the delivery of advice and the targeting of resources for many aspects of the rural environment, most recently to farmers under the Higher Level Stewardship Agri-Environment schemes, and local authorities have taken forward this methodology for Landscape Character Assessments on a finer scale. These are also being used as the spatial framework for reporting change in the countryside, in the Countryside Quality Counts project (see **www.cqc.org.uk**).

The East of England Region extends over the Joint Character Areas listed in Figure 1B. Whenever the text cross-refers to the Joint Character Areas, they will be listed by their number (i.e. JCA 152). The key characteristics and a detailed description and map for each Character Area are available from the Countryside Agency's website **(www.countryside.gov.uk/lar/landscape)**. The web addresses for each JCA are detailed in Section 11.

Human impact has been central to the development and present character of landscape. Historic Landscape Characterisation (HLC), which is being developed by English Heritage with its county and local partners, is using GIS mapping techniques to deepen our understanding and perception of the long historical development of our landscapes. The practical applications of HLC now include development plans, a broad range of conservation and enhancement strategies, strategic land-use planning and similar initiatives, and research and academic implications (Clark, Darlington & Fairclough, 2004; Rippon, 2005, 100–142).

Pilot work is now indicating that the density and time-depth of farmsteads, and the rates of survival of different types of steading and building, are closely related to patterns of historically conditioned landscape character and type (Lake & Edwards 2006). This work represents a shift in focus away from individual buildings to a more question-based and holistic approach, one that uses landscape to both reflect and inform the patterning of the built environment. Recording and understanding at a local scale can both test and refine these broad-based, contextualised statements and contribute towards a more integrated understanding of both buildings and landscapes.

For characterisation see:
www.english-heritage.org.uk/characterisation

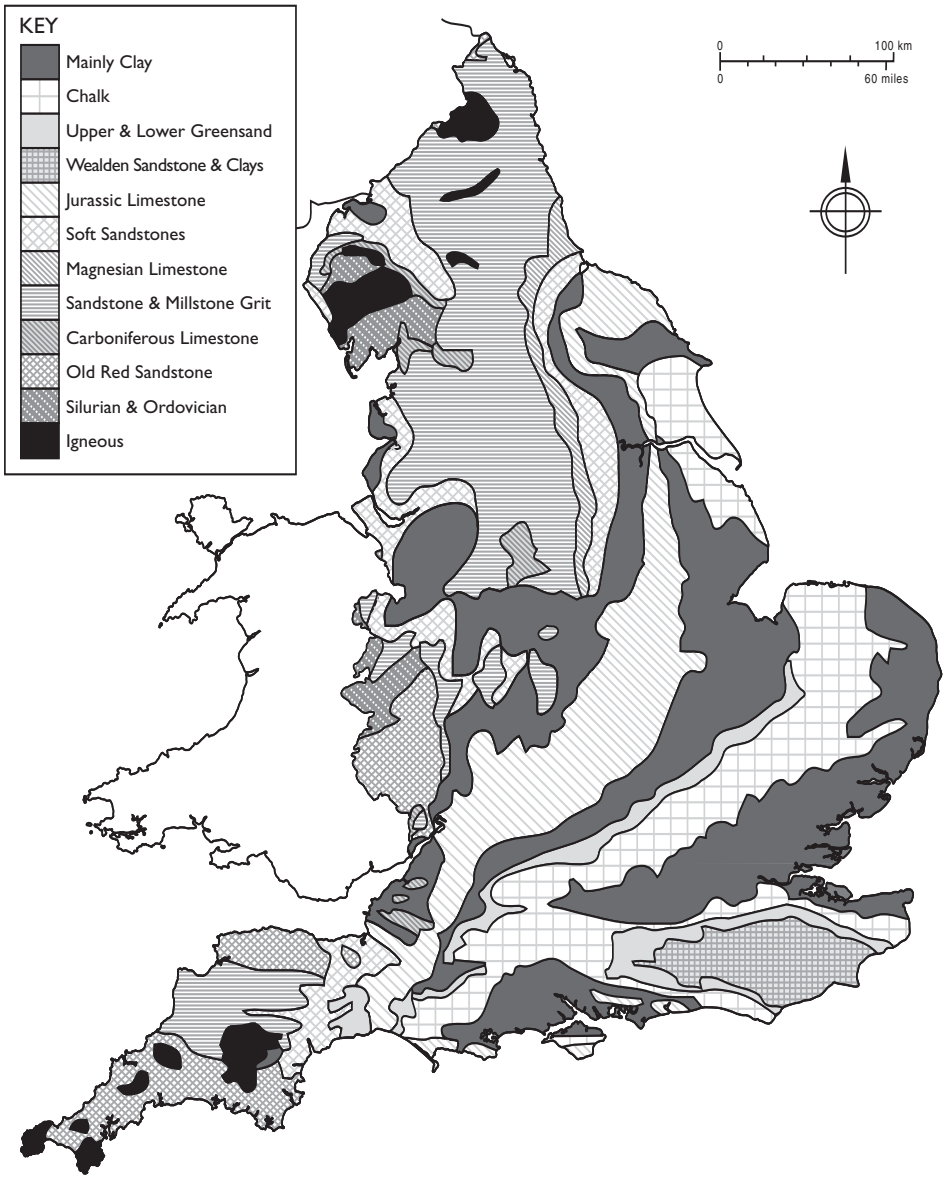
2.2 THE CHARACTER OF THE EAST OF ENGLAND REGION: AN INTRODUCTION

The East of England Region comprises the six counties of Norfolk, Suffolk, Cambridgeshire, Bedfordshire, Hertfordshire and Essex. It contains a variety of landscapes from flat fens, broads and coastal marshes, to dunes and beaches and the rolling landscapes of village, woodland and hedgerow.

Geologically the underlying rocks are sandstone in the east with chalk and limestone in the central areas, but much of the Region is covered by deep glacial soils, which can vary greatly within individual farm holdings.

Whilst the Region does not have the strongly contrasting upland–lowland landscapes of some of other Regions, there is considerable variety in the character of the landscapes across the area (Figure 1B). In the north-west of the Region is the open, flat, large-scale arable landscape of the Fens. Although the fenland and the Norfolk Broads in north-east Norfolk are probably the best-known landscapes in the Region, across much of Norfolk there are the higher, rolling landscapes of North West Norfolk and Mid and Central North Norfolk, where areas of heathland are found along Cromer Ridge and the greensand ridge bordering the fens. However, arable farming dominates the landscape of these areas, much of it associated with large estates.

At the heart of the Region is Breckland, a unique landscape of large-scale arable, open heathland and vast conifer plantations. South of Breckland is the East Anglian Chalk, an open, rolling downland landscape forming a



1A England displays a huge diversity in geology, with a greater variety in small areas than anywhere else in Europe. This variety provided the different building materials used in vernacular buildings that contribute so much to local distinctiveness. The East of England Region has few areas with good building stone – timber-framing was the predominant building technique across much of the Region's clay lands whilst flint from the chalk was often combined with brick along the chalk belt. The clays were used for earth-walled buildings and for bricks of a wide, and often distinctive, range of colours. *Based upon 'Solid Geology' Source Defra/BGS, NERC: by permission of the British Geological Survey IPR/52-65C. ©NERC/Crown copyright. OS Licence no. 100042054*

continuation of the Chilterns. North-west of the chalk is the Bedfordshire and Cambridgeshire Clayland, which forms a predominantly open, gently undulating arable landscape divided by the flood plains of the Great Ouse and Ivel. To the south-east of Breckland and the East Anglian Chalk are the South Suffolk and North Essex Claylands and the South Norfolk and High Suffolk Claylands, which have more hedgerow trees and stretches of woodland with a winding network of roads and lanes, contrasting with the long straight roads found across much of the western and northern parts of the Region. Along the south-eastern edge of Essex are the more heavily wooded, sandy Essex Wooded Hills and Ridges, and the lower-lying Essex Heaths, both of which form part of the North Thames Basin character area.

The coastal fringes of the Region, represented by the North Norfolk Coast, North East Norfolk and the Suffolk Coast and Heath are characterised by estuaries, salt marshes, grazing marshes, mudflats and sand dunes.

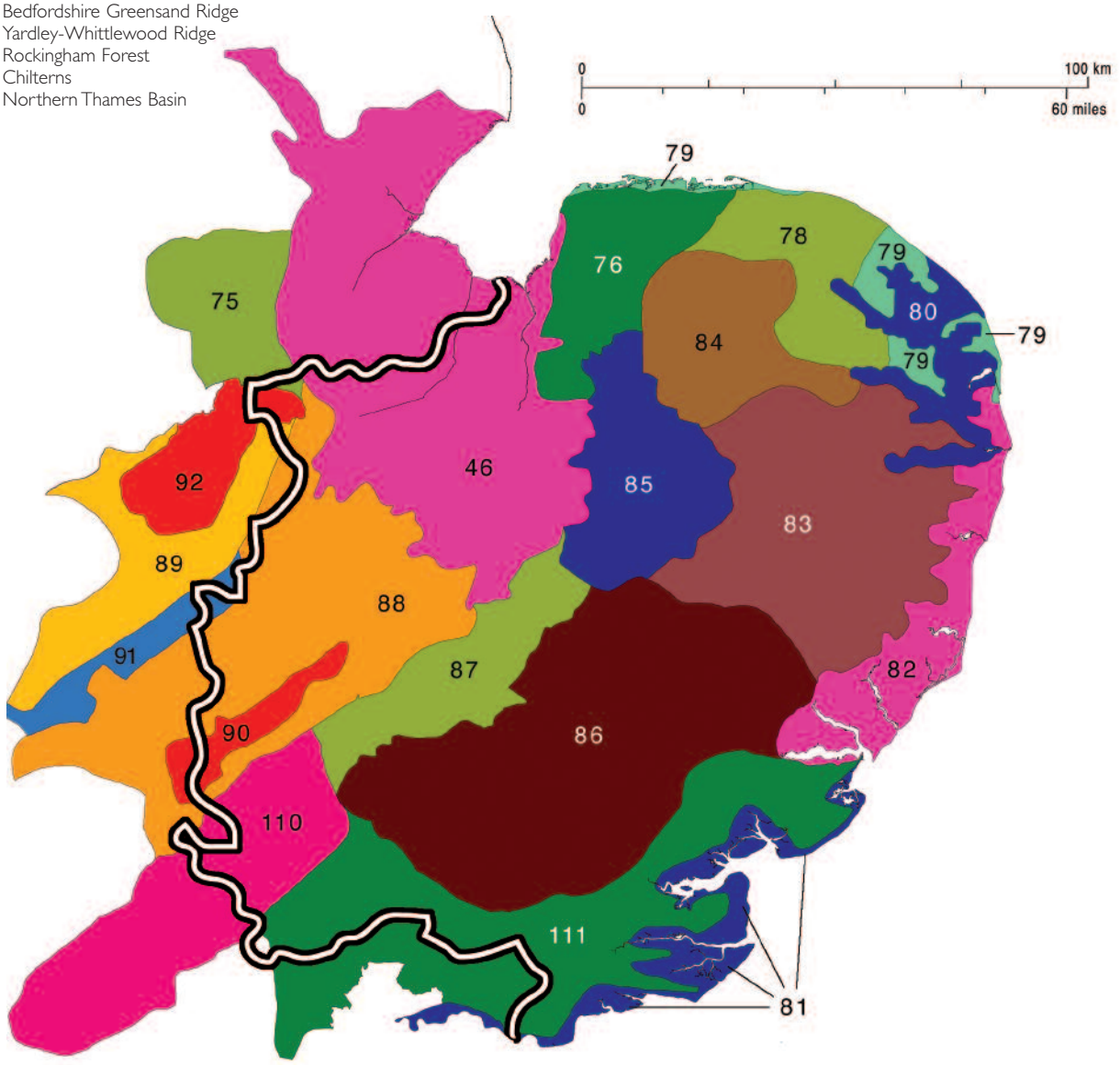
The Region's greatest economic asset is its intensively cropped high-quality agricultural land, 58% of which is Grade 1 and 2. The main area of Grade 1 land is in the fens where the soils are based on marine sands or deep peat. Only 10% falls into the lower-quality Grades 4 and 5, mostly in the Brecklands. The agricultural potential of the Region is further enhanced by its proximity to continental Europe resulting in warm summers and mild winters giving a long growing season. The Region receives only two-thirds of the national average of rainfall with higher areas such as the Chilterns receiving most rain (ERDP 2000).

2.3 THE CHARACTER OF RURAL SETTLEMENT

2.3.1 NATIONAL FRAMEWORK

Farmland has historically been divided into arable for growing corn and other crops, and meadow for hay and grass. In the past, farmers also had access to fallow land, land laid open after the harvest and areas of rougher common ground for grazing livestock. Patterns of

JCA number	*JCA name*
45	Northern Lincolnshire Edge with Coversands
75	Kesteven Uplands
76	North West Norfolk
78	Central North Norfolk
79	North East Norfolk and Flegg
80	The Broads
81	Greater Thames Estuary
82	Suffolk Coast and Heaths
83	South Norfolk and High Suffolk Claylands
84	Mid Norfolk
85	Breckland
86	South Suffolk and North Essex Clayland
87	East Anglian Chalk
88	Bedfordshire and Cambridgeshire Claylands
89	Northamptonshire Vales
90	Bedfordshire Greensand Ridge
91	Yardley-Whittlewood Ridge
92	Rockingham Forest
110	Chilterns
111	Northern Thames Basin



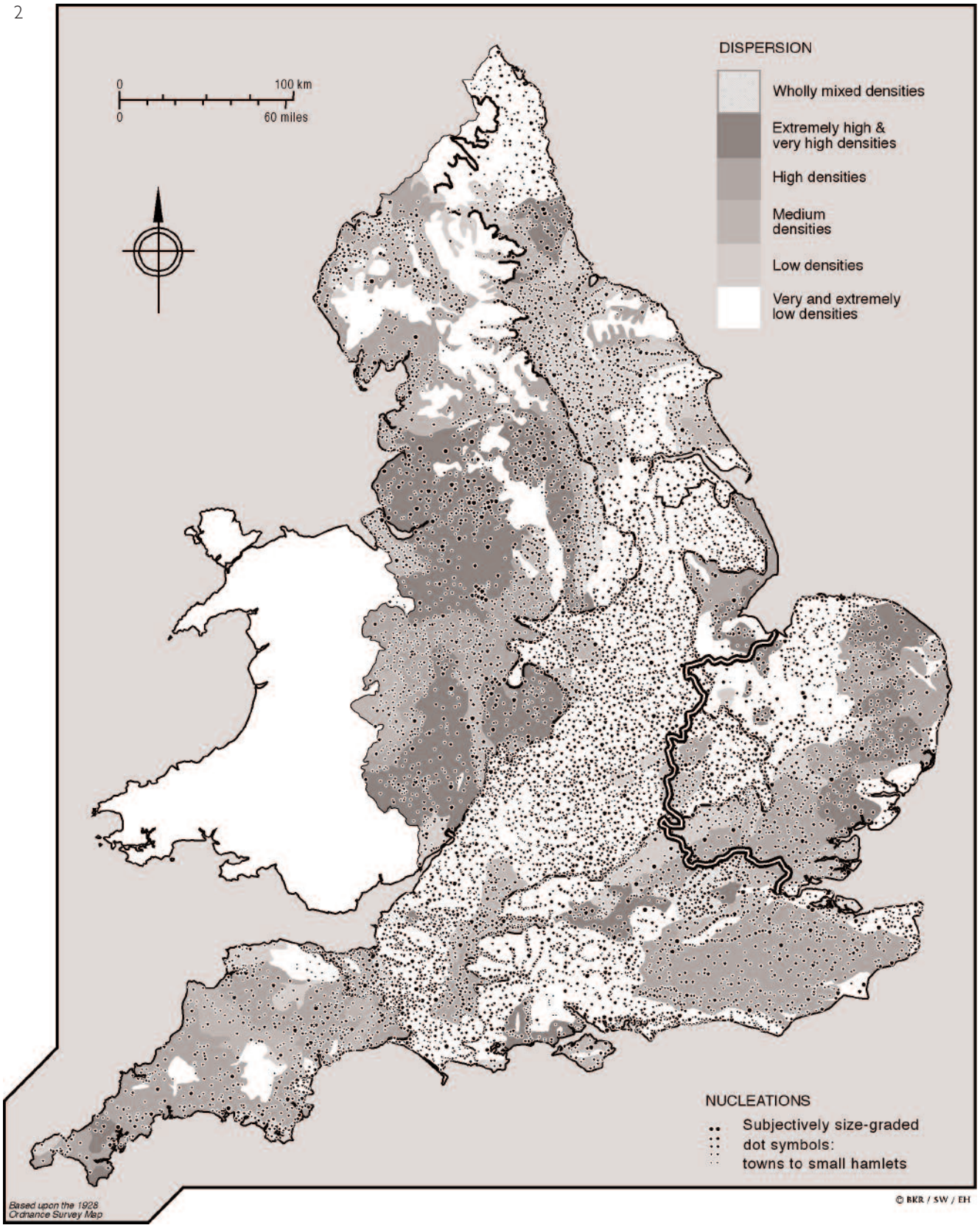
1B This map shows the Character Areas relating to this Region. These are known as Countryside Character Areas or most commonly now as Joint Character Areas, this reflecting their development as multi-disciplinary means of mapping, defining and describing the character of distinct areas.
Based upon Joint Character Areas. Source: Defra/English Nature/Countryside Agency. © Crown copyright OS Licence no. 100042054

settlement in the countryside varied from large, nucleated villages to dispersed settlement areas with scattered, isolated hamlets and farmsteads, both being closely related to the patterns of fields and their associated boundaries in the surrounding landscape. There were many variations between the two extremes of communal open fields with their scattered holdings, which typically developed around larger nucleated settlements, and the anciently enclosed fields of isolated farmsteads and hamlets.

Re-arranging previously communal fields or common pasture land into self-contained private land units enabled the rationalisation of formerly scattered holdings, allowing better management of livestock and rotation of crops. This process of enclosure – evident from the 14th century and even earlier – resulted in the immediate or gradual establishment of new isolated farmsteads out in the fields. It could be undertaken on a piecemeal basis, or in one single phase, the latter form of enclosure being typically

2 Rural settlement in England. Rural settlement can broadly be divided into two types: nucleated villages, and dispersed farmsteads and hamlets. Figure 2 presents an analysis of the settlement pattern of England in the mid-19th century which identifies three 'provinces'. The Central Province, mostly characterised by nucleated settlement and once dominated by communal fields, stretches from Dorset, through Gloucestershire, the East Midlands, Yorkshire and along the north-east coast. This area is flanked by a South-Eastern Province covering the area from east Dorset and Wiltshire to East Anglia, and a Northern & Western Province. In these Provinces settlement is mostly dispersed. The majority of the area of the East of England Region lies in the South Eastern Province with high levels of dispersed settlement across the claylands in particular. Only a small area extending across Bedfordshire and into south Cambridgeshire falls within the village-dominated Central Province.
Based upon 'England: Rural Settlement in the mid-19th century'. Source: An Atlas of Rural Settlement in. England (2000)

2



more regular in its appearance. Enclosure by parliamentary act, some of which formalised earlier agreements, often resulted in new designed landscapes. Parliamentary enclosure was concentrated in the period 1750 to 1880.

English Heritage has commissioned work on mapping these patterns of settlement in the English countryside, now published as *An Atlas of Rural Settlement in England* (Roberts & Wrathmell 2000) and *Region and Place, A Study of English Rural Settlement* (Roberts & Wrathmell 2002). In summary, it has been demonstrated that a Central Province mostly characterised by nucleated settlement and, by the 14th century, communal fields which occupied the great majority of the land area, is flanked by a South-Eastern Province and both a Northern and Western Province where settlement is mostly dispersed (Figure 2).

In areas of *nucleated settlement* in the medieval period and later, the majority of farmsteads were sited in villages and the surrounding land dominated by communally managed open fields, where the holdings of individual farmers were inter-mixed and farmed in rotation as meadow or arable land. Many open field systems were created during the period from the 9th to the 12th centuries, replacing earlier dispersed patterns of settlement with nucleated villages with communally managed fields, many of which were clearly planned by estates.

Farmsteads in areas of *dispersed settlement* are commonly isolated or clustered in hamlets. They are commonly medieval in origin (pre-14th century generally) and often surrounded by ancient and irregular patterns of field boundaries, including the reclamation of woodland or waste. Typically smaller and more numerous than the open fields of Midlands villages, these fields were either farmed from the outset as compact farming units or contained the scattered holdings or strips of individual farmers that were farmed on a communal basis. Areas of pasture and rough grazing were typically far greater in extent than in areas of nucleated settlement, and have again been subject to varying rates of enclosure from the 14th century.

Between the extremes of nucleation and dispersion are the areas that to some degree included both villages and scattered farmsteads and hamlets. In these areas, nucleated villages again originated from developments between the 9th and 12th centuries, but were often intermixed with isolated farmsteads that date from both the medieval period or earlier and from the later enclosure of open fields and common meadow and pasture.

In some areas, the remains of earlier, including pre-Roman, farmsteads are visible as crop-marks or earthworks close to existing farmsteads or villages (see Roberts 1976 and Taylor 1983 for a useful introduction). While research is demonstrating that existing parish and field boundaries possibly originate from very early, even pre-Roman, field and estate boundaries, it is exceptionally rare for present farmstead sites – as in Cornwall's West Penwith – to display such continuity.

2.3.2 RURAL SETTLEMENT IN THE EAST OF ENGLAND REGION

Bedfordshire, the western part of Cambridgeshire and the northern edge of Hertfordshire lie within the Central Province where nucleated villages are the predominant settlement type. With the exception of this western fringe, most of the Region falls within Roberts and Wrathmell's South-Eastern Province where settlement is a mixture of villages, hamlets and dispersed farmsteads; many of the latter clustered around commons and greens. Across the fenland, much of which was unsuited to settlement until extensive drainage operations reclaimed large tracts of land, the density of settlement is relatively low with small, nucleated villages and isolated farmsteads. On the claylands to the south and east the density of dispersed farmsteads and hamlets increases, with high numbers of moated sites through Essex and Suffolk in particular. However, the distribution of moated sites continues west into Bedfordshire where high numbers of moats are also found, making this one of the few areas of the Central Province where higher levels of dispersed settlement density are recorded (Roberts & Wrathmell 2000). As the regional summary below makes clear (see 4.2), there was from the medieval period a strong degree of local variation in the distribution of enclosed and communally regulated fields.

3.0 Building Materials

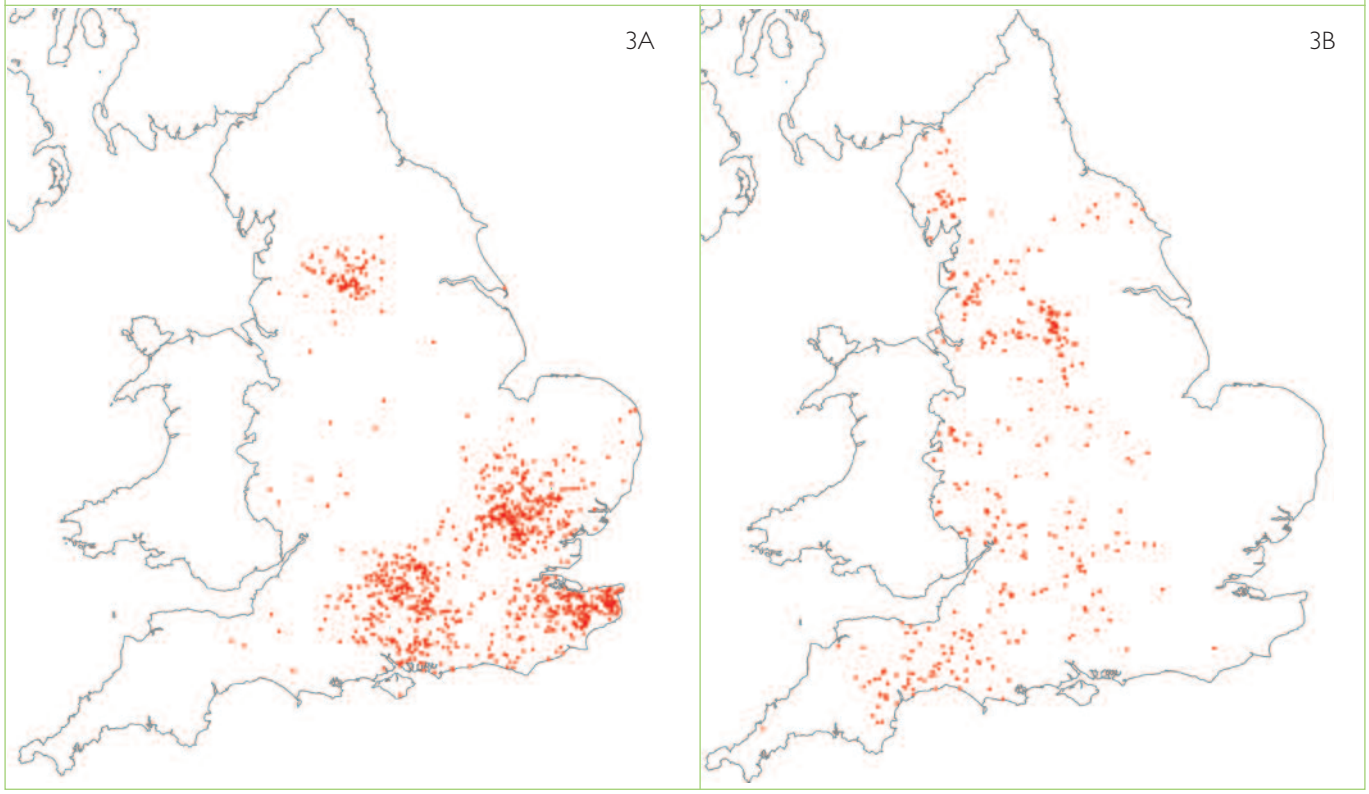
3.1 NATIONAL OVERVIEW

Farm buildings were frequently altered and re-roofed, and survivals can display evidence for successive phases of rebuilding, marked by straight joints in masonry or indications of mortise holes and joints in timberwork.

The present stock of farm buildings displays strong local and regional variation. This is the result of a range of factors, particularly England's huge diversity in geology, the status of the owner, availability of resources managed in the local landscape and the cost of manufactured materials (Rackham 1972; Moir 1997). Long-rooted traditions such as earth walling and thatch in Cornwall and timber frame in Norfolk, survived much longer on farm buildings than farmhouses, and were not overtaken by increasingly fashionable and robust forms of construction (such as stone in parts of Cornwall, brick in Norfolk) until the early to mid-19th century (Potts 1974; Lucas 1997). The coastal shipping trade had for many centuries allowed the transport of building materials, but the arrival firstly of canals and then railways allowed the easier transportation of building materials into inland areas. Buildings in stone and brick, and roofed with tile or slate, increasingly replaced buildings in clay, timber and thatch from the later 18th century. Mass-walled buildings comprise the majority of listed agricultural buildings (67%), with timber framing accounting for just over one quarter of entries.

There are strong regional and local differences in roof construction and carpentry, as is still demonstrated by the distribution of aisled and cruck buildings (Figures 4 and 5). From the medieval period, the unit of reference in timber-framed and mass-walled buildings became the bay, the distance between principal roof trusses. These bays could also mark out different areas of storage within barns and other buildings (see 3.1.1.3). Iron bolts, straps and tension bars became increasingly common, often in combination with imported softwood, in the 19th century. Textbooks such as Waistell's *Designs for Agricultural Buildings* (1827) and Stephens's *Book of the Farm* (1844) helped to promote more standardised forms of

3 The distribution of listed aisled (left) and cruck (right) barns in England
Aisled construction, used for domestic buildings from the 12th century at the highest level in society, was suited to the storage and constructional requirements of large barns. The weighting of the distribution is southern English, outliers being generally of a high status and dating from before 1550; a notable concentration in northern England is in the Halifax–Huddersfield area, where the wealth derived from a combination of farming and the cloth industry in the 15th and 16th centuries led to the construction of a notable group of aisled houses and barns. Aisled construction continued to be employed in southern England into the 19th century.
Crucks in domestic buildings have a date range from the mid-13th to the mid-17th centuries, examples in the north of England being generally later in date, whereas in agricultural buildings the earliest survivals are 15th century and the latest (in the southern Pennines) early 18th century. There is a wide variety of forms in cruck construction.



4A Aisled barn, Cressing Temple, Essex. One of the earliest surviving barns in England on an estate of the Knights Hospitaller erected with timber felled between 1259 and 1280. (South Suffolk and North Essex Claylands) © *English Heritage / Michael Williams;*

4B Barn at Cross Farm, Burgh-by-Sands, Cumbria, showing the full crucks to the interior of a late 17th-century clay-walled barn. This is one of a group of such barns on the Solway Plain, dating from between the 14th and 17th centuries. (Solway Basin) © *Jen Deadman*

5 Listed earth-built agricultural buildings in England. Survival is much more extensive than this map indictes. In the East of England clay lump buildings form the majority of the buildings shown in the two main clusters. Earth walling is also found in the clayland areas of south Norfolk and Suffolk and on the chalk belt running into south Cambridgeshire. © *Crown copyright. All rights reserved. English Heritage 100019088. 2005*

construction. Metal roofs were used from the 1850s for covered yards and other buildings on expensive planned farmsteads, but did not come into general use – mainly for covered yards – until the end of the 19th century. Pre-fabricated buildings in iron were manufactured and exported from the 1840s, the most well known on the farmstead being the Dutch barn (see 6.4.1), popular from the 1880s. Factory-made prefabricated buildings, built to standard widths applicable to a wide variety of uses, have since the 1950s been the standard building type used on farms. The principal materials are summarised below.

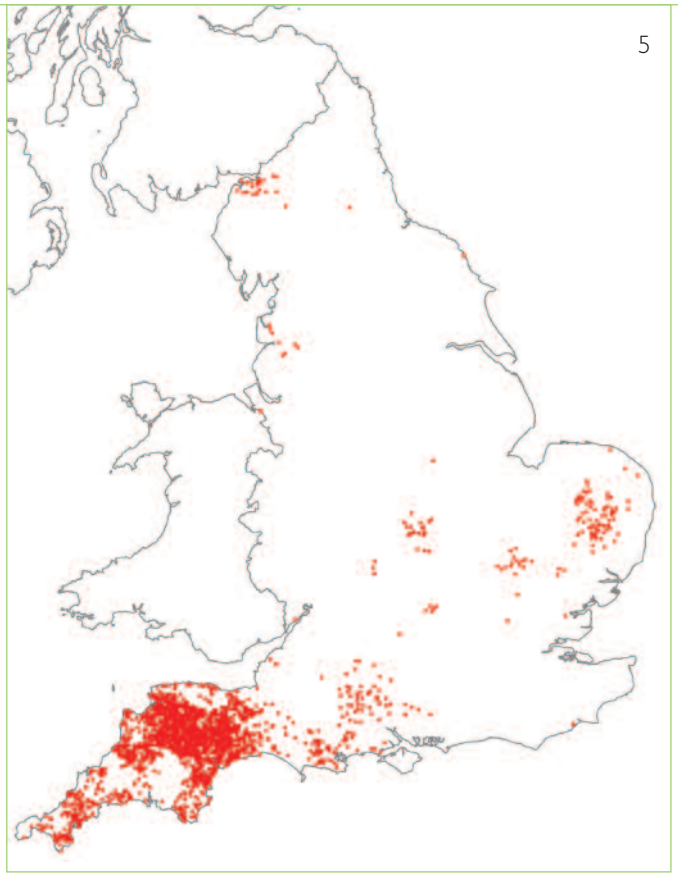
3.1.1 WALLING

3.1.1.1 Temporary structures

As could be expected, the most fragile structures are documented from excavation or archives (for example the Wiltshire vicarage stable 'enclosed with hurdle work' in Hobbs [ed] 2000, xvi and p.438) but have not survived. A long-standing building tradition, where posts were set directly in the ground with no definable bay structure, is documented from excavation and has survived in use for single-storey structures (including 18th-century cart sheds and 20th-century tractor sheds) to the present day (Lake 1989, p.43).

3.1.1.2 Mass walling

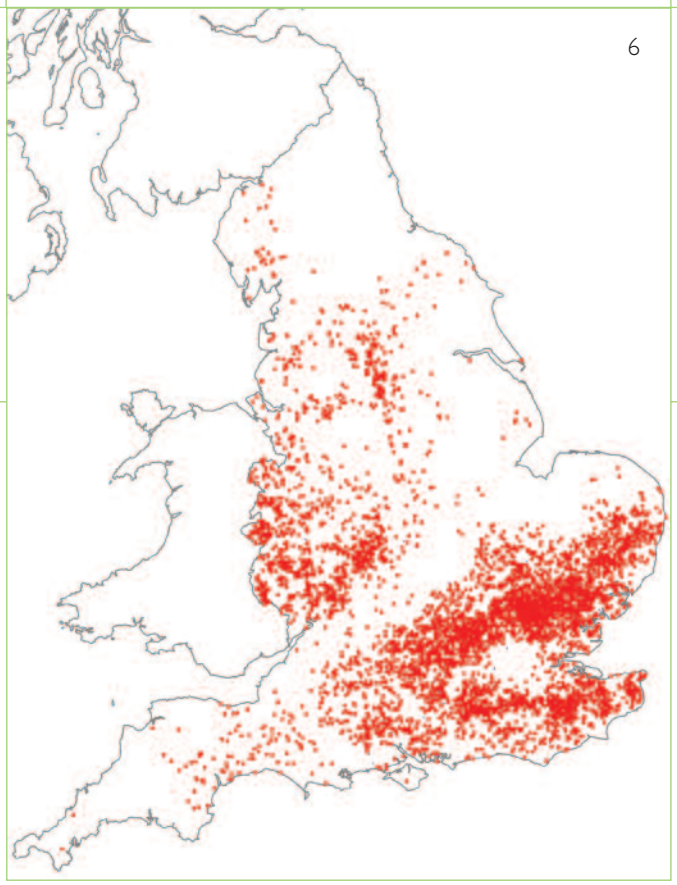
Mass-walled buildings now dominate the traditional farm building stock, almost exclusively so in the three northern regions. Stone and brick display a wide variety of treatment, their use reflecting not only the availability of materials but also the status of the farm and its owner. Large parts of England – particularly in the South East, South West, East of England, the East Midlands and the North West – display different traditions of walling in earth, dating from the 14th century (Figure 5). Concrete was used from the 1860s



on some farms, for example for silage clamps, but did not achieve general use until after the 1950s.

3.1.1.3 Timber frame

Timber-framed buildings are concentrated in the East of England, the South East and the West Midlands. The basic vocabulary of construction had been developed by the 13th century – notably the use of sophisticated jointing techniques, particularly at the junction of the main posts and roof trusses (the so-called bay divisions), and timber sills raised off the ground on dwarf walls. Climate and patterns of land use and ownership have affected the



6 Listed timber-framed barns in England. Although listing concentrates on the generally best-preserved sample of surviving buildings, this map broadly shows the extent of present survival. Note the separation – marked by the limestone belt running from Dorset to Yorkshire – of the major concentrations in south-east and central southern England and western and northern England, where separate traditions of carpentry and framing developed. The map also reveals much about patterns of loss, and particularly rebuilding in stone and brick, over the centuries. There is a sharp boundary, for example, between the claylands of south Norfolk and Suffolk and the lighter soils of Breckland and north Norfolk, where brick had generally replaced timber frame by the 19th century. The absence of timber frame in the North East, where again it is documented, is notable. Such a map presents an obvious invitation to future analysis and research.

6

availability of timber and, together with cultural factors, have influenced the distribution, appearance of distinct traditions in timber framing and the framing of roof trusses for mass-walled buildings (Smith 1965; Stenning & Andrews 1988; and Figures 3 and 6). The infill between the timber frames would either be wattle and daub (a clay and straw mix), brick (often a later addition) or simply left as a wattle framework. Timber planks, either rebated or slotted like wattle, were also used but now only survive in very rare instances. External walling and render can also disguise evidence of earlier timber framing, including cruck and aisled construction.

3.1.1.4 Timber cladding

In parts of the country – particularly in the South East, East of England and the western part of the West Midlands – timber frames were often clad in horizontally fixed weatherboarding. Hand-sawn hardwood boarding is now rarely found, as machine-sawn softwood was increasingly used from the late 18th century. Weatherboarding is either applied to a whole building (most commonly in regions in the South East and the southern part of the East of England) or to the upper portions of sidewalls (a common use in the West Midlands). Vertical boarding is mainly found in the South East. This had cover strips to prevent the ingress of rain; surviving examples date from the late 19th century. Hit-and-miss timber boarding, sometimes known as Yorkshire boarding, has been widely in use as cladding since the 1970s, since it provides good ventilation and meets modern animal welfare requirements.

3.1.1.5 Corrugated iron

See 3.1.2.3.

3.1.2 ROOFING

3.1.2.1 Thatch

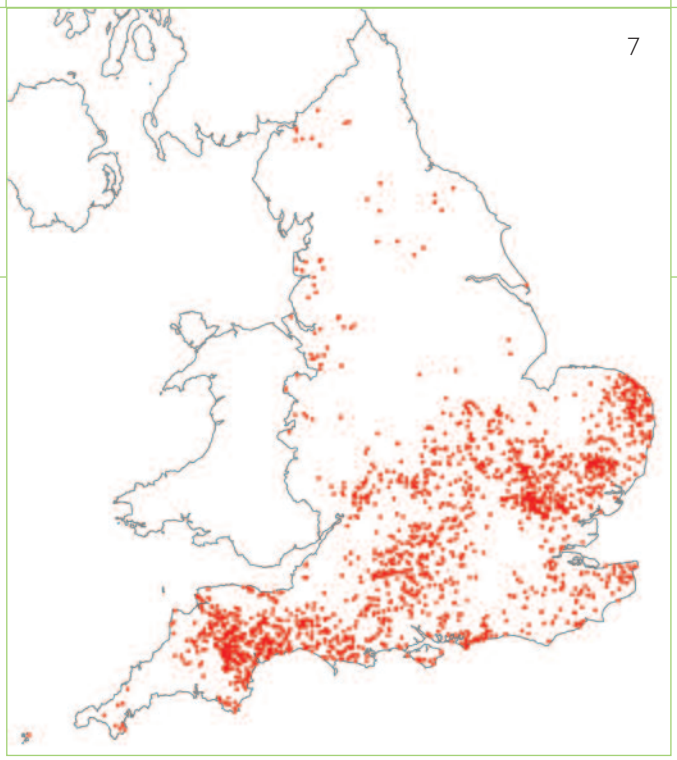
Thatch was common in large parts of the country, and farmers used a wide range of locally available materials: heather, bracken, reeds, rushes, grass, turf, and straw from oats, barley, wheat and rye. Thatch, predominantly made of wheat straw or water reed, is now mainly confined to southern England and East Anglia (Figure 7). Heather and bracken was, until the 19th century, used in upland areas of moorland and heath, such as Dartmoor, the Pennines, the North York Moors and the Cheviots. Solid thatch, where the whole of the roof space was filled with materials such as heather or gorse with a straw or reed topcoat, was formerly widespread but is now very rare (Moir & Letts 1999, pp.103–4).

3.1.2.2 Plain clay tiles and stone slates

These materials were used at a high social level from the medieval period and are found in many parts of the country. Their use became increasingly widespread after the later 18th century, along with stone and brick walling, supplanting smaller farm buildings built of timber, earth and thatch in many parts of the country. The coastal trade and improved communications also enabled the widespread introduction of pantiles – instantly recognisable with their distinctive curved profile – into parts of the South West and across large areas of the eastern counties from north Essex to Northumberland, and of Welsh slate into many inland areas.

3.1.2.3 Corrugated iron and other prefabricated modern materials

Corrugated iron was used in England from the 1820s, initially for industrial buildings. Although several pioneering firms were producing portable corrugated-iron-clad buildings by the 1850s, it did not come into general use for new farm buildings (particularly on so-called Dutch Barns for protecting harvested hay and corn crops, see 6.4.1) until the farming depression of the 1880s made cheaper materials desirable. By the First World War, corrugated iron was in general use for the repair of roofs on farm buildings, particularly thatch. It



7 Listed thatched agricultural buildings in England. Particularly evident is the concentration of surviving thatch – the majority of which in agricultural buildings is listed – in southern England, despite its widespread replacement by materials such as corrugated iron from the late 19th century. Rebuilding, and reproofing in slate and tile, has removed the evidence for its formerly extensive use (in straw, heather and bracken) from much of northern England. Such a map presents an obvious invitation to future analysis and research.

was also used for the walling of model farmsteads built to a budget (Wade Martins 2002, p.175) and for smallholders' buildings in areas such as the New Forest. From the 1940s, asbestos cement cladding and a variety of insulating products found their way on to the farmstead. Hit-and-miss vertical boarding (also known as Yorkshire boarding) has been used as cladding since the 1970s.

3.2 BUILDING MATERIALS IN THE EAST OF ENGLAND

3.2.1 WALLING (Figure 8)

3.2.1.1 Stone

Only on the extreme edges of this Region is any building stone found. Carstone, chalk and clunch were used in north-west Norfolk, with limestone occurring in west Cambridgeshire and parts of Bedfordshire. The East Anglian chalk is often overlain by clay with flints, and the use of brick, flint and tile is particularly characteristic of many historic farmsteads within the area (see 3.2.1.4).

3.2.1.2 Earth

The Region has a greater diversity of types of earth walling than any other. Clay walling set around a timber and wattle framework was common in much of the Region into the 18th century, but became subject to replacement by brick. Surviving examples, which on present evidence are confined to the claylands of the Region, are of great rarity. Clay lump is a distinctive walling material in the claylands of south Norfolk and north Suffolk and in an area south of Cambridge where it was being promoted from the late 18th century. There is some evidence for its use in the medieval period from archaeological excavation (Longcroft 2004, pp.7–9), but no standing buildings incorporating clay lump appear to pre-date the late 18th century, from when it was revived and actively promoted as a low-cost material. It can also be found on a smaller scale in north Essex and Bedfordshire (McCann 2004, pp.18, 40–41). An interesting variation is a form of solid clay recommended by the Rev. Copinger Hill of Buxhall and found in south Suffolk. Clay and straw were mixed together as for clay lump, but instead of forming this into large bricks, it was built up layer by layer on a brick plinth as for a cob wall. The whole wall was then finished with a layer of fine clay and then, as with clay lump, tarred (Aitken & Wade Martins 1998, p.15).

3.2.1.3 Timber

This is one of the major timber-framing regions in England. Rebuilding in brick from the 17th century has removed much of the evidence for timber frame from areas such as north and west Norfolk, which have lost much of their woodland cover (Longcroft 2004, p.11). In contrast, timber-framed buildings remain a distinctive feature across the claylands of the Region, which retained a large proportion of both woodland and hedgerow timber into the 18th century. Box framing is the usual construction method with true cruck-framed buildings virtually entirely absent from the Region except for its western edge, which pushes into the main cruck distribution area. The use of close studding, with close-set uprights creating tall, narrow panels, is a characteristic feature of many timber-framed houses (Smith 1965, p.138). Until the 19th century these panels were normally infilled with wattle and daub, which was then plastered and sometimes decorated with pargetting (the stamping or incising of the wet plaster to create patterns). Agricultural buildings by contrast are either clad in lath and plaster – as in Suffolk, Cambridgeshire and south Norfolk – or more commonly weatherboarded.

3.2.1.4 Brick

Brick was used from the medieval period in East Anglia, Hales Barn at Hales Hall in Norfolk being an outstanding example of its use for a high-status farm building. However, it did not become widespread for farm buildings after the mid 18th century, it being most commonly used on estates undertaking capital improvements and with high rental values (Lucas 1997, p.77). Brick – varying in colour from deep red to yellow – was often used in conjunction with flint in much of

8 Examples of walling materials in the East of England Region

A Exposed timber frame with brick infill. (South Suffolk and North Essex Claylands)

B Weatherboarding over timber frame. The typical wall covering for timber-framed agricultural buildings across the Region is horizontal weatherboarding. (East Anglian Chalk)

C Timber-framing panels could also be infilled with wattle and daub. This example has been tarred – a characteristic treatment seen on many farm buildings in the Region. (South Suffolk and North Essex Claylands)

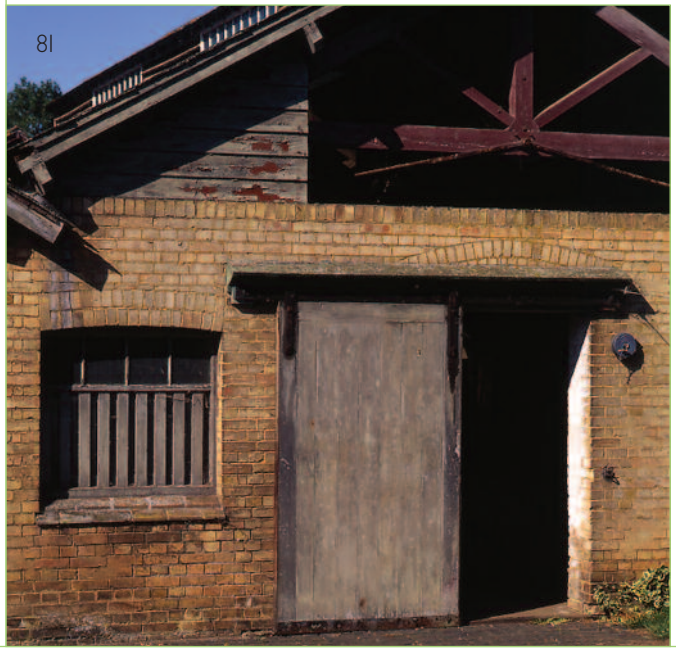
D Clay applied to laths. (South Norfolk and High Suffolk Claylands)

E Pargetting. Where plastered panels, or in some cases the whole of the elevation of a building was plastered, the wet plaster could be decorated. Such treatment is normally found on farmhouses but may be seen on some farm buildings such as stables. (South Suffolk and North Essex Claylands)

F Rammed earth. Solid earth walling is seen in parts of the Region, especially in the chalk areas. (South Suffolk and North Essex Clayland)

All photographs © English Heritage/Michael Williams except B © *Bob Edwards;* F © *Susanna Wade Martins* (continued overleaf)

8 Examples of walling materials in the East of England Region (continued.
G Clay lump. The use of unfired blocks of clay laid in regular courses as with brickwork began in the late 18th century but most belong to the mid-19th century during which time whole farmsteads were built using this method. Typically clay lump or clay bat buildings were protected by a coating of gas tar. (South Norfolk and High Suffolk Clayland)
H & I Brick. The Region contains some important early examples of brick used in agricultural buildings such as this late 17th-century barn (H) that has characteristic features such as the decorative ventilation patterns and stepped gables. Features such as diaper brickwork and tumbled brickwork to gables (not illustrated) are Regionally characteristic. Locally made bricks can also give a distinctive character to farm buildings, particularly the yellow Cambridge bricks. (H Mid Norfolk; I Breckland)
J In the chalk areas of the Region flint provided one of the few stones for building. Although used from the medieval period and in some higher status barns in north Norfolk, its use in farm buildings, combined with brick for banding, quoins and dressings, is typical of the 18th and 19th centuries. (Mid Norfolk)
All © English Heritage / Michael Williams



Norfolk, east Cambridgeshire and the Chiltern edge. Its introduction was delayed in the claylands until the mid-19th century, when larger estate farms took the lead in replacing timber and clay structures with brick and tile.

3.2.2 ROOFING (Figure 9)

3.2.2.1 Thatch

All farm buildings in arable areas were thatched in longstraw, although have been replaced by combed wheat reed. During the 19th century much of the Region's thatch was replaced with plain clay tiles or pantiles, but thatching in water reed continued in the Broads and parts of the Fens.

3.2.2.2 Slate

There is no source of stone suitable for making stone slates in the Region, the nearest production centre being in Northamptonshire. Therefore, stone slates are only rarely encountered along the western edge of the

9 Examples of roofing materials in the East of England Region
A Thatch. Water reed from the managed reed beds of the Norfolk Broads was used in the north-east part of the Region. In many other parts of the region straw from arable farming was available and widely used for farm buildings. (The Broads)
B Clay tiles. Clay for brick and tile making was available in many parts of the Region and was exploited from the medieval period. (South Suffolk and North Essex Claylands)
C Pantiles. Profiled roofing tiles are a characteristic feature of the roofs of the East of England. (East Anglian Chalk)
D Welsh slate. Across most of the Region the use of Welsh slate increased as the railways made transportation easier and cheaper. Slate allowed a lower roof pitch to be used, characterising many farm buildings of the period from earlier thatched or tiled buildings. (Breckland)
A *227169 Taken as part of the Images of England project © Mr E.M Trendell;* B & D *© English Heritage / Michael Williams;* C *© Bob Edwards*


9A


9B


9C


9D

Region. Welsh slate was imported through the Region's coastal ports and from the late 18th century by canal.

3.2.2.3 Tiles

The north of the Region is strongly associated with pantiles, which in an area stretching up the Scottish border were increasingly used at a vernacular level from the early 18th century and in some cases earlier. It had also spread across the northern half of Suffolk and Bedfordshire by the 18th century. Plain tile is more typically found in the southern half of the Region, spreading into mid Norfolk (Brunskill 1987, p.170; Moir & Letts 1999, pp.18–19).

4.0 Agricultural History and Farm Buildings

The existing stock of traditional farm buildings results from centuries of change and development. As a general rule, farmhouses (see 5.1) pre-date farm buildings, even in areas of 18th- and 19th-century enclosure. Larger-scale and higher-status buildings, which were consistently used for the same purpose or capable of being adapted to later uses, generally have the greatest chance of survival. It follows that barns are the overwhelming type of building to have survived from before 1750, and that steadings adapted or built anew in the later 18th and 19th centuries have retained evidence for a greater diversity of functions. Rates of survival differ both regionally and locally, but placing a building within its broad national and historical context will enable decisions on their wider value to be made.

4.1 AN INTRODUCTION TO ENGLISH AGRICULTURAL HISTORY AND FARM BUILDINGS: THEIR DEVELOPMENT, SURVIVAL AND SIGNIFICANCE

4.1.1 UP TO 1550 (Figures 10 & 11)

The 12th and 13th centuries were characterised by rising population, the colonisation of new land (through the drainage of fens, clearance of woods and expansion of farming on to upland moors) and the direct commercial management by estates of their land, whether this was dispersed among other holdings or ring-fenced in its own boundaries. The Church was a particularly active landlord, and monastic orders such as the Cistercians ran their estates from both home (or demesne) farms and outlying granges, which could be very large in scale (commonly 3 to 1000 acres in size). Climatic changes in the second decade of the 14th century, with increased rainfall and lower temperatures, led to famine. These troubles, compounded by pestilence (the Black Death of 1349 and subsequent epidemics), resulted in a sharp fall in population and the contraction or desertion of settlements on marginal soils. Direct cultivation by landlords continued on some home farms, but in most areas farms on estates became leased out – in whole or in part – to tenants, a process often accompanied by the breakdown of traditional customary tenancies. Other developments which accelerated from the 14th century included the amalgamation of farms into larger holdings, the enclosure of former communally farmed strips, and a steady growth in productivity sustained by greater emphasis on pastoral farming, new techniques and rotations of crops.

4.1.1.1 Survival and Value

All survivals of this period are of great rarity and significance. The best-known survivals are the great barns of secular and especially ecclesiastical estates. These comprised the foci of farmyards with ancillary buildings that have been almost completely swept away, for which documentary but very little archaeological evidence exists. The great cattle ranches (vaccaries) of the northern uplands have left no traces in terms of built fabric, although their impact on the landscape is still legible. Archaeological and documentary records – the latter particularly after 1350 – are similarly the main source of evidence for the farmsteads of peasant farmers, and for the emergence of a wealthier class of tenants and freehold farmers from the 13th century. In recent years evidence has brought to light farmhouses and occasionally barns of a wealthier class of farmers (both customary tenants and freeholders), providing the first evidence for wealth generated solely from local agriculture and of a class of farmers counted as among the wealthiest in Europe. These structures are concentrated in mid-Devon, the southern half of the West Midlands and in particular the South East and southern East Anglia.

4.1.2 1550 TO 1750 (Figures 10 & 11)

Larger farmers and landowners initially benefited from the great land sales that followed the Dissolution of the Monasteries in the 1530s, while most farmers gained from rising prices and favourable leases. Agricultural productivity – particularly of grain – was spurred by a doubling of population from between 2.5 and 3 million to over 5 million by 1660, and an associated rise (by six times) in grain prices. After 1650, a fall in grain prices, a rise in cattle prices and demand from London and other growing urban markets, led to a rise in cattle rearing in the north of England, and of the dairy industry and specialised produce (such as hops and cider) in other areas. Improvements in transport, including the coastal and river trade, provided access to new markets. New rotations and crops, particularly clover, grasses and turnips, had become established by the end of this

period on the light soils of East Anglia and adopted with varying success in other parts of the country. This period is strongly marked by the continuing process of enclosure and the related process of exchange and consolidation of farm holdings, the growth of farm size (especially in corn-producing areas), large estates and the widespread development of a landlord–tenant system. Landowners, notably the county gentry, emerged as 'influential pioneers of new crops and new systems of farming' (Thirsk 1984, p.xxiii). The consolidation of estates and holdings are reflected in the continuing – and in more anciently enclosed areas often the final – phase of enclosure. The national market became more integrated from the later 17th century, in tandem with the emergence of specialised regional economies. This, and the development and strengthening of local building traditions, are also reflected in the layout and design of both farmhouses and more substantial farm buildings.

4.1.2.1 Survival and Value

Substantially complete farm buildings of this period are rare. They will often provide the first surviving evidence for the development and strengthening of regional traditions and building types: for example, the timber-framed West Midlands barns that replaced earlier small cruck barns; the linear farmsteads of the North Pennines; the development of bank barns in Cumbria; the growth of the southern English downland farmsteads with their associated large barns. The smaller farms of anciently enclosed pastoral areas are the most likely to retain fabric dating from this period, although it is very rare for farmsteads to have more than a barn and house.

4.1.3 1750 TO 1880

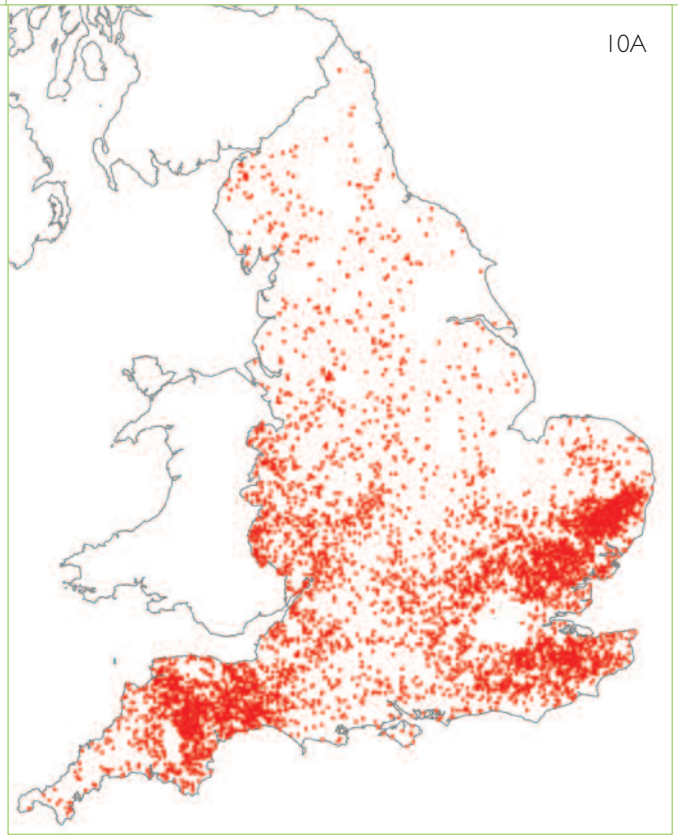
Agricultural productivity sustained a massive increase in population, which had risen from around 6 million in 1750 to over 16.7 million by 1851 and 26 million in 1881. This was the most important period of farm building development, commonly divided by agricultural historians into two periods: before and after 1840. Probably under 25% of the land area of England remained unenclosed by 1750, and the majority of this was enclosed by 1815. This was a process at first concentrated on the Midland clays (for the management of land as pasture for fattening) and then – from the start of the Napoleonic Wars in the 1790s – on the expansion of the cultivated area onto poorer and lighter soils such as the northern moorlands and the southern downlands, and poorly-drained land such as the Fens and the Lancashire mosses.

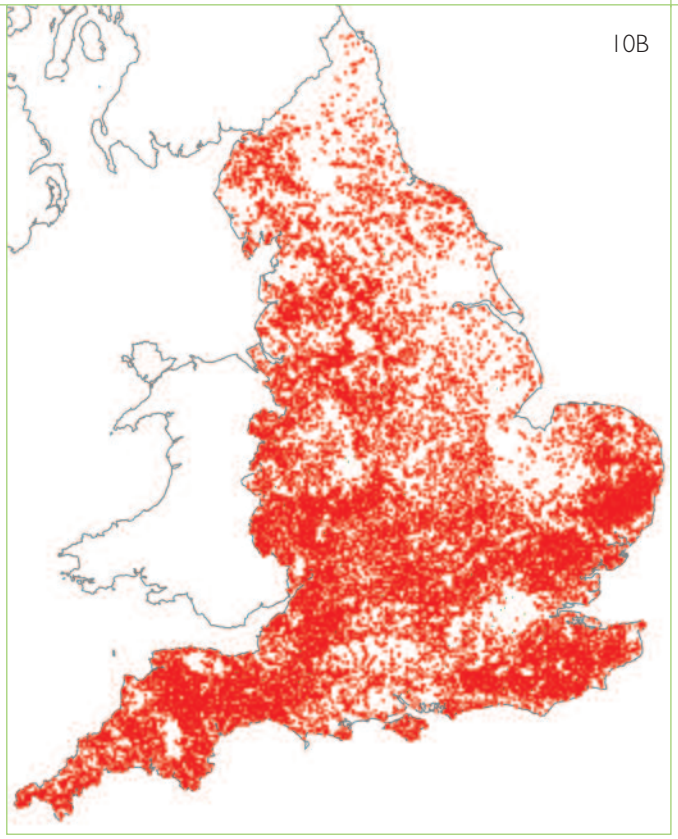
In the 'High Farming' years of the 1840s to 1870s, high-input/high-output systems – based on the availability of imported artificial fertilisers and manures (superphosphates, nitrates, guano and bones) and feeds such as oilcake brought on to the farm – replaced the 'closed circuit' methods that relied on farm-produced feeds and manure. A major development – as observed by the agricultural journalist James Caird writing in the 1850s – was an increased distinction between the intensively cropped landscapes of the eastern half of the country, and the wetter and more pastoral-based economies of the western half.

There were several key drivers behind this development:

- Higher grain prices from 1750, peaking during the Napoleonic Wars (1794–1815), were joined from around 1840 by a steady increase in meat and dairy prices, both the result of population growth and the demands of an increasingly affluent urban population.
- The strengthening of a national market, facilitated by the ever-expanding transport infrastructure (of canals, improved river and road communications and the railways) and the growing importance of middlemen, both of which facilitated the marketing of food.
- Marked increases in land prices from the 1760s. This increased the incentive especially of estates to invest, outgoings on repairs and improvements occupying an increasing share of gross rentals from this period to as much as 25% by the 1850s (Mingay 1989, pp.602–3).
- Increasing interest and involvement by government: for example through the Board of Agriculture set up in 1793 (and which immediately set about the commissioning of its famous county studies in order to gather information on best practice); and from the late 1840s the establishment of loan companies for buildings and drainage, which added to the development of a national banking system.
- Textbook and journal literature such as *The Book of Farm Buildings* by Stephens & Scott Burn (1861), and the examples of best practice included in J Bailey Denton's *Farm Homesteads of England* (1863). Agricultural societies, from farmers' clubs to the Royal Agricultural Society of England (RASE) founded in 1837, played an important role through their shows and publications. The Royal Agricultural College was established at Cirencester in 1845, and – as seen in the founding of the Rothamstead experimental station in 1832 – the following two decades witnessed the development of agricultural chemistry and veterinary science.
- The accelerating trend towards larger farming units, both through purchase of smaller farms by more substantial tenants and freeholders, and through estate policy. This was especially pronounced on the poorer soils, which often required the highest levels of capital investment.
- The role of estates, through the development of the land agent profession, investment in infrastructure (especially buildings and drainage) and the encouragement through leases of improved husbandry techniques by their tenants. Estate polices were also a major factor in the rationalisation of holdings and the emergence of larger farms.

10 Distribution of listed farmhouses in England, pre-1550 and 1550–1750. There is an obvious danger in making sweeping generalisations from such maps, but they do present valid questions for future analysis and research. Wealth derived from arable farming, including the proximity to the London market, dairying and fattening, wool and cloth production are obvious from the pre-1550 map. Here the distribution is thinnest for large parts of northern England, where rebuilding in stone – particularly from the late 17th century – had made its mark by 1750. Notable by their continuing thin distributions are the Lincolnshire and Yorkshire Wolds and Northumberland, where agricultural improvements and the re-planning of landscapes resulted in extensive rebuilding and re-siting of farmsteads after 1750.





- Enclosure. This was often a major factor in increasing output, through facilitating new rotations of crops and the improvement of grassland and stock management. Expenses associated with enclosure – of fencing, hedging and ditching (as much as 50% of the cost), and occasionally the construction of new steadings and buildings (which could be 17%) – increased the incentive of small owners and occupiers with little capital to sell to larger landowners (Wade Martins 1995, p.83). An additional incentive to enclosure was the doubling of rents that could result.
- Improvements in livestock, for example the emergence by 1850 of the Shorthorn as the leading cattle breed and the replacement of the horned wool-producing varieties of sheep by sheep bred for their meat and manuring value.
- The widespread adoption of improved grasses such as sainfoin and winter feed-crops such as turnips, accompanied by the production of better seeds and farm machinery and the efficient distribution of good manure by livestock increasingly wintered in yards or buildings.
- Drainage through traditional techniques, such as bush drains and U-shaped tiles and from the 1840s tile pipes, the use of these being concentrated on the heavy soils of the Midland clays.
- The improvement of soils through liming and marling.

Farmstead design was being affected by the widespread introduction of new types of building and layout, and from the 1840s by the widespread extension of mechanisation (for preparing feed and threshing), the increasing availability of mass-produced fittings and materials, and the adoption of industrial and scientific principles to the accommodation and feeding of ever-increasing numbers of livestock. The building of planned steadings for some estates and wealthy farmers, in the period up to 1840 concentrated in the eastern lowlands, was accompanied by the rebuilding or adaptation of many thousands of existing steadings with cattle yards and buildings, and the replacement of the traditional threshing barn by the multi-functional and much smaller mixing barn (see Figure 22, bottom). In some areas, regional differences were beginning to disappear: for example, the removal of floors and walls for livestock and lofts in the combination barns in the wood pasture areas of Suffolk and the eastern Weald attest to the fact that they were becoming part of eastern England's arable region, as recognised by James Caird who conducted a survey of British agriculture for *The Times* in 1850–51 (Caird 1852).

4.1.3.1 Survival and Value

Substantially complete examples of farm buildings of the 1750–1840 period are far less common than those of the post-1840 period, when many farmsteads matured

into their present form and huge numbers of buildings were erected. Some, particularly the planned farmsteads of the period, represent new developments in farmstead planning or the architectural aspirations of landowners. Others continue to be strongly representative of both the variety and development of local and regional agricultural systems and local vernacular traditions, such as granite in west Cornwall or cob in mid-Devon, and even new materials such as clay lump (as developed in large parts of Suffolk and southern Norfolk).

4.1.4 1880 TO 1940

For over 100 years, agriculture had been increasingly subject to national and international fluctuations in commodity prices, to its considerable benefit in the Napoleonic Wars and the High Farming years. However, after a run of poor weather in the late 1870s, the income from arable crops that farmers had enjoyed in the 1860s collapsed (for example, by 40% in wheat between 1880 and 1900) and farming entered a severe depression. Britain, its urban economy prospering through free trade, became by the 1930s the world's greatest importer of agricultural produce, including animal fodder, from both neighbouring parts of Europe and the New World. This was the beginning of large-scale importation of grain from the American prairies, meat in refrigerated ships from New Zealand and Argentina, and cheese and bacon from Europe. More than in any preceding period, British domestic policy (the supply of cheap food) and the world market now directly affected regional variations and the supply of capital to British farmers. The result was the concentration of grain production on the drier soils of the eastern and southern counties, and in the areas that experienced the greatest contraction from the High Farming peak of grain production a focus on meat and dairy produce in order to meet urban demand. The growing demand for liquid milk and the importation of dairy produce also led to a decline in the farmhouse manufacture of butter and cheese.

The Government endeavoured to boost production through price support. Against the backdrop of the U-boat menace during the First World War it sought to reduce the country's dependency on imported grain and attempted to extend and co-ordinate both advice and legislation (over hygiene, for example) through the establishment in 1919–20 of the Ministry of Agriculture and Fisheries and county council committees and councils, in conjunction with organisations such as the National Farmers' Union (founded 1908). However, despite an increase in net output, the rising costs of labour, feeds and other inputs, combined with the decline in prices and rising levels of imports, ensured that little was invested in fixed capital. Arrears in rent characterised the period, even in years of relative recovery (such as after 1936 in arable areas). The holdings farmed by the new class of owner-occupiers – numbering 147,000 in 1927, as against 56,000 in 1909, the biggest change in land ownership since the Dissolution of the Monasteries (Whetham 1978, pp.160–61) – were burdened with debt.

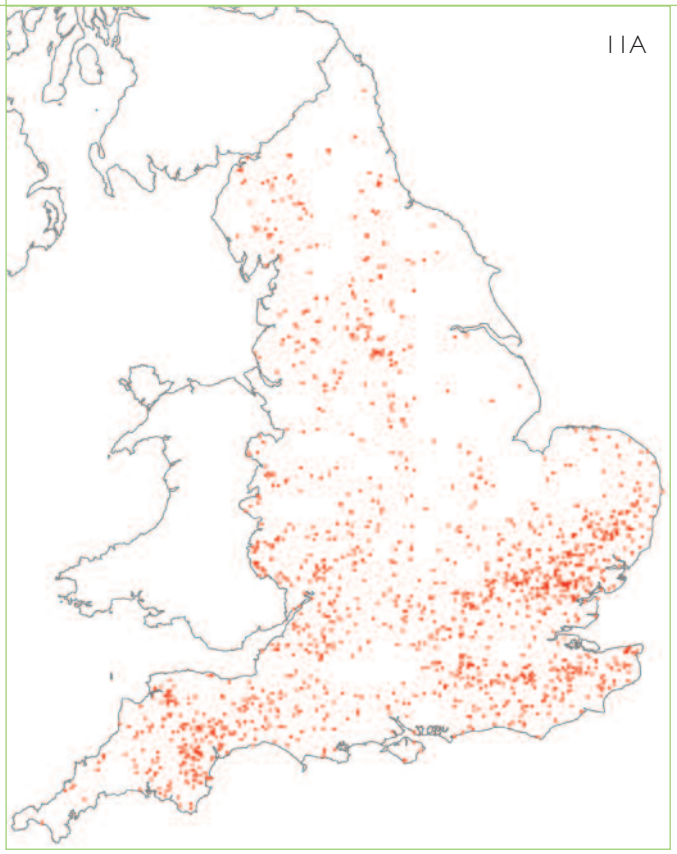
As a consequence there was little fresh investment in farm buildings other than repair and modification, and any buildings constructed tended to be of the cheapest materials. Many, such as Dutch barns, were prefabricated, and concrete and corrugated iron or asbestos sheet were being increasingly used for the refitting of cow and dairy units and the repair of traditional roofs. National and local surveys, such as the 1910 Land Valuation Survey, attest to the growing levels of disrepair, especially of pre-improvement farm buildings using traditional materials such as thatch and timber. Reduced rents and growing building costs meant that only the wealthiest farmers and landowners continued to invest in model or experimental farms, and many of these concentrated on the production of meat and dairy produce; most built very little, perhaps investing in dairy buildings or cattle sheds in an attempt to attract tenants or meet increased demand in some areas for meat and dairy produce.

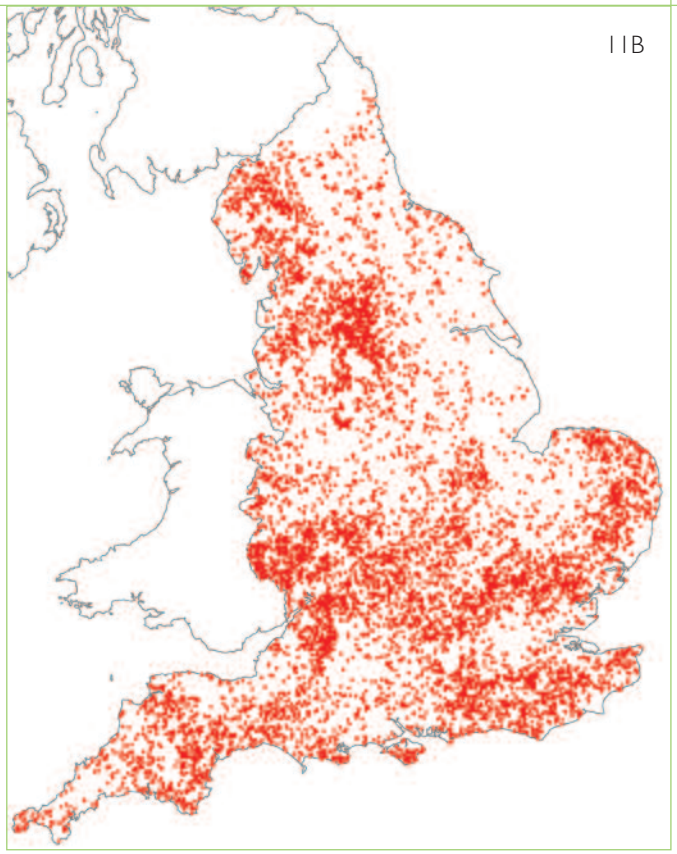
The continued promotion of scientifically based agriculture was matched by the application of new ideas on ventilation and farm hygiene to farm buildings, such as the regulations for dairying introduced in 1885. This was brought into effect mostly through the conversion of existing buildings (especially stabling into dairies) and to a small degree through new-build, notably on the smallholdings owned by county councils. Milking machines, where introduced, brought considerable changes to building layout, but the spread of mechanisation was very varied. By the mid-1930s, the mobile horsepower of the growing tractor fleet exceeded that of the stationary engine; the latter form of power having itself witnessed the transition to oil engines (from the 1890s) and electric power (not widespread until the 1950s). However, horses 'remained the dominant source of power' in the western half of England, and tractors were mostly confined to holdings of 300 acres or upwards, and the arable eastern areas (Whetham 1978, p.210). In the inter-war period, cereal, poultry and dairy farmers, and pig producers using imported North American feed, were in the vanguard of cost-cutting innovation that had a strong impact on post-war developments. There were some examples of planned steadings that in their adaptation of modern industrial theory bucked the trend (Brigden 1992).

4.1.4.1 Survival and Value

Planned steadings and buildings in some areas reflected the increased importance of dairying, particularly of liquid milk – the steadings of the Tollemache and Westminster estates in south Cheshire being one such example. The inter-war period witnessed the

11 Distribution maps of listed barns in England, pre-1550 and 1550–1750
The great majority of substantially complete pre-1750 barns have been listed. These maps pose important questions for future research. In the pre-1550 map, the concentrations in a belt around London, the southern Pennines and from the Feldon of Warwickshire into mid Devon conceal a wide range of sizes and types of barn, stretching from large aisled barns to relatively modest barns which have not been replaced in later centuries due to farm size and other factors. Many of the outliers, such as in Cornwall and Durham, represent the building of substantial barns on ecclesiastical estates in the medieval period. In the period 1550–1750, regional patterns of building and survival emerge more strongly, such as the concentration stretching from the Lancashire Plain to the southern Pennines, and the relative absence of pre-1750 barns in the planned landscapes of eastern and central England most profoundly affected by the agricultural improvements of the post-1750 period. The distribution for threshing barns of the period 1750–1880 reinforces rather than adjusts this distribution.





development of more intense forms of housing for pigs and poultry, and the replacement, as a result of hygiene regulations, of earlier forms of housing for dairy cattle with concrete floors and stalls, and metal roofs and fittings. County councils entered the scene as a builder of new farmsteads, built in mass-produced materials but in traditional form, in response to the Government's encouragement of smallholdings of up to 50 acres (20 hectares). Alongside the construction of new farm buildings, traditional farm buildings were adapted to new needs, and the use of corrugated iron (mostly for repair) has guaranteed the survival and reuse of earlier buildings, particularly the increasingly redundant threshing barn.

4.1.5 1940 TO THE PRESENT

The 1937 Agriculture Act anticipated the need to increase self-sufficiency, and the Second World War witnessed a 60% rise in productivity; this was the result of the growth in livestock numbers, increasing scientific and government control and guidance, more specialised systems of management and the conversion to arable of permanent pasture. The invention of artificial fertilizer (patented by Haber and Bosch in 1910) enabled otherwise uneconomic land to be brought into production, and finally made redundant earlier forms of fertilizer. The National Farm Survey of 1941–3 (Barnwell 1993) attested to the long years of neglect of the depression, less than half of the building stock being classed as in fair condition. The Agriculture Act of 1947 heralded the intensification and increased specialisation of farming in the post-war period, accompanied by the development of government and industry research and guidance. From the mid-1950s, strongly influenced by American models, there emerged a growing body of trade and advisory literature. The first of these, produced in 1956, highlighted the dilemma of 'old buildings too good to pull down but not suitable for their new purposes' (Benoy 1956). The Government provided grants to cover the capital cost of new building under the Farm Improvement Scheme (introduced 1957). The introduction of wide-span multi-purpose sheds in concrete, steel and asbestos met increasing requirements for machinery and for the environmental control of livestock and on-farm production, particularly of milk. The national stock of farm buildings grew by a quarter between 1945 and 1960 alone. The Agricultural Research Council's *Farm Buildings Survey of England* (published

1967) estimated that the average farmstead contained 6 pre-1914 buildings, 2.4 from 1918–45 and 2.5 built since 1945.

4.2 FARMING IN THE EAST OF ENGLAND

The landscapes of the East of England Region display evidence for its wide diversity in agricultural practices, from early enclosure landscapes across the clays of Essex and Suffolk to the large areas of reclaimed wetland in the Fens. In the medieval period, much of the Region was characterised by 'advanced and flexible field systems, sometimes closes, sometimes fields, sometimes both' (Hallam 1988, p.281). After the mid-14th century, intra-regional distinctions became even more varied: intensive rotations of crops in mid- and east Norfolk; the desertion and shrinkage of settlements on the lighter soils and the rise of sheep farming in these areas; and the shrinkage of hamlets around greens or on the edges of commons in the clay areas. There was little communal regulation of crop rotations and pasturing in most of the Region, and despite a general rise in holding size, smallholdings persisted and even proliferated around the emergent wool towns of north Essex and south Suffolk (Britnell in Miller 1991, pp.611–23).

Arthur Young claimed that it was in the early-enclosed claylands of Hertfordshire (see 4.2.8) that the first agricultural improvements in the Region took place. Turnips had been introduced as a fodder crop by the 1640s and clover by the 1730s. Major improvements in crop rotation from the late 17th century used winter feed crops (notably turnips, typically grown between the wheat harvest and the planting of spring barley) in combination with the stall or yard feeding of cattle (see 7.1.2.1) and artificial grasses. The latter was often undersown with the barley crop, and after the barley harvest left to grow as a hay crop for up to three seasons depending on the quality of the soil. This system, first taken up on the good loam soils, had a significant impact on both the agricultural development of the Region and the country at large. As early as the 1730s, William Ellis of Little Gaddesden was writing books advocating what later came to be known as the 'Norfolk system' of crop rotations using turnips and artificial grasses (Young 1813, p.55). It was introduced onto more acidic or clay-based soils from the late 18th century, along with capital-intensive improvements such as marling and draining. There was also a substantial increase in the average acreage of farms between about 1650 and 1750, as estates were enlarged, small farms were absorbed and dispersed holdings consolidated. Those parishes that became dominated by landowning families experienced these changes – and the completion of enclosure – to the greatest extent. Farmers' options had previously been limited by the soil type underlying their fields, and the Region's dry climate and late frosts prevented the widespread take-up of watermeadow systems as, for example, occurred in the South West.

After about 1750 these local differences in farming systems became less pronounced as light lands were marled with clay and heavy lands drained, making both suitable for cereal production. In some areas, this expansion of arable was accompanied by boundary loss and the loss of hedge timber. In Norfolk and Suffolk, for example, farms of 150 acres and over occupied 70% of the land area by the late 19th century (a third of this being holdings of 300 acres or over). The lightest soils were found in the north and west of Norfolk and Suffolk. These were particularly suited to the keeping of sheep, whose manure fertilised the soil, thus enabling grain, or more particularly barley, to be grown. Large-scale estate owners were dominant here, and were responsible for extensive enclosure of these landscapes: their policies often discriminated against smaller holdings and the maintenance of their buildings. More established owner–occupiers, in contrast, hung onto the smaller-scale farms in the fertile river valleys, which is where the earliest farm buildings and houses are to be found (Williamson & Wade Martins 1999, pp.67–9, 137–9, 76–81).

The Region's rivers, ports and coastline enabled the easy export of produce – especially barley – to London and foreign markets. The influence of London on land prices meant that farms and estates in the south of the Region were generally smaller than elsewhere. The captive urban market, expanding rapidly during the 18th century, stimulated both an increase in grain production and fodder for fattening stock. For this reason, too, orchards were found on nearly all farms in the south-west of Hertfordshire by 1800 (Young 1813, p.143). During the 19th century the influence of London was even more firmly felt, with market gardening and dairying increasing in importance. Railways became a major factor from the 1840s. Intensive bullock and cattle feeding had been a feature of the Region since the medieval period, and included stores imported from Scotland and, later, Ireland. This trade intensified from the 1840s, enabling the soil to be enriched with their manure and stocking levels to be maintained whilst grassland was ploughed up for arable. Other features of this period in the Region were the great increase in the use of artificial feeds and fertilisers (allowing even root courses to be omitted), the widespread use of portable threshing machines (although hand threshing remained on smaller farms) and considerable investment in drainage (particularly in the marshes and fens). Sheep remained a mainstay of the farming economy in North West Norfolk, Breckland and the Sandlings (see 4.2.3). By adapting to the needs of the London populous the farmers of the Region did not suffer from the depression in grain prices at the end of the 19th century as much as those in other southern

English Regions. This meant that new farm building was likely to continue, especially in facilitating the supply of liquid milk and cheese. Perhaps the most obvious, if late, example of this are the farms built by the Ovaltine Company outside Bishops Langley in 1931 (Brigden 1992).

As grain prices tumbled after 1870 many Essex farmers left the land, to be replaced by Scottish dairy farmers from Ayrshire who saw the opportunities provided by the London market. By 1893 Lord Petre had let at least 14 farms to Scots. The census of 1891 showed 58 Scottish farmers, concentrated broadly in the Ongar and Brentwood area, and on the Petre estate (Hunter 1999, p.167). The main problem encountered by these farmers was the lack of good-quality buildings for cattle. Unlike Scotland, there was no stone in Essex so 'whole farmsteads were of oak framing and elm boarding'. These were good when new, but many were described as, 'old and rotten and settled down off plumb' (McConnell 1891, p.312). At the same time Lord Rayleigh was taking farms in hand and converting them to dairy production. By 1914 he was farming 6,000 acres, providing milk for London. This trend resulted not only in the creation of an entirely new landscape with an increase in permanent grass from 179,374 in 1875 to 302,803 in 1939 (Hunter 1999, p.168), but also a need for new or adapted buildings. In a time of depression, these were more likely to be undertaken as cheaply as possible with little in the way of elaborate new building. However, these adaptations are an important part of both the national farming story and local distinctiveness.

AREA SUMMARIES

These summaries have been compiled as preliminary statements on the agricultural development of the distinctive parts of the Region. Inevitably, these do not relate as strongly to county boundaries as distinct landscape zones. These are outlined below, either by including the Joint Character Area (JCA) title – see 2.1– after the area heading or, if they approximate or relate to groups of JCAs, in the first line of the text. The sources for them are diverse, and include Historic Landscape Characterisation where completed, work in progress on developing historic profiles for the Joint Character Areas (see www.cqc.org.uk) and sources listed in the bibliography. They are generalised statements, within which there may again be important differences in farming practice, settlement and estate patterns and landscape character.

For Rockingham Forest (JCA 92) and Yardley-Whittlewood Ridge (JCA 91), see East Midlands. For Thames Valley (JCA 115) see South East.

4.2.1 North West Norfolk and North Norfolk Coast (JCAs 76 and 77)

The light chalk lands of the north-west, where the movement of sheep flocks was subject to a strong degree of manorial control and which experienced a high rate of settlement desertion in the 14th and 15th centuries, became famous for their large estates and farms, improved farming and the promoting of the 'Norfolk system' of crop rotations (see 4.2). From the medieval period until the onset of enclosure, manure was provided through the 'foldcourse system', where manorial flocks of sheep were moved across common land in the summer and fields in the winter. There is a contrast between the deep and well-drained soils of the coastal strip and major valleys, and the sandy, more acid soils of the uplands. Viable communities survived on areas of more fertile soil after 1350: most fields here were unenclosed at the outset of the 18th century. Older buildings are concentrated in these latter areas, often within settlements. Enclosure was largely complete on the poorer upland soils by the 18th century, where individual farmsteads often stood on the sites of deserted medieval settlements. From the 1760s steadings were progressively rebuilt at the centre of their holdings with large barns and combined cart shed and granary ranges. It is on these upland areas that the large estates for which this area became so well known – Holkham, Raynham, Houghton, Sandringham – were centred. The most famous of all the landowners was Thomas William Coke of Holkham, the owner of the largest estate in the area (40,000 acres) from 1776 to 1842.

4.2.2 Breckland (JCA 85)

The poorest of the soils overlaying the chalk are to be found in the sands of Breckland stretching through west Norfolk and Suffolk into Cambridgeshire. By the 18th century much of this area was owned by great estates, some of which had enclosed land by agreement, and foldcourse systems dominated. Some areas were left to great heaths where sheep grazed and rabbit warrens proliferated. Much remained open heath until taken over by the Forestry Commission in the 1920s, but some was enclosed and the systems of north-west Norfolk adopted with varying success. More than 70% of Breckland was enclosed after 1750, most of this concentrated in the 1790–1820 period, after which some of the land ploughed up for corn reverted to rough grazing. The area between Thetford and Bury St Edmunds is characterised by huge farms and substantial sets of buildings with fine houses dating from the enclosure period. Again a few earlier farms survive in the pockets of better soil, mainly along the river valleys where arable land had traditionally been viable.

4.2.3 Suffolk Coasts and Heaths (JCA 82)

A sandy area, known as the Sandlings, is to be found along the east coast. It is narrower and more dissected than Breckland and so often forms part of farms on neighbouring stronger soils. The Sandlings is bordered on

one side by coastal marshes, typically grazed by dairy cows and bullocks, sandy heaths grazed by sheep, and more fertile clay soils inland. Enclosure of the latter was largely complete by around 1700, and much of the heath and marsh divided into leasehold or privately owned blocks. Few new farms were built in this area after 1750.

Few farms are entirely confined to Sandling soils. Some of the Region's largest and best-managed farms were to be found in this area in the early 19th century with good crops of carrots produced as fodder. Here again attempts were made to improve the soils, which resulted in the building of some new farms, but parliamentary enclosure was far less important here and much of this heathland has remained open sheep walk into this century. By the 17th century, away from the most acid soils there had been considerable piecemeal enclosure. By the 18th century much of the coastal strip was owned by estates and the farms were large (over 300 acres). Alongside the sandy heaths they contained enough arable land to operate a mixed farming system. The heaths were mostly let as sheep walk rather than used as common land and by the 19th century the area was renowned as sheep-breeding country with famous flocks being kept, particularly at Martlesham and Butley Abbey. Cattle were kept on the grazing marshes.

4.2.4 **Central North Norfolk** (JCA 78)
Here the morrainic gravels associated with the Cromer Ridge have left poor soils, with a mix of large estates and smaller gentry farms. Until the later 18th century, there was a mix of piecemeal enclosure and areas of open field and common land awaiting enclosure. The economy was arable-based, but access to meadow and grass enabled the stocking of large numbers of bullocks and milking cattle. Much of the area remained open until the late 18th century when fields were enclosed and new farms laid out. Woodland has survived, both on the slopes of the ridge and on the more gravelly soils, much of it incorporated into the parks of the great landowners.

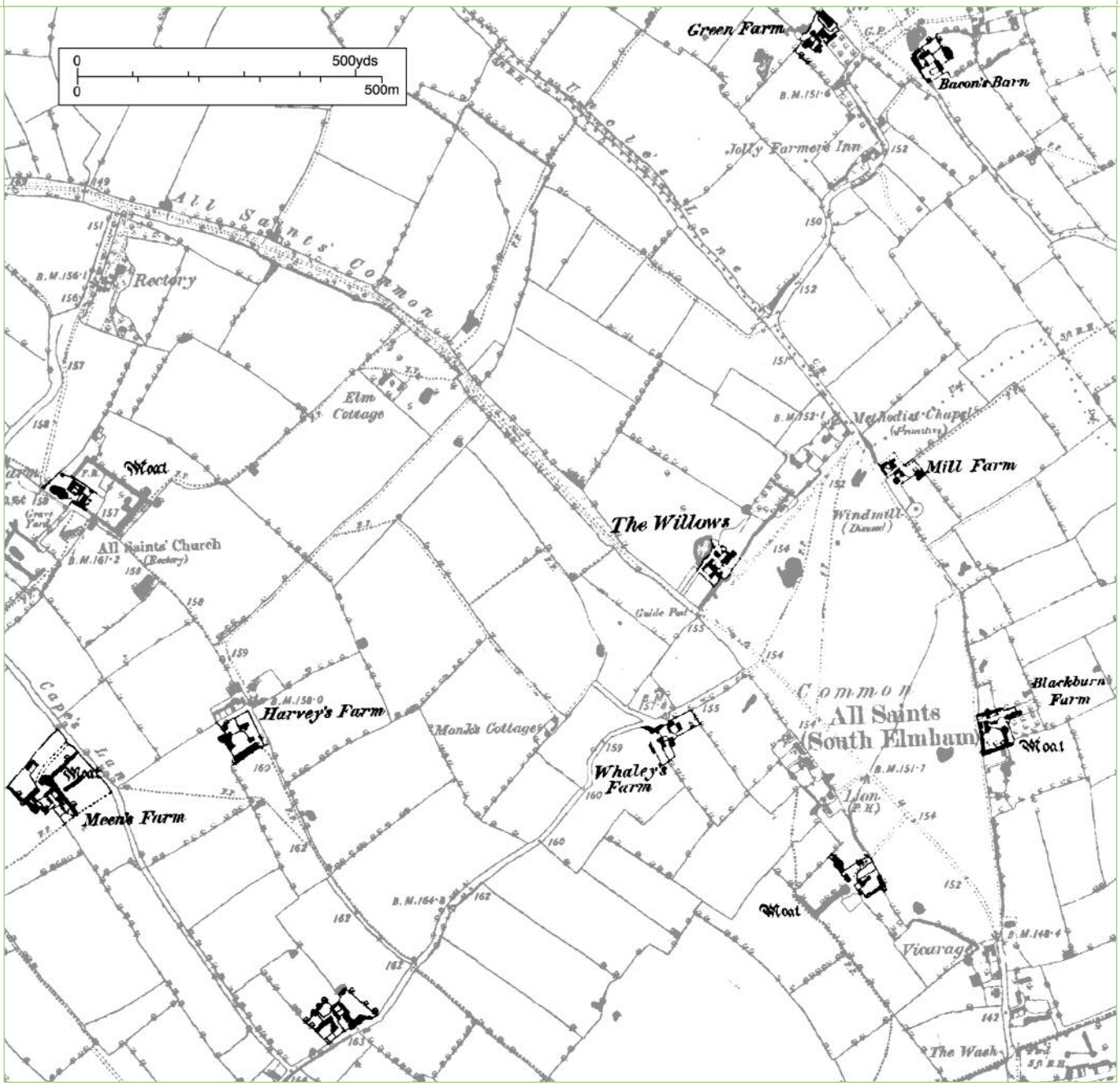
4.2.5 **The Flegg, and North East Norfolk and The Broads** (JCAs 79 and 80)
The sandy loams of The Flegg are amongst the most fertile lands in England. The large number of substantial 17th-and 18th-century farmhouses, often with contemporary barns and sometimes other buildings beside them, balance out the lack of great houses and parks. They are an indication of the importance and prosperity of owner–occupier farmers in the area. The emphasis in the medieval period was on cereals grown in open fields, but under complex systems of management that bore little relationship to the classic three-field systems of the East and West Midlands. Intensive livestock feeding was a feature from early on: exceptionally in a national context, stall-feeding of cattle is documented in the 13th century. Livestock had easy access to fens and marshes, this being privately rather than communally managed. The 16th and 17th centuries saw the development of a healthy dairying and fattening industry, supplemented by the 18th century by store cattle bought in from Scotland. More than half of this area awaited enclosure after 1750, this being associated with drainage. With enclosure, some new farms were built out in the fields. Along the broadland edge, livestock, which could be grazed on the marshes, played an increasing role in the farming system, with a distinctive type of winter cattle housing in which the animals were tied in rows on either side of a central turnip store. Very few of these buildings remain (see 7.1.2).

The Norfolk and Suffolk marshes alongside the Broads form a distinctive area, which despite the influence of drainage grants in the 1970s have retained much of their pastoral character. They were usually grazed by neighbouring farms and so formed an integral part of the local farming systems, contributing to the wealth of the area. The use of the Broads for grazing by surrounding farms meant that there were few agricultural buildings in the area.

4.2.6 **Mid Norfolk** (JCA 84)
This area is dissected by a large number of rivers with wide shallow valleys where settlement was typically dispersed (around greens and commons, and on the sites of deserted medieval settlements) and where open fields remained into the 18th century. Arable farming was of greater importance, and estates more dominant, than on the heavier clays further south. More sandy and acid soils characterise the heathland plateau, an area which experienced depopulation in the late medieval period and which from at least the 17th century contained a mixture of permanent grass for cattle and heathland that was largely enclosed around 1800.

4.2.7 **South Norfolk and High Suffolk Claylands** (JCA 83) (Figure 12)
Here pastoral farming, particularly dairying and cattle fattening, had been dominant from the 15th century. Small, hedged fields around closes, intermixed with open-field strips, were characteristic by the 18th century. Over 90% of the area was enclosed by the later 18th century, enclosure after this period affecting areas of residual common pasture and arable. Average field size could be as little as five acres and hedges were generally thick and wide, although this could of course vary from area to area, and many demesne farms (of perhaps 250 to 350 acres had large pasture closes of 25 to more than 100 acres). These were reduced in size during the 18th century, but still remained comparatively large, and in fact it seems that in these situations, many fields were *made yet smaller* during the Napoleonic Wars. On the Tollemache estate (Helmingham, Suffolk), these large

12 Farmsteads in the landscape: All Saints South Elmham (South Norfolk and High Suffolk Claylands)
Across the claylands of the south and east of the Region, settlement is predominantly dispersed with high numbers of scattered farmsteads and hamlet groups, often focused on small greens or along stretches of roadside common. The farmsteads, mostly of medieval origin, often retain buildings of pre-1700 date and many are moated. Here the fields are the result of old enclosure but lie within a broad, curving co-axial field system. Such field systems can run for several kilometres across the landscape, and can be prehistoric in origin. *Based on OS 1st Edition 6" map 1843-1890. © and database right Crown Copyright and Landmark Information Group Ltd (All rights reserved 2005) Licence numbers 000394 and TP0024.*



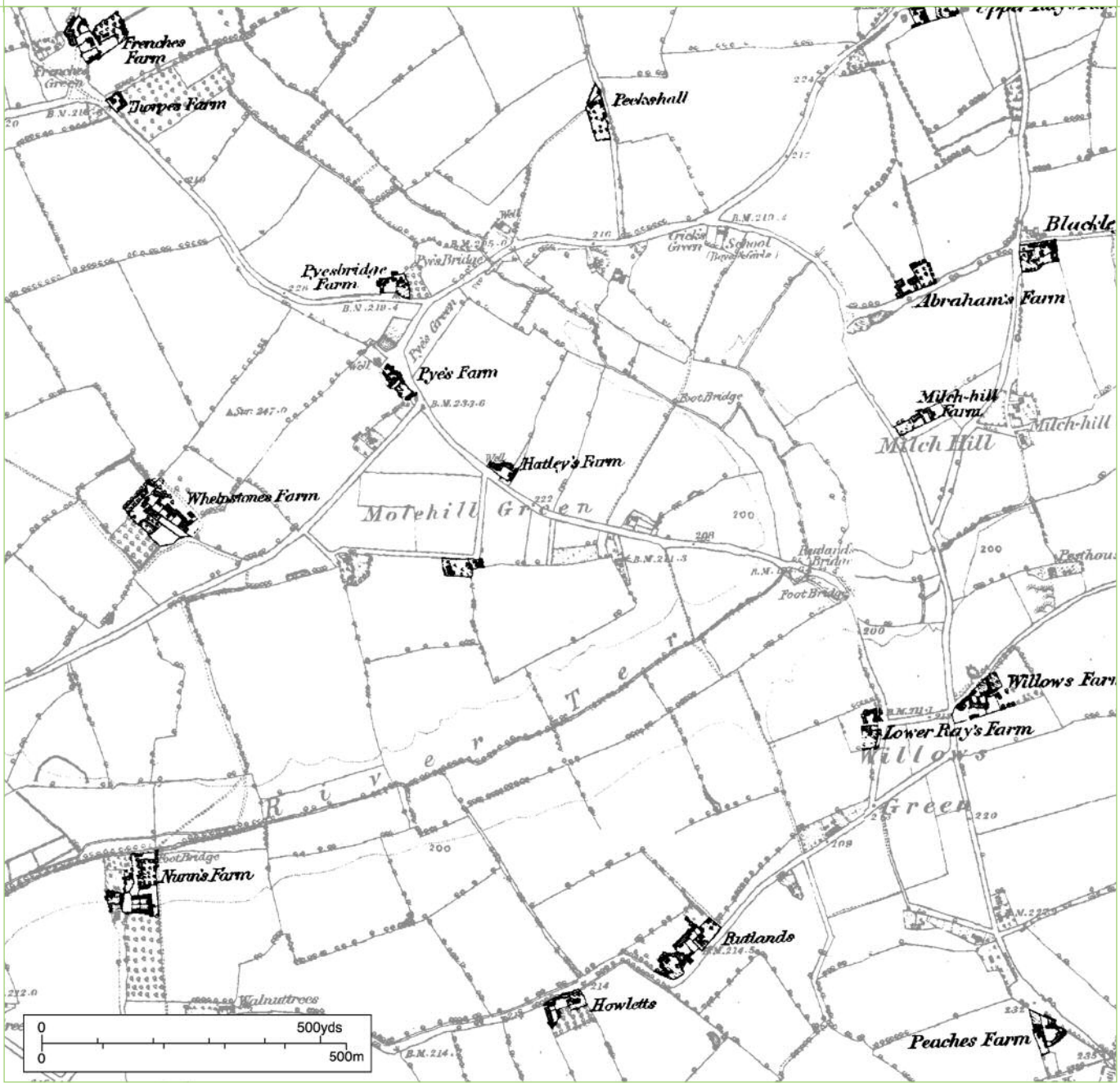
pastures were sometimes let in the 17th century as individual units of land, so a small farmer could rent an additional large block of pasture for keeping cattle. Later they became permanently attached to individual farms. There were few nucleated villages or parks of large landowners. Instead farmsteads, often on ancient and sometimes moated sites, were scattered with hamlets around greens. Generally, the land of south Norfolk and north Suffolk was owned by smaller proprietors, often without the interest or capital to invest in buildings and so smaller farms with older, more traditional buildings survive. This area has one of the highest concentrations nationally of surviving pre-1750 farmstead buildings.

The dairy lands of 'High Suffolk', described in detail by Arthur Young, were ploughed up as improved methods of land drainage enabled farmers on even the heaviest lands to take advantage of rising grain prices from the late 18th century – with consequent changes to the internal structure of the area's barns (see 6.1.2). The smallest of the fields were amalgamated to suit arable farming but complete new farmsteads were rarely erected.

4.2.8 South Suffolk and North Essex Claylands (JCA 86) (Figure 13)

The enclosure history of the South Suffolk and North Essex Claylands is very similar to that of South Norfolk

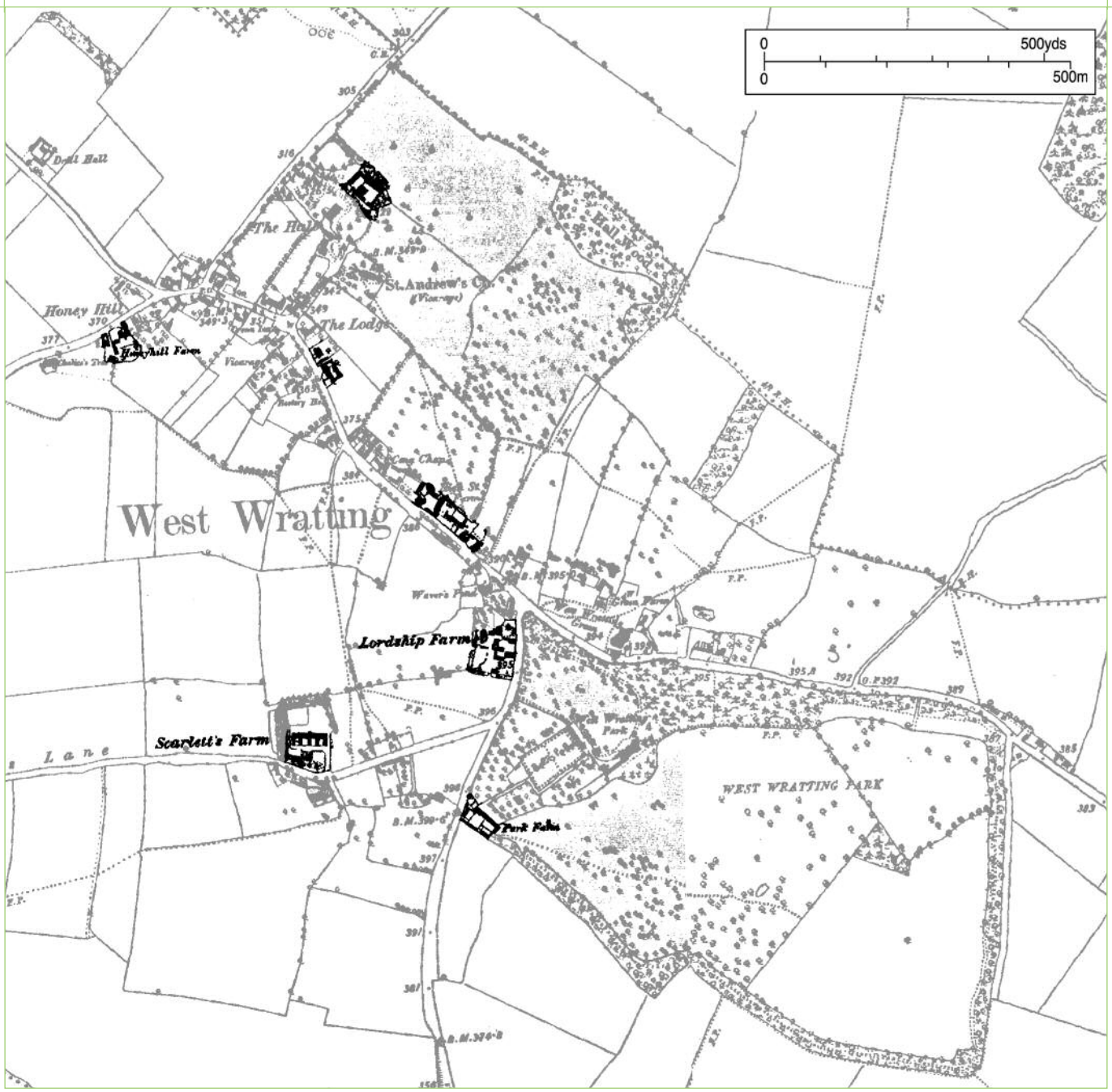
13 Farmsteads in the landscape: Felsted (South Suffolk and North Essex Claylands)
In terms of the settlement pattern, this area is very similar to that of the claylands further to the north as shown in Figure 12. This is landscape of ancient enclosure with well-hedged irregular fields and farmsteads that often retain buildings of medieval or 17th century date, although this area is more typical of wood-pasture landscapes with small, irregular fields with well-wooded hedges. Typically, these farmsteads were of loose courtyard plan, with small detached timber-framed barns and cow houses, although early examples of cattle housing rarely survive (or at least are not easily distinguishable from small barns). *Based on OS 1st Edition 6" map 1843-1890. © and database right Crown Copyright and Landmark Information Group Ltd (All rights reserved 2005) Licence numbers 000394 and TP0024*



and High Suffolk. The chalky boulder clay supported mixed farming in small fields surrounded by wide and thick hedges. On the heaviest Essex clays farming was difficult and, as Caird noted, 'great exertions are necessary to render its cultivation profitable' (Caird 1852, p.134). South of the River Gipping and extending into Essex and Hertfordshire, the claylands become more undulating and therefore easier to drain and so more suited to arable farming (Holderness 1984, p. 211). There seems to have been very little open field and instead early enclosure resulted in a mixed pattern of isolated farms, hamlets around small greens and nucleated settlement. By the 17th century the area was more urbanised than most, with a reliance on the textile industry (Thirsk 1967, p. 54). By the 19th century much of this area specialised in the production of grain and the fattening of cattle for the London market.

In mid-Essex the area to the south remained heavily wooded into the 19th century, but now only Epping Forest remains. To the north heathland remained open until the late 18th century when it was enclosed by parliamentary acts, resulting in a pattern of large rectangular fields and isolated farms. Into Hertfordshire this area had a mixed wooded landscape with fields varying from small irregular fields with plenty of

14 Farmsteads in the landscape: West Wratting (East Anglian Chalk)
Nucleated settlement – some of it polyfocal as here – is characteristic of much of the chalk belt running across the East of England Region. In many cases the farmsteads remained in the village after enclosure of the surrounding open fields in the early 19th century. This map identifies a number of large farmsteads with loose courtyard plans, several of which are reputed to have been of manorial status and one of which, Scarlett's Farm, was moated. It is probable that there were other, smaller farmsteads along the village street that went out of agricultural use at around the time of enclosure. Today most of these farmsteads retain some farmstead character although there are no listed agricultural buildings.



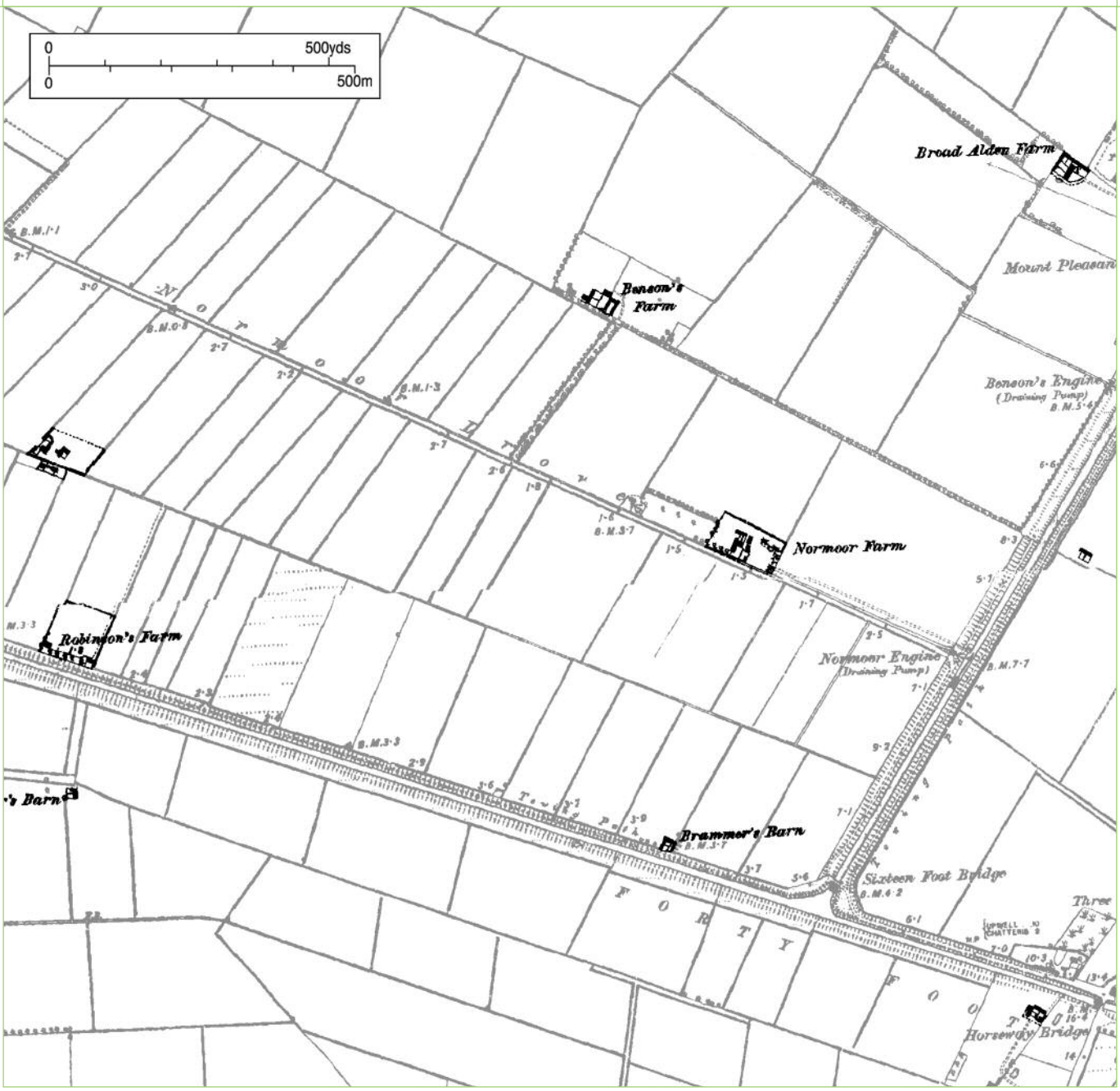
hedgerow timber to the north and regular enclosure fields to the south. Names containing the suffix 'end' or 'green' are typical of this area of dispersed hamlets and single farms.

4.2.9 The Chilterns and East Anglian Chalk (JCAs 110 and 87) (Figure 14)
For more on the Chilterns see South East.

The rolling, open chalk belt of the Chilterns extends into south-west Hertfordshire and continues north-eastwards as the East Anglian Chalk character area into Cambridgeshire and north-west Essex. This was mostly sheep and corn country of late enclosure, with barley the main cereal and the towns of Bishops Stortford (see 4.2.8), Baldock, Ashwell, Royston and Hitchin being major malting centres.

The Cambridgeshire chalks were still mainly open in the 1790s, and although there was considerable enclosure activity during the Napoleonic Wars there was still criticism of Cambridgeshire farming. According to one

15 Farmsteads in the landscape: Doddington (The Fens)
Drainage of the Middle Level area of the Fens commenced in 1490 with the construction of a drain by John Morton, Bishop of Ely. However, extensive reclamation works did not begin until the mid-17th century, when the Duke of Bedford and a group of 'Gentleman Adventurers' commissioned Dutch engineer Cornelius Vermuyden to drain the area to create summer grazing lands. The Forty Foot Drain was excavated around 1670 as part of this ambitious scheme. Further works to the drainage systems in the 19th century allowed an increase in arable on the fertile peat soils. New farms were created within a regular framework of straight roads and field boundaries. Due to the shrinkage of the peat as it dried out, many of the original farm buildings constructed suffered structural problems and have been replaced. *Based on OS 1st Edition 6" map 1843-1890. © and database right Crown Copyright and Landmark Information Group Ltd (All rights reserved 2005) Licence numbers 000394 and TP0024*



observer, the farmers on the newly enclosed fields now had 'the opportunity of redeeming [the county's] reputation as the worst cultivated in England' (Gooch 1813, p.56). In Hertfordshire enclosure was also an issue in the early 19th century. Many 'improving' farmers felt hampered by the antiquated common fields system; for example, a Mr Foster of Royston could only sow turnips in his strips in the common field with the permission of the parish flock master and by paying the shepherd 1s. 6d an acre for not letting the sheep eat the crop (Young 1813, p.48).

By 1846, things had changed. The chalky soils were nearly all enclosed and farmed as 'splendid wheatland' and large flocks of sheep were fattened for the London market. Isolated farmyards had been built where cattle were fattened but still it was thought that the buildings, even on these newly enclosed farms, were 'defective' in having too many barns (Jonas 1846, pp.35–72).

4.2.10 **The Fens** (JCA 46) (Figure 15)

One of the most distinctive landscapes is that of the Fens. The northern silt-based fens, which stretch into the East Midlands Region, have a long settlement history

going back to the Romano-British period and beyond. A period of expansion between the 9th and 13th centuries resulted in patterns of irregular enclosure around villages and longer strips that were used for arable or permanent pasture. Grassland, dominant from the 15th century, gave way to arable cultivation from the late 18th century. The reclamation of the more empty peat-based southern fens began in the 17th century, but was not completed until the introduction of steam power in the 19th century (Darby 1983). This expensive process relied heavily on the capital of the great landlords, principally the Duke of Bedford whose activity was concentrated in the parish of Thorney. Not until the new Nene Outfall was constructed in 1830 was there a reliable way of getting water to the sea, but once this was opened draining inland became possible. This involved the laying out of new farms, with buildings placed at regular intervals along the roads. Many of these fine farmsteads have since been replaced as their foundations cracked on the unstable peat. The flamboyant architect, S.S. Teulon, was employed by the Duke of Bedford to design Thorney village and some of the farmhouses, which along with the few remaining farm buildings form an important element of this flat estate landscape.

4.2.11 **Bedfordshire and Cambridgeshire Claylands and the Bedfordshire Greensand Ridge** (JCAs 88 and 90)
On the claylands the available land was generally organised into nucleated settlements: hamlets and small villages, each surrounded by communal fields and common grazing. The fragmentation of this farming system began with the increase in the value of sheep pasture and enforced depopulations in the 15th and 16th centuries, and concluded with reapportionment of the townships by general enclosure (private agreements and parliamentary acts) in the late 18th and early 19th centuries. The relative poverty of the soils has dictated a dispersed settlement pattern along the Greensand Ridge, with monastic institutions including large Cistercian abbeys at Warden and Woburn and smaller priories at Chicksands, Beadlow and Millbrook controlling a large proportion of the farmland and heaths, managing woodland (trees were sent from Chicksands to Ely Cathedral) and developing extensive warrens. The dissolution of these houses in the early 16th century added to the proliferation of large private estates which had already become a feature of the area.

Due to the control exercised by estates over both farmland and associated settlements, Parliamentary Acts were rarely required for the regular enclosures laid out in the late 18th and 19th centuries. Fine examples of planned farmsteads, with provision for steam power, and agricultural workers' cottages illustrate the rationalisation of farming estates in the late 18th and 19th centuries. Numerous isolated farmsteads, including a significant proportion of brick-built estate and model farms belonging to large landowners such as the Duke of Bedford, are a significant feature of the reorganised farming landscapes of the late 18th to mid 19th century. Dairying was an important component of farming on the dipslopes and river valley pastures into the early 20th century. Horticulture, based on the light and fertile soils of the Ivel Valley, developed in the later 19th century and remained a major element of the landscape until the later 20th century.

4.2.12 **Greater Thames Estuary** (JCA 81)
The agricultural traditions of the Greater Thames Estuary can be divided into two main themes: inland and coastal. Although the farming settlements are located principally in the inland zone, they reflect an ancient pattern of farming tenure which strove to extend holdings across the rising arable claylands and towards the grazing marshes, exploiting the resources of each. Comparatively few isolated farms are located within and along the edges of the marshes. The reclamation of marshland for farmland has a long history documented as far back as the 8th century. However, the economic value of large areas of marshland, especially in South Essex, rested on fattening cattle and especially sheep which required no reclamation, the salt preventing foot rot and disease (Thirsk 1967, p.53). The pattern of inland agriculture is frequently extremely ancient in origin – strong linear systems running tangentially to the rivers and reflecting ancient patterns of movement and tenure between the arable clayland and the marshes.

4.2.13 **Northern Thames Basin** (JCA 111)
The medieval pattern of village nucleations and dispersed farming settlement remains central to the character of the Hertfordshire plateau and its river valleys. The pattern of piecemeal enclosure and individual farm holding established in the medieval period supported a mixed farming economy, which developed and prospered alongside the development of local markets and the ability to supply London's growing demands for corn, meat and dairy products – and of horses (Thirsk 1967, p. 50). Profitable farming conditions saw the demise of much medieval parkland in the 17th and 18th centuries, alongside the growth of substantial farming estates for the London merchants, rising nobility and gentry (Holderness 1984, pp. 244-5). Some areas of regular enclosure are associated with the rationalisation and amalgamation of farms and estates in the 18th and 19th centuries.

Common grazing on heath and wood pasture in the wooded hills of Essex to the south of the area gave way to private arable and livestock holdings in the late 18th and 19th centuries, and a characteristic pattern of substantial farmsteads within regular patterns of

enclosure especially in the more low-lying areas. A principally dispersed settlement pattern became established within the extensive tracts of the Essex heathlands in the medieval period, reinforced by 19th-century enclosure of the open landscape, which brought about the pattern of new farmsteads and mixed farming still in evidence today. Orchards were established around Colchester, as well as a significant area of meadow pasture and leys following the numerous narrow rivers and streams.

5.0 Farmstead Types

5.1 NATIONAL OVERVIEW

Farmsteads perform several basic functions: providing shelter for farmers and their families; the housing and processing of crops; the storage of vehicles, implements and fodder; the management and accommodation of livestock. Building functions can be usefully distinguished between crop processing and storage (barns, hay barns, cider houses, oast houses and farm maltings, granaries) and the accommodation of animals (cow houses and shelter sheds, ox houses, stables, pigsties) and birds (dovecots and poultry houses). These functions can either be accommodated within individual specialist structures or combined with others into multi-functional ranges.

The great diversity of farmstead plans (Figure 16) provides a very direct reflection of the degree to which these farm-based functions are located in specialist or combination structures and ranges. The resulting diversity of form and scale is the direct outcome of the significant variation in farming practice and size that occurs both over time and from place to place. Individual farm buildings, for example, could be:

- Small-scale and highly dispersed, as in the wood–pasture landscapes of the Kentish Weald and the Suffolk clays;
- Set out in strong linear groupings, especially in northern pastoral areas with little corn and longer winters and where there was an obvious advantage in having cattle and their fodder (primarily hay) under one roof;
- Arranged around yards, examples being the large aisled barn groupings of the southern English downlands and the large planned layouts built in accordance with ideas being spread through national literature and contacts.

A critical factor in farmstead planning is also the relationship of the farm buildings to the working areas within and around the farmstead and the farmhouse. The major working areas were trackways to surrounding fields and local markets, ponds and cart washes, the areas for the movement of vehicles and animals, the accommodation of animals and the platforms where hay and corn would be stacked, the latter prior to threshing in the barn. The size of the areas for stacking corn (known as rickyards in most of the country) varied according to local custom and the extent of arable crops kept on the farm.

Local tradition and status were the principal reasons for whether the house was accessed through the yard and buildings were attached, or whether the house looked toward or away from the yard. Internal access between dwelling house and farm buildings was a feature of farmyard architecture in much of Europe. However, in England from the 13th century it became much more common to have separate entrances, even where buildings and houses were joined. The role of women in the farmyard was commonly restricted to 'milking cows, feeding pigs and calves, making butter and cheese, tending poultry, and occasionally tending with the hay and corn harvests' (Whetham 1978, p.81). This led to the integration into the house of processes such as brewing and dairying, and a formal separation of the house and gardens from the farmyard, especially in the case of post-1750 remodellings and larger farms typically over 150 acres. In such instances, the house could face toward its own home close or garden.

The development of the farmhouse has been the subject of regional and national studies (Barley 1961, for example). Farmhouses can tell us much about the former prosperity and development of steadings, such as the major phases of rebuilding that affected parts of southern England in the 15th to early 17th centuries and the wealth introduced through cattle rearing in parts of northern England in the century or so after 1660. In summary, the most common farmhouse plan of the medieval period, traceable to the 12th century, has the main entrance in one side wall to an entrance passage (usually with a door opposite) that separated an open hall (to allow smoke from the fire to escape through the roof) from a lower end, which could house a kitchen, services and in some areas livestock. The hall served as the main living and eating room, status and space determining whether there would be an inner chamber (for sleeping or a private area) beyond. By the end of the 16th century, farmhouses in most areas of England (except in the extreme south-west and the north) had been built or adapted into storeyed houses with chimneystacks. There was a strong degree of regional variation, for example in the positioning of the chimneystacks and their relationship to the main entrance. From the later 17th century, services in some areas were being accommodated in lean-tos (outshots) or rear wings. From the mid-18th century houses that were more symmetrically designed (with central entrances, chimneystacks on the end walls and services placed to the rear of the front reception rooms) became standard across the country. As a general rule, farms over 70 acres needed to look beyond the family for additional labour, and so rooms for live-in farm labourers – usually in the attic or back wing of the house – became a feature of many farmhouses.

16 Farmstead plan types (Farmhouses are shaded darker)

A Linear plan. House and farm building attached and in line. This is the plan form of the medieval longhouse but in upland areas of the country in particular it was used on small farmsteads up to the 19th century.

B L-plan including the farmhouse. Such plans are usually either a development from a linear plan or resemble a small regular courtyard plan (see E–G, below).

C Dispersed plan. Within this small hamlet the farm buildings of the two farmsteads are intermixed, with no evidence of planning in their layout or relationship to the farmhouses. Dispersed plans are also found on single farmsteads where the farm buildings are haphazardly arranged around the farmhouse.

D Loose courtyard. Detached buildings arranged around a yard. In this example the yard is enclosed by agricultural buildings on all four sides with the farmhouse set to one side. On smaller farms the farmhouse may form one side of the yard, which may have agricultural buildings to only one or two of the remaining sides.

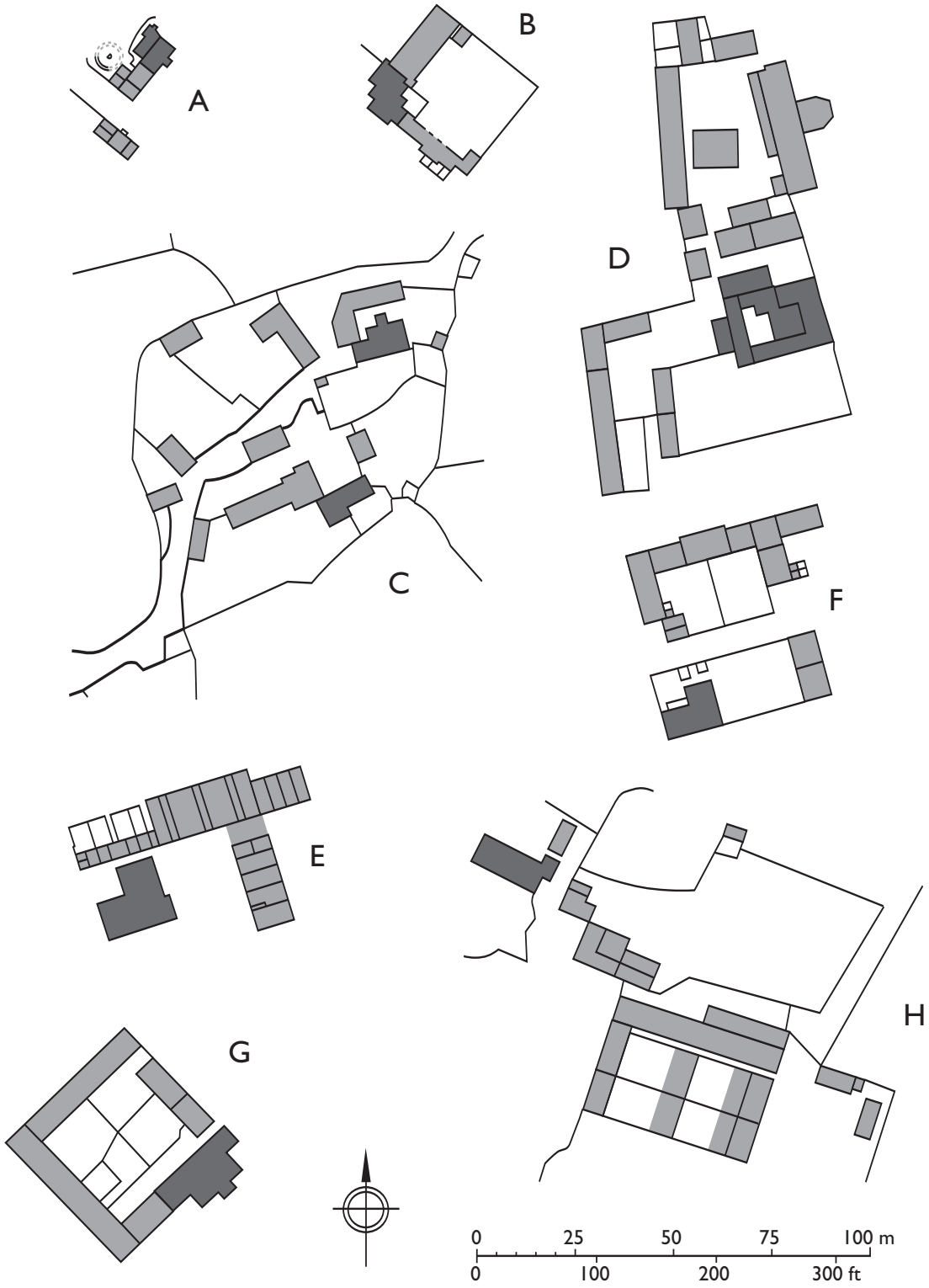
E Regular courtyard L-plan. Two attached ranges form a regular L-shape. The farmhouse is detached from the agricultural buildings.

F Regular courtyard U-plan. The yard, in this example divided into two parts, is framed by three connected ranges. Again, the farmhouse is detached.

G Full regular courtyard. The yard is enclosed on all sides by buildings including, in this example, the farmhouse. Other examples are formed by agricultural buildings on all sides with the farmhouse built to one side.

H Regular courtyard E-plan. This plan form (and variations of it with additional ranges) may be found on some of the larger planned farmsteads where livestock were a major part of the agricultural system. Cattle were housed in the arms of E, the 'back' of which provided space for fodder storage and processing.

Drawn by Stephen Dent © English Heritage



The predominant farmstead plan types, which are closely related to farm size, terrain and land use, are listed below. There are many variations on these themes, particularly in the manner in which fully evolved plan groups can, as a result of successive rebuilding, contain elements of more than one plan type.

5.1.1 LINEAR PLANS

This group comprises farmsteads with farm buildings attached to, and in line with, the house. It includes some of the earliest intact farmsteads in the country.

The earliest examples of linear plans are *longhouses*, which served as dwellings for farmers' families and housing for cattle. Each longhouse had a common entrance for the farmer's family (accommodated at the up-slope end of the building) and livestock, the cow house being marked usually by a central drain and a manure outlet at the lower gable end. Longhouses were often found grouped together and associated with strip farming of the surrounding fields. Documents and archaeological excavation indicate that they had a widespread distribution in the north and west of the British Isles in the medieval period, but that in much of lowland England they were either absent or being replaced by yard layouts with detached houses, barns and cow houses from the 14th century (see, for example, Gardiner 2000 and Figure 17). Such re-buildings are commonly believed to be associated with the decline of smaller peasant farmers and the emergence of a wealthier peasant class. Longhouses, and their variant types with separate entrances for livestock and farmers, continued in use in parts of the South West, the Welsh borders and the northern uplands and vales into the 18th and 19th centuries. Those built in or before the 17th century were originally entered from a passage, which also served as the entrance to the house. However, during the 18th century social pressures led to the provision of a separate dividing wall and byre door, and to the demolition of some byres and the conversion or rebuilding of others to domestic or new agricultural use (barns, for example). The piecemeal rebuilding and conversion of both lower end and house-part that this permitted tended to discourage total reconstruction, inevitably limiting the ability to respond effectively to changing requirements. These later changes are clearly visible in the buildings, as is evidence about the size and layout of the original byres, and of the arrangement of the passage (against which the stack heating the main part of the house was positioned) that once formed the common entrance to these longhouses as a whole. The initial dominance of the longhouse in some areas is significant, since, as a house type capable of almost infinite adaptation, it exerted considerable influence on the subsequent evolution of farmsteads.

Linear layouts (including the laithe house of the Pennines) are now most strongly associated with the hill farms of northern England (North East, North West and Yorkshire and the Humber). A major reason for the persistence of the layout in northern England was that it was suited to smaller farms (of 50 acres or less) needing fewer buildings – other than for the storage of subsistence levels of corn for the household and livestock, and the housing of some milk cattle, poultry and pigs. The close proximity of farmer and livestock during the winter months was another factor, cattle being stalled indoors from October to May. It was also a layout ideally suited to building along the contours of a hillside and so this farmstead plan remained in use in upland areas of England into the 19th century.

Linear plans have often evolved as a result of gradual development, for example in the rebuilding of a lower end for the cattle as service area for the house, and the addition of new cow houses, stabling and barns in line. Linear layouts will often be associated with loose scatters or even yard arrangements of other farm buildings.

5.1.2 PARALLEL PLANS AND L-SHAPED PLANS

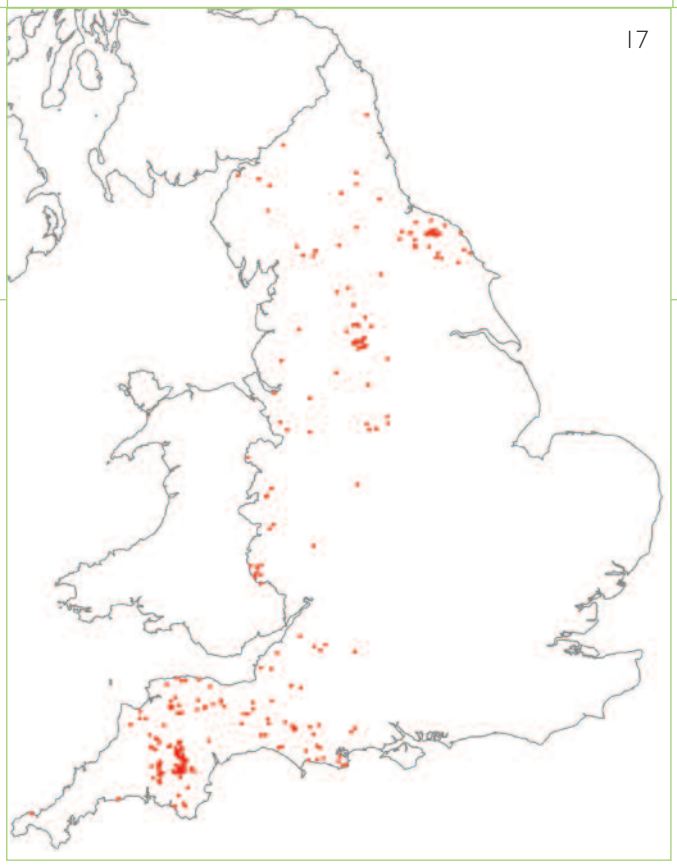
These invariably enclose two sides of a yard, and often represent developments from earlier linear plans, if they have not been constructed in a single phase. L-shapes often evolve from the addition of a barn or byre to an original linear farm, or can represent the partial re-organisation of a dispersed plan. They are typically found on farms in the 50- to 150-acre bracket, and can be formal or highly irregular in appearance, with or without scatters of other farm buildings.

5.1.3 DISPERSED PLANS

The buildings of this group appear to be arranged haphazardly around the farmstead. Dispersed plans are typically found on smaller farms in stock-rearing or dairying areas, where a large straw yard for cattle was not required. They can range in size from the very small – for example a farmhouse and combination barn – to large groups of two or more blocks or individual structures, some or all of which may combine a variety of functions.

5.1.4 LOOSE COURTYARD PLANS

This group is characterised by single or double yards flanked by buildings on three or four sides, with or without scatters of other farm buildings close by. There are excavated and documented examples of this layout dating from the 13th century (in Hallam 1988, pp.860, 889) associated with: the base courts of large baronial and episcopal establishments; with moated manorial sites (where the farm buildings were arranged either within or outside the moat); and with the farms of an emerging wealthier class of peasant, the latter often replacing two or more previous steadings with



17 Distribution of listed longhouses in England. Surviving longhouses – some of which have been recognised as such in listing descriptions – represent only a small proportion of a building type that was once prevalent across large parts of western and northern England. The concentration of a fine group of surviving longhouses on the eastern fringes of Dartmoor is particularly prominent. Recent research has shown that in some areas such as north Yorkshire many village-based farmhouses have longhouse origins that have previously not been recognised. There are no known longhouses in the East of England Region.

longhouses (Le Patourel in Miller 1991, pp.843–65). This plan became most strongly associated with large arable farms: for example, many farmsteads on the downlands of southern England have one or more barns providing shelter to a south-facing yard (as recommended but not always followed), typically bordered by a stable, granary and later shelter sheds.

5.1.5 REGULAR COURTYARD PLANS

Formal courtyard layouts, where the barns, stables, feed stores and cattle shelters were ranged around a yard and carefully placed in relation to one another in order to minimise the waste of labour, and where the manure could be conserved, were recommended from the mid-18th century and many are documented from this period, although no surviving groups can be dated before the 1790s. The earlier examples are courtyard or U-plan with the barn forming the central block, and shelter sheds, stables and enclosed cow houses the two side wings. The fourth side could be no more than a wall with a gateway, or contain further sheds or smaller buildings such as pigsties, or be distinguished by a house (usually looking away from the yard). From the 1820s and 1830s, extra yards made E or even double-E plans.

The ultimate examples of courtyard farmsteads are the planned and model farms of the late 18th- and 19th-century estates (Figure 18), the ideas for which were widely disseminated in textbooks and journals (Wade Martins 2002). They are generally associated with holdings over 150 acres, and are far less likely than the other plan types to be associated with other loose scatters of buildings.

5.2 FACTORS INFLUENCING FARMSTEAD CHARACTER

The occasional merging of plan types can make the variations on these principal themes seem almost infinite. The identification and analysis of the broad patterns of plan types can reveal much about the impact of the factors that influence farmstead character.

5.2.1 FARM SIZE

Generally, larger holdings were more likely to be provided with larger and/or more buildings. In the 18th and 19th centuries, the 'contemporary rule of thumb was that a man was needed for every 25 or 30 acres of arable and every 50 or 60 of pasture' (Mingay 1989, p.953). Statistics on the numbers of farms by size can be misleading: although 71% of holdings were under 50 acres as late as 1880 (Howkins 1994, p.53), the proportion of land area taken up by small farms was much smaller and regionally very varied. By the 1850s, medium-size farms – typically mixed arable holdings – were between 100 and 299 acres, and occupied nearly half of England's acreage; as much as one third was taken up by large farms of over 300 acres, these being best placed to invest in 'High Farming' (Mingay 1989, p.950). Farms of 500 acres and above were found on the chalk downlands of southern England, and in the Lincolnshire and Yorkshire Wolds: 1000 acres was not uncommon in these areas (Prince in Mingay 1989, p.82). These farms had greater access to capital and were usually associated with corn production, which typically demanded more labour for carting, harvesting and threshing and increasingly for yard and stock management: strawing-down yards, lifting the heavy manure-laden straw into middens and carts and spreading it on the fields. Smaller farms, typically found in dairying and stock-rearing and fattening areas, required fewer large buildings and were less likely to have the capital to expend on rebuilding farmsteads to fit with developing agricultural practice. The very smallest (of under 50 acres) thrived in fruit-growing and market-gardening areas (often clustered around urban sites), and in locations such as west Cornwall and the Pennines where there was gainful by-employment in industry – for example the weaver-farmers of the West Riding linear-plan farms, noted by Caird (1852), who kept dairy cattle on holdings of around 20 acres, supplying nearby towns with milk (Mingay 1989, p.940).

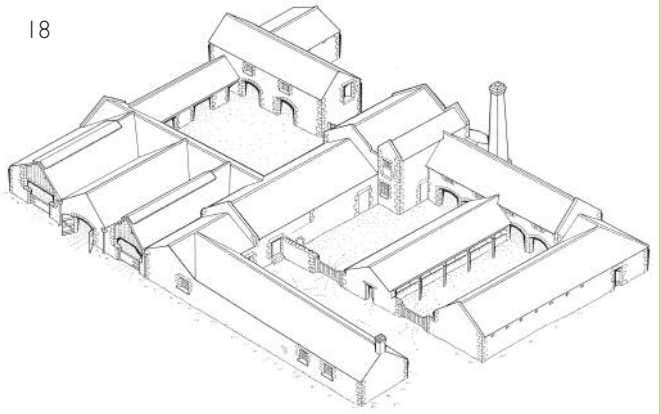
5.2.2 ESTATE POLICY

Estates, and thus landlords and their agents, have been massively important in English rural history, with tenants occupying some 85% of the farm area until the land transfers of the early 20th century mentioned in 4.1.4 above (Mingay 1989, pp.943–4). The character of an area thus can be strongly influenced by the estate of which it was part. Family insignia, estate-made bricks and the styling of cast-iron windows or ventilation grills can all give a unity to buildings over several parishes and this is as true of farm buildings as of cottages and village schools. Typically, and observable from 1350 onwards (Le Patourel in Miller 1991, p.846), improvements by landlords were aimed at attracting good tenants in either times of plenty (when capital expenditure could secure an increase in rent) or depression (when it could forestall a decrease). By the mid-17th century, home farms were being developed as examples of best practice for tenants. Between 1650 and 1750 landlords assumed increasing responsibility – in comprehensive lease agreements – for fixed capital works (particularly barns and houses) and after 1750 the influence of estates can be seen in the planning and design of buildings and entire complexes for home farms and tenant farms (Thirsk 1985, pp.72, 235; Thirsk 1967, pp.680–81; Wade Martins 2001). Estates often erected new buildings in order to attract tenants with the working capital to invest in their land and thus, through increased productivity, maintain rents at a high level. The policies of larger estates often discriminated against smaller holdings and the maintenance of their buildings. County studies (for example, Wade Martins 1991) have demonstrated how varied estate policy in similar areas could be, despite the rise of the land agent as a professional class, increasing access to farming literature and the ironing out of many glaring inconsistencies in estate practice by around 1850. The small estate is less well understood (e.g., Collins et al 1989).

5.2.3 LOCAL VARIATION OF FARMING SYSTEMS

The type and form of built fabric display regional variations that are more firmly linked to the broad pattern of land use and its landscape context (whether wood pasture, enclosed or open landscapes). In East Anglia the older timber-framed, evolved farmstead groups with ample barn provision and multi-functional buildings are associated with the small, well-hedged fields typical of the wood-pasture regions, while the large planned farms of brick or brick and flint are found on the later enclosed areas of heath (Wade Martins 1991; Wade Martins & Williamson 1999). The differences within Wiltshire are also clearly demonstrated by the farm buildings: the chalkland typically has loose courtyard plan steadings with their large-scale barns serving specialist corn and sheep husbandry; the smaller farms associated with dairying and cheese production in the northern wood-pasture area are of a more dispersed plan (Slocombe 1989). The yard management of stock also displayed a strong variation dependent on regional or estate practice. Thus the long-established practice of buying store cattle in spring and selling them on in the autumn survived longest in areas with rich grasslands, such as the Somerset Levels and the east Midlands, in contrast to Norfolk and the eastern lowlands where yards were filled over winter, even during the lean years for the beef industry in the 1930s (Whetham 1978, pp.290–91).

18 A large, regular courtyard plan (North Northumberland Coastal Plain Character Area), dating from the early to mid-19th century and placed within a landscape affected by large-scale reorganisation and enclosure from the 18th century. This large farmstead was devoted to fatstock housing and incorporated three open yards lined with hemmels and a covered yard with a root store (left, with open doors). The farmstead also incorporated a stationary steam engine, which would have powered threshing machines, as well as fodder-preparation machines such as chaff cutters and cake breakers. © *English Heritage*



5.2.4 INTERNAL WORKINGS OF THE FARMYARD

The layout of the farmyard should firstly be seen in relationship to its immediate setting: of crop storage and processing buildings to the fields; of yards, platforms for corn, haystacks and cart sheds to trackways. Secondly, an important characteristic is the degree to which the layout of the farmstead was related to function. The planning of farmsteads to maximise efficiency engaged an increasing number of writers from the 1740s, who generally rated traditional layouts poorly against the perceived benefits of ordered and ideally planned layouts that minimised, for example, the time it took to process a stack of corn, transport the straw to the cattle yard and grain to the granary or mixing room. Many such writers, however, did not display sufficient understanding of the other factors – land use, terrain, weather, farm size, location in village or open countryside – that dictated layout. The most comprehensive analyses of local farming systems in relationship to farmstead layout are contained in Barnwell & Giles (1997).

5.2.5 DEVELOPMENT OF FARMING SYSTEMS

Archaeological evidence from deserted medieval settlements has shown how linear plans, including longhouses, were replaced by loose courtyard

arrangements as owners prospered and their holdings grew larger (Lake 1989, pp.81–2; Gardiner 2000). Evidence from the tithe maps and first-edition 25-inch maps for sample Norfolk parishes showed that nearly half the farms were of an irregular layout in 1840 with very few regular E- or U-shaped courtyard plans. By 1880 dispersed layouts had reduced to an eighth, with E- and U-plans accounting for about a quarter of farms (Wade Martins 1991, p.199).

5.3 FARMSTEAD PLANS IN THE EAST OF ENGLAND

We know little of the form of the farmstead before 1600, but excavation evidence would suggest that a group of buildings around a central court was the usual layout (Wade-Martins 1980, pp.113–14). This is matched by documentary evidence from the medieval period, which records the importance of yard-produced dung (Hallam 1988, pp.281–5). There is no evidence that longhouses (see 5.1) were ever a building type found in the Region. The survival of medieval barns rather than other farm buildings suggests that these were always the most substantial buildings, but sheds for livestock and implements as well as stables are clearly indicated in medieval documents (Davenport 1967, pp.21, 49). Map evidence becomes available from the 16th century. In the South Suffolk and North Essex Claylands, for example, a particularly detailed map for Ingatestone, Essex, in 1556 indicates that most of the larger farms had cow houses and stables as well as barns (Ryan 1986). Map evidence also shows loose courtyard plans for gentry and manorial groups often comprising a barn, stables and granary (Wade Martins 2002, pp.37–9). As late as 1792 a valuation of the Tollemache estate in Helmingham and Framsden described eight of the 11 holdings as having barns and stables adjoining, the stable with a hayloft above. From an exhaustive analysis of the documentary sources in High Suffolk, John Theobald has concluded that before 1650 the only two buildings found on a typical farm in the area were barns and stables (Theobald 2000, pp.161–2) and very few buildings other than barns remain. Livestock sheds were frequently replaced and extended in the 19th century. A terrier of 1830 describes 25 farms in the Needham Market area of the Suffolk claylands. Although stables and cow houses were mentioned on all the farms, those of timber were frequently described as in 'indifferent repair' or in a 'very bad state, should be removed'. In contrast, a newly built stable for ten horses with a granary over of brick and tile was described as 'capital' (Suffolk Record Office HA1/HB4/2).

5.3.1 EARLY LOOSE COURTYARD AND DISPERSED LAYOUTS

This Region retains some of the earliest farmstead layouts in the country, matched only by parts of the West Midlands, South East and South West regions. Early (pre-1750) farm buildings are largely absent from the acidic coastal and heathland soils affected by post-1750 improvements, being instead concentrated on deeper soils (notably the Flegg Loams), the claylands and in valley bottoms. These areas of predominantly mixed and later dairying farms experienced little investment in the first phase of the agricultural revolution, mid- and later 19th-century additions for cattle housing ensuring the survival of earlier barns, stables and even cow houses.

A typical layout of an evolved farmstead in the Region includes an earlier barn, extended or with a porch added as grain output increased at the end of the 18th century. A second barn might then have been built or an integral stable opened up to increase barn space. A granary above a cart shed was often also a later addition, again providing housing for the increased grain output. A separate cow house and later stable block to replace the stable originally in the barn was also built. Individual buildings were sometimes connected by temporary hurdles or brick walls to create yards for the winter sheltering of animals. A terrier of farms in the Creeting area compiled in 1830 describes 25 sets of buildings in detail (Suffolk Record Office HA1/HB4/2). Nearly all have at least one barn with stables, cattle yards, wagon lodges, granaries and cow houses. Piggeries and hen houses were also an important part of most yards. Cheese rooms, apple lofts and granaries were sometimes located in the house. However, they were not in good condition and in this may well have been typical of others in the Region: 'It must be observed that the farm houses and agricultural buildings are of a very inferior description, mostly very old and having been much neglected for a great many years, there are now considerable repairs wanting' (Suffolk Record Office HA1/HB4/2). The landscape of the Creetings is typical of the Central-West claylands of Suffolk (around the junction of the South Suffolk and High Suffolk Claylands, dominated as it is by irregular and irregular-sinuous pre-18th-century field systems. The farms are isolated across the parish in the centre of their fields and in 1838 at the time of the tithe map the farmsteads mostly comprised a scatter of buildings. Most of the farms were owner-occupied or in small estates of one or two farms.

5.3.2 REGULAR COURTYARD LAYOUTS

Regular courtyard farms are documented in the Region from the mid-18th century, although no surviving groups can be dated before the 1780s (Wade Martins 1991, p.198). They are concentrated in areas of post-1750 enclosure, and are strongly associated with the activities of estates: North West Norfolk, Breckland, the Greensand Ridge of Bedfordshire, Mid Norfolk, Central North Norfolk, North West Norfolk and North Norfolk Coast. The earliest examples are courtyard or U-plan, with the barn forming the central block and shelter

sheds, stables and enclosed cow houses the two side wings. The fourth side could be no more than a wall with a gateway, or contain further sheds or smaller buildings such as pigsties. The main yard would be undivided allowing the cattle to roam across it. Only rarely in East Anglia did the house form one side of the yard. Formal courtyard farms are more usual on the great estates where they could make major architectural statements. The most famous of Norfolk landlords was Thomas William Coke of Holkham on the north coast. During the 19th century most of the 70 farms on his estates were remodelled and large red brick barns surrounded by pantiled shelter sheds are typical of that part of the county (see 4.2.1).

Some of the largest examples of mid-19th century industrial farms in the Region are to be found on the Duke of Bedford estates around Woburn on the Bedfordshire Greensand Ridge/Bedfordshire and Cambridgeshire Claylands character areas. Whilst little survives of the first phase of estate building around 1800, the mid-19th century saw the rebuilding of about 35 estate farms, many on a very grand industrial scale with tall chimneys over engine houses. These brick-built, mostly E-plan groups include a steam-engine house with tall chimney and wide feeding sheds often forming the central wing (Wade Martins 2002, pp.118–19; 146–7). The Lucas West estate around Silsoe and Gravenshurst was also active at this time putting its distinctive mark on its farms (Wade Martins 2002, pp.207–8). Cambridgeshire was a county with few landed estates, although the Duke of Bedford again owned the area of Thorney level in the Fens where he improved drainage and rebuilt farms after 1840. Not many of his farms survive because these brick buildings, which included such features as hit-and-miss ventilator windows, sliding doors and steam engines, were erected on the peat, which shrank and caused the walls to crack. They were replaced with much lighter weatherboarded buildings at the end of the 19th century (Wade Martins 2002, p.209). In the mid-19th century Essex farming prospered, with east Essex described as one of the 'best farmed districts in the kingdom'. Owners such as Dr Cline, Lord Petre and Sir Henry Smith were building excellent farmsteads 'in the modern style'. Where substantial older buildings existed, these were being adapted, 'so as to render them everything a tenant requires or could even wish for' (Baker 1845, p.31).

5.3.3 L- AND U-SHAPED COURTYARD LAYOUTS

L- and U-shaped courtyard layouts that evolved from earlier dispersed layouts are found throughout the Region. In the mid- and late 19th century, it was common for open yards to be divided up to form a greater number of smaller yards allowing for individual feeding of different groups of cattle. E-plan steadings developed from earlier U-planned steadings, as in North West Norfolk and Breckland, and from L-plan and dispersed groups after 1840 (Wade Martins & Williamson 1999, p.86): estate policy was often a critical factor in their adoption (Wade Martins 1991, p.200). These changes were less likely on the smaller dairy farms where cows had always been kept in sheds overnight and here a scattered group of buildings around a yard remained typical.

The years 1840 to 1870 saw unprecedented activity of farm building and improvement. Changes in design reflected various farming and technological developments of the period. As standards of living rose and railways made the transport of animals easier, the demand for meat grew and livestock began to play a more important part in the farming system of eastern England. Previously stores had been bought in, kept in yards and valued primarily for their manure before they were walked to London for the Smithfield market where prices could be volatile and weight was lost on the long walk (a week from Norwich). With the railways and more certain prices, animals were valued for their meat and so interest in efficient fattening techniques increased. Individual loose boxes and covered yards were introduced on the more progressive farms, particularly on the great estates where there was plenty of money to spend.

Agricultural depression in the last years of the 19th century affected farm buildings in two contrasting ways. The large estates tried to spend their way out of depression, either by using their own money or by borrowing from the land-improvement companies to build cattle yards and sheds to house livestock, which was the branch of farming that remained most profitable. The L- and U-plan shelter sheds with walls enclosing yards were often dated and stood at a distance from the old steading, sometimes out in the fields. Around London many farms changed to dairying and this involved the building of new, more elaborate accommodation for cows and commercial dairies. Away from the estates, owner-occupiers could not afford any changes and so buildings received little attention except for some essential patching. Mid-19th century buildings remained very little altered and it was not until farming prosperity returned in the 1950s and '60s that a new phase of building alteration, often involving the demolition of the old, began.

6.0 Key Building Types: Crop Storage and Processing

The analysis of key building types presented here could be presented by function rather than building type, as many functions relate to parts of buildings or parts of entire ranges or farmstead types. As the relationship between farmstead form and function has been outlined in Section 5, Section 6 will comprise a conventional overview of the key functional types. It will be noted in some regions that so many of these functions are combined in one combination barn or farmstead type that they cannot be easily teased out as a separate theme. Nevertheless, the national framework sections do present an overview of on-farm functions, and where relevant their rarity and survival, that are applicable nationally.

6.1 BARNS

6.1.1 NATIONAL OVERVIEW

In the British Isles and other parts of northern Europe, the harvested corn was often stored and processed inside a barn. After threshing – typically a process that occurred gradually over the winter months – the straw usually remained in the barn awaiting its use as bedding for livestock, while the grain destined for market or next year's seed would be stored either in the farmhouse or in a purpose-built granary.

Barns are often the oldest and most impressive buildings on the farm and are characterised by:

- Internal space for the storage of the unthreshed crop and an area (the threshing floor) for beating by flail the grain from the crop and for winnowing the grain from the chaff in a cross draught. This was also an area for the storage of straw after threshing.

- Externally, typically large opposing doors on the side walls to the threshing floor, although the size of openings is subject to much regional variation. Barns on large arable farms commonly had large threshing doors, sometimes with porches, into which a laden wagon would draw up and unload the crop. In some parts of the country the crop would be forked into the barn through pitching holes, and the threshing doors would be much smaller. Small winnowing doors sufficed in many pastoral-farming areas.

- Blank external walls, in mass-walled buildings often strengthened by buttresses or pilasters. Mass-walled barns usually had ventilation slits or patterned ventilation openings, and the wattle or lath infill to timber-framed barns was often left exposed. In some areas, the crop would be unloaded from a cart or wagon into the barn through pitching holes.

The distinctive form and plan of barns remained comparatively little altered between the 13th and 19th centuries. Surviving pre-1750 barns represent only a small proportion of the original population, their date, scale and landscape context being major factors in determining their survival. There is only one complete survivor of the 2–2,900 tithe barns that existed on Cistercian estates in the pre-1550 period (Brunskill 1982, p.35). Local studies have indicated that small and pre-18th-century barns are most likely to survive on farm holdings of less than 150 acres that have not experienced major growth in subsequent centuries (Wade Martins 1991, p.160). These are concentrated in landscapes of ancient enclosure, improving estates and the process of enclosure in the post-1750 being linked to often wholesale rebuilding.

Major variations were in the five following areas.

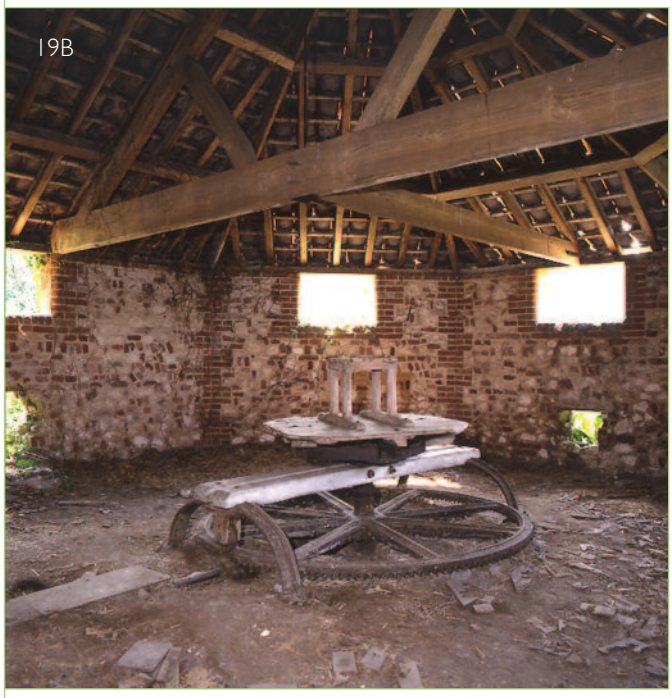
6.1.1.1 Plan form

In the most common form of plan the threshing floor was in the centre, although it could be sited off-centre or at one end. A greater span was enabled by aisled barn construction, either in single or double aisles. This was common in East Anglia and the South East (Rigold 1971 and 1973), and for high-status buildings outside that area, including a group mostly dating from between 1570 and 1650 in the Pennines (Clarke 1972 and 1974).

Outshots or projecting lean-tos were commonly added to barns, for housing carts, livestock and other functions. The number of additional external openings indicates accommodation for other functions, ranging from minor doors enabling the barn to house functions such as clipping sheep when empty, to lofts and stabling,

19 Power in barns: national examples
A & B A projecting horse engine house that contains a rare example of an in situ horse gin. (North West Norfolk)
C A water wheel, providing power to the feed-processing machinery in a home dairy farm, remodelled in the 1890s. (Breckland)
D A farmstead that incorporated a fixed steam engine to drive threshing and other crop and fodder processing equipment. (Bedfordshire and Cambridgeshire Claylands)
E The use of portable steam engines often left no physical evidence within the barn structure but in some cases drive shafts and fly wheels survive in-situ. (Dorset Downs and Cranborne Chase)
All © English Heritage/Michael Williams except E *© Bob Edwards*


19A


19B


19D


19C


19E

6.1.1.2 Size

Barn size can be strongly indicative of the former extent of arable and holding size, ranging from very small in dairying or stock-rearing areas, to very large on the much larger holdings of arable areas. The practice of mowing rather than cutting by sickle the corn crop, widespread by the 19th century, also had an impact on barn size, as large quantities of straw – ready for feeding cattle in the yard – would need to be accommodated.

In the medieval period it was common practice to house all the crop in the barn, but in later centuries the unthreshed crop could be raised off the ground by a platform or by staddle stones (see 6.2 and Figure 22), and stored in an open yard (rickyard) or a staddle barn.

Examples of the latter, typically of late 18th- to early 19th-century date, survive on the downland farms of Hampshire, south Wiltshire and east Dorset. Ricking was not a common practice in southern England until the 19th century, but was noted by observers as being common in northern England and Staffordshire in the 17th century (Colvin & Newman 1981, p.97; Peters 1969, p.65).

6.1.1.3 Combination Barns

There is increasing evidence in many parts of the country for threshing barns to have originated from at least the 17th century as combination barns, which incorporated other functions in the main body of the barn such as the housing of livestock. These ranged from the end bays of the barn to the aisles of Pennine barns or the ground floors of split-level buildings. Multi-functional two-level barns, including bank barns and their variants, were increasingly adopted from the late 18th century (and noted by the writers of the county reports for the Board of Agriculture) – often along with the introduction of mechanisation – in many areas of England (Barnwell & Giles 1997, p.156).

6.1.1.4 Evidence for mechanisation

The introduction of machine threshing after its invention in 1786 led to the erection in existing barns of additions to house machinery, for chopping and crushing fodder as well as threshing grain. Early machines were powered by horse engines in special-purpose semi-circular buildings, which projected from the barn and were commonly known as 'gin gangs' in the north of England. Steam, water and wind power were also used (Figure 19).
The uptake of machinery varied across the country. In areas where labour was expensive mechanisation found favour, horse engine houses and evidence for water power being most common in the lowlands of Yorkshire and the Humber and the North East, in parts of the West Midlands and in the South West peninsula (especially Cornwall). In the southern counties, where labour was cheap and abundant until the 1850s or later, few barns bear evidence for the introduction of machinery (Hutton 1976).

From the early 19th century the traditional barn began to be replaced by large multi-functional buildings with threshing and fodder-processing areas linked to granaries, straw storage and cattle housing. These could project from the north of courtyard plans (as was common in Northumberland) or be integrated into other types of plan. In some areas, such as the eastern lowlands from Nottinghamshire northwards, the barn was from the 1850s reduced to a small feed-processing room (Figure 22, bottom).

The introduction of the portable steam engine and threshing machine meant that tackle could be taken to the stack. This was widespread by the 1850s, and heralded the end of the traditional barn as a processing building.

Features relating to the use of power are highly vulnerable and rare, particularly horse wheels.

6.1.1.5 Evidence for reuse and adaptation

Careful inspection of barn interiors may reveal evidence for reused timbers (a common practice), in addition to former floors, partitions, doors and windows. This may well indicate that a present open space was divided off at one end or even provided with an additional floor.
The high point of barn building occurred during the 18th and early 19th centuries, as grain yields rose and new land came into cultivation. Additions were commonly made to existing barns or additional barns built. It is also likely that where a barn was originally multi-purpose, the animal housing was removed and a separate barn or cow house built.

Mechanical threshing had removed the need for a threshing floor and the uses to which the barn was put changed. As cattle gained in importance at the end of the 19th century barns were converted into mixing houses for fodder. The introduction of steam-powered machinery (whether fixed or mobile) usually involved the cutting of a hatch in the barn wall in order to allow belting to enter. Alterations might well involve the dividing of the building with partition walls and floors.

6.1.2 BARNS IN THE EAST OF ENGLAND (Figure 20)

6.1.2.1 Threshing Barns and Aisled Barns

Proximity to the London market, climate and soils were major factors in the dominance of arable husbandry in much of the Region, which shares with the South East the principal concentration of surviving pre-1550 and pre-1750 barns in England. There is a marked concentration of pre-1750 farm buildings (predominantly barns) on the Flegg Loams and across the claylands of the Region (see 5.3). They also survive in village centres, ranging in scale from five-bay 17th-century barns (at Ringstead in North West Norfolk) to small in scale (such as Fenstanton in the Bedfordshire and Cambridgeshire Claylands). The heyday of barn building was the period 1700 to 1850. The increase in grain production stimulated after 1796 by the war with France, created a need for increased barn capacity resulting in either the adaptation, rebuilding or enlarging of existing barns or the building of additional ones. Very few pre-18th-century barns survive in the areas owned by the improving estates. These tend to be the light soils of Suffolk and Norfolk where timber was scarce.

Barns were often seen as a status symbol and so could be treated decoratively. Weatherboarded barns in Suffolk

20 Barns and crop storage in the East of England Region
A Some of the earliest barns in England are to be found in the Region, including this large aisled barn at Cressing Temple – built by the Knights Templar in the mid-13th century. (South Suffolk and North Essex Claylands)
B Aisled barns such as this 15th-century thatched barn are a characteristic feature of the southern half of the Region. (South Suffolk and North Essex Claylands)
C A mid-16th-century unaisled barn. Many early timber-framed barns were multi-functional buildings that provided crop storage and animal housing, often with floored bays. This barn originally had three bays of stabling with lofts over, one of which was converted to barn space in the 18th century. Smaller barns often had all the animal housing function removed to provide increased crop storage capacity from the 18th century. (South Suffolk and North Essex Claylands)
A & C © *English Heritage / Michael Williams*
B © *Susanna Wade Martins*
(continued overleaf)


20A


20B


20C

were sometimes painted with 'ruddle', giving them a red appearance, and giving rise to numerous Red Barn Farms – this was also used to colour the framing of timber-framed farmhouses. Very few of these red barns still survive, and many have been incorrectly stained or painted black. Although there is little stone in the eastern Region, there was plenty of scope for the use of decorative brickwork either on its own or in conjunction with timber framing in the form of ventilation slits, grilles, owl holes, buttresses and pilasters or decorative gables such as the Flemish crow-stepped gables that were popular in East Anglia by the 17th century (Lake 1989, p.72). By the 18th century brick was becoming the more usual building material and on the new farms of the enclosures (such as in North West Norfolk) five-bay brick barns with pantile roofs, often linked to adjoining cattle sheds, are more typical.

A highly distinctive characteristic of the Region, also shared with the South East, is the concentration of aisled barns. These date from the 12th century and continued to be built into the 19th century. The earliest unaisled barns date from the late 15th century. Aisled barns of post-1550 date can reuse major components from 13th- and 14th-century barns that may have stood on the same site or nearby (Aitkens 1989).

Aisled barns – many of them the result of a massive rebuilding programme underway between 1550 and 1650 – were particularly concentrated in the west of Suffolk (Dymond and Martin 1999, pp. 176–7), in the rich loams of the Broadland fringe in Norfolk, and in most of Essex, Hertfordshire and east Cambridgeshire. The majority of barns are of a medium four- to six-bay size and are found across central Suffolk on the rich loams of yeoman holdings, with slightly larger barns of seven to eight bays being found in the cereal-growing areas. In Hertfordshire the majority are between five and eight bays. Some of the largest manorial farms of the county had two or three separate barns while typically medium-sized farms had two, allowing for the wheat and barley to be housed and threshed separately. Smaller farms were typically provided with only one barn (Wilcox 2003, pp.68–78). This pattern is reflected across much of the south and east of the Region where the thatched (or formerly thatched) weatherboarded, timber-framed three- or five-bay barn, often dating from the 16th or 17th century, is typical of the smaller farms of the heavy clays. Throughout the eastern part of the Region it is clear that much of the crop was stacked in yards from an early date (Wade Martins & Williamson 1991, p.83).

6.1.2.2 Combination Barns

Documentary and archaeological evidence shows that barns in many parts of the Region were multi-functional buildings. On inventories of the 17th century implements and farm produce other than cereals, such as wool, are listed as being stored in them. On the dairy farms of the South Norfolk and High Suffolk Claylands 16th-century and later pre-1750 barns were typically of three bays with a central threshing floor and a fourth bay containing

20 Barns and crop storage in the East of England Region (continued)
D & E The Region also contains some important early secular stone- and brick-built barns. (D South Norfolk and High Suffolk Claylands; E The Broads)
F In the north of the Region solid-walled barns are characteristic, with flint and gault brick used in this early 19th-century seven-bay barn. (South Norfolk and High Suffolk Claylands)
G & H Whilst the large, fine barns attract the attention, the characteristic barns of the south of the Region range from three to seven bays and are typically timber-framed, clad in weatherboard and often retain a thatched roof.
(G East Anglian Chalk; H South Suffolk and North Essex Clayland)
D & E © *English Heritage / Michael Williams;*
G © *Susanna Wade Martins;* F & H © *Jeremy Lake*


20D


20E


20F


20G


20H

lofted stable or cattle accommodation. This is the direct result of both the need to house dairy cattle and the reduced requirement for crop storage in these pastoral areas (Aitkens & Wade Martins 2002, pp.10–11). In barns where the actual divisions have since gone, archaeological evidence in the form of mullioned windows and the mortises for loft floors often remains. Only as corn production increased in the 19th century did barns become dedicated crop storage and processing buildings. In High Suffolk in the early 18th century, where farming was primarily pastoral and arable was periodically left fallow, the typical three- or four-bay barns capable of holding the crop from 30–40 acres may well not always have been full. After 1750, however, as output increased and more land was ploughed up for cereal production, there was a shift towards outdoor stacking and the creation of stack yards. Barns were also extended by one or two bays and arch braces replaced by knee braces. Porches were also added. The earliest reference found to a porch in High Suffolk was in 1727 at Thomas Mill's farm in Parham (Theobald 2000, pp.170–76).

6.1.2.3 Mechanisation

The mechanisation of the threshing process was not common in the Region until the late 19th century. In the early 19th century this might be a horse gin, possibly housed in a round house. These were very rare in the Region, the more common being the later arrangement where a traction engine was used and a hatch cut in the barn wall to allow belting to enter. A barn on the Gunton estate in Norfolk was described in 1894 as excellent: 'Very wisely, it has been turned into a chaff cutting house, dressing house and turnip house' (Wade Martins 1991, p.171). These alterations might well have involved the dividing of the building with partition walls, thus breaking up the wide-open spaces that are usually

21 Granaries
A The interior of a granary over a cart shed showing the grain bins, which allowed different grains, and even the crop from different years, to be kept separate. (North West Norfolk)
B Ventilation was important to keep the stored grain dry. Air circulation could be achieved through small windows with shutters, hit-and-miss ventilation grilles, windows with fixed louvered or, in this example, adjustable louvers. (Hampshire Downs)
A © *English Heritage / Michael Williams;* B © *Bob Edwards*

considered so important to the character of the traditional barn. However, they form part of the story of adaptation, which is the essence of farm building history and must be recognised as such.

Two round barns survive at Little Tawney Hall and Woodhatch Farm, Essex. They were probably built in the 1860s by Sir William Bowyer-Smith, who also rebuilt farms and provided a village school. It is eccentricities such as these that add interest and character to the local scene (Padfield 1991, pp.60–61).

6.2 GRANARIES

6.2.1 NATIONAL OVERVIEW (Figures 21 & 22)

Once threshed, grain needed to be stored away from damp and vermin. It would be sold off the farm or retained for animal feed. A small number of specialist granaries built by large landowners, in particular the monastic institutions, survive from the 14th century. Most granaries are of late 18th- and 19th-century date, the need for more storage for grain often coinciding with the necessity for more cart and implement space at a time when commercial farming and markets were expanding and more implements introduced on farms. The construction of detached granaries raised off the ground, along with the heightening of plinth walls to timber-framed barns, was also a reaction to the threat posed by the rapid spread of the brown rat from the early 18th century (McCann 1996).

Internally granary walls were usually close-boarded or plastered and limewashed, and the floor made of tight-fitting lapped boards to prevent loss of grain. Grain bins, or the slots in vertical timbers for horizontal planking used to make them, are another characteristic feature: close-boarded partitions allowed different crops to be kept separate (Figure 22). Window openings were typically small, and, with ventilation being the main objective, the openings were generally either louvers, sliding vents or grilles.

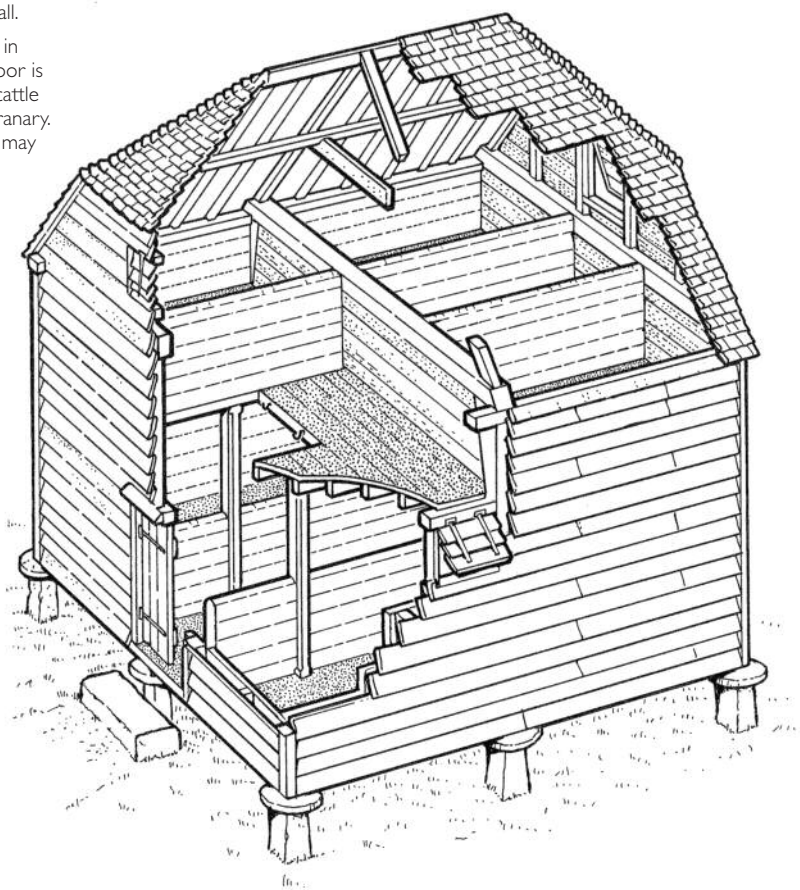
Grain was typically accommodated in:

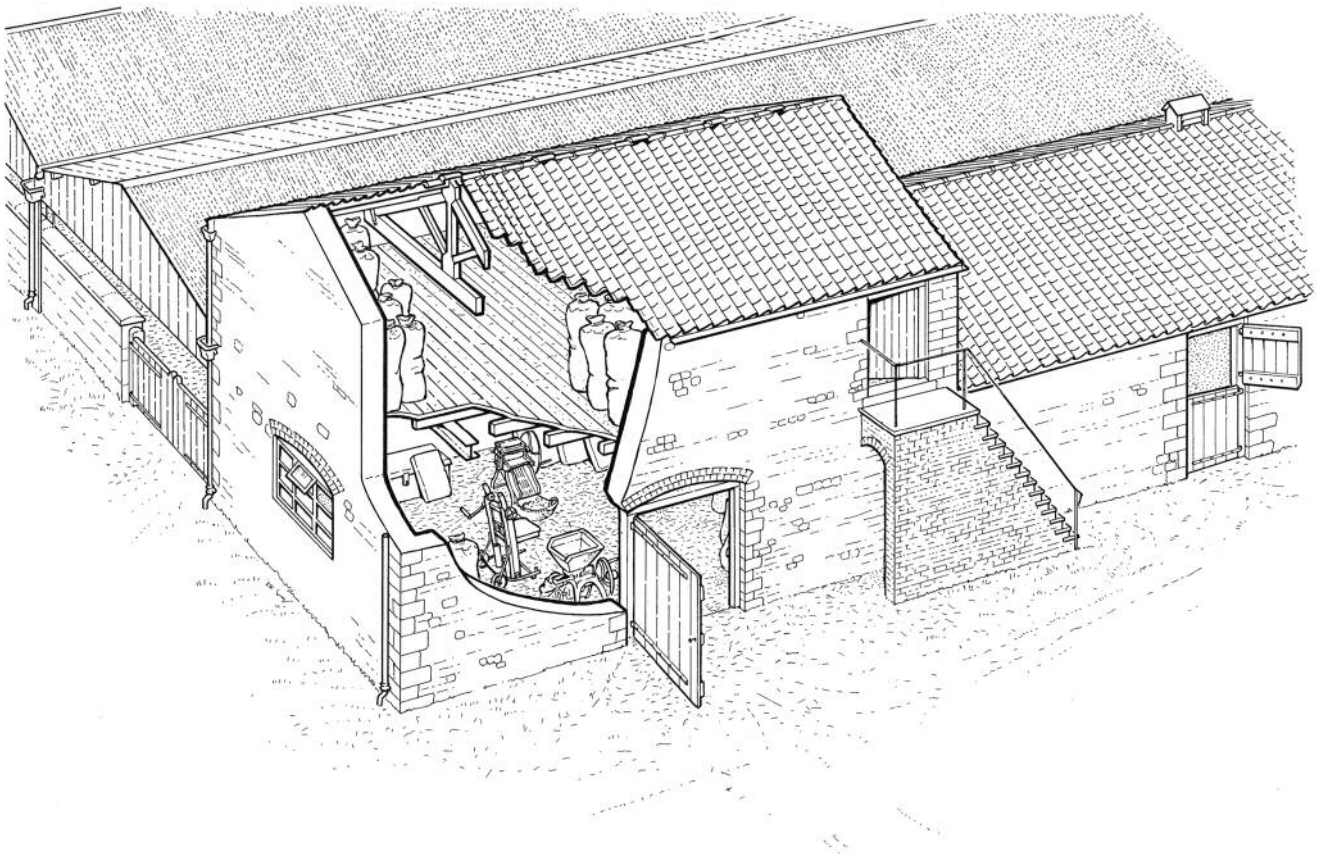
- The lofts of farmhouses, a practice common before 1750.
- Small, square or rectangular structures raised above ground level on mushroom-shaped staddle stones or brick arches and accessed by moveable wooden steps. Internally, they may have been fitted with wooden partitions to create grain bins. They were clearly related to the helm, which, according to documents from the 15th to 17th centuries, comprised timber platforms on staddle stones and were concentrated in the Midland counties (Dyer 1984; Needham 1984; Airs 1987; Barley 1990, pp.165–7): none have survived or been excavated. Most are of late 18th- or 19th-century date. Examples abound in Cambridgeshire, Berkshire, Sussex, Hampshire and Wiltshire, but extend into Dorset, Devon and Cornwall. Free-standing granaries are commonly timber-framed, clad in weatherboard or infilled with brick, but brick or stone examples have been found, particularly at the western edge of their distribution. The larger free-standing granaries were of two or even three floors (Figure 21).
- The upper floors of farm buildings, most commonly barns – observable from the 14th century (Le Patourel in Miller 1991, p.872) – and from the 17th century in the South East and East Anglia, much later further north and west, above cart sheds (see 6.3.1). Exteriors are usually marked by shuttered windows for ventilation. The side walls are sometimes weatherboarded, even in regions where weatherboarding is unusual, again to help

22 Granaries

Top: A free-standing timber-framed granary on staddle stones. This example has two floors and is fitted with grain bins on both levels. Staddle-stone granaries are concentrated in a band from Wiltshire to Essex and in South East England with occasional examples being found as far west as Cornwall.

Bottom: Granary occupying the first floor of a mixing barn in Lincolnshire. In this 19th-century building the ground floor is devoted to the preparation and storage of fodder for cattle whilst the first floor, reached by external steps, was a granary. In similar buildings in this area only part of the building may have a loft for grain storage.





ventilation. Examples date from the 17th century in arable areas. A separate external stair often gave access to the granary door (Figure 21). There was often a trap door into the cart shed below with a hoist beside it to allow for the loading of sacks. The granary floor had to withstand heavy weights so was stoutly built. In a few instances the granary was situated over cowsheds or stables, but generally this was frowned upon because the damp and smells from the animals below could taint the grain. Because of the value of the crop, granaries were often the only farm building to be locked, sometimes with a dog kennel or goose house under the steps to deter thieves.

A very small number of pre-18th-century detached granaries have survived, and timber-framed granaries – detached or located over cart sheds or stables – are clearly far less likely to have survived to the present day than examples in stone or brick. Interior fittings such as grain bins and features such as louvered windows are particularly vulnerable when a change of use is contemplated.

6.2.2 GRANARIES IN THE EAST OF ENGLAND

(Figure 23)

The earliest granaries in the Region are thought to date from the 16th century, but such an early date is generally unusual (Wilcox 2003, p.59). Probate inventories suggest that up to the 18th century barns and houses were used for storing implements and threshed grain. The Region has some of the earliest granary buildings in the country: substantial brick structures, in the upper floors of tall cart-shed structures or free-standing structures mounted on brick or stone piers (McCann 1996, pp.3–7). In many cases granaries were inserted over already existing cart sheds after about 1750 as more grain was being produced and traditionally pastoral areas were becoming arable. Most granaries were at first-floor level, although there were a few later examples built up on brick piers. The overwhelming majority of granaries date from the 18th and 19th centuries. Where stone was available for building, such as in parts of Hertfordshire and Cambridgeshire, they were free-standing buildings raised up on mushroom-shaped staddle stones or cast-iron staddles, but over much of the Region granaries were built over cart sheds. An unusual example from Norfolk has a double waggon door in the back wall of the cart lodge to allow a waggon to drive through and be loaded (in this case through a trap door in the granary floor) without having to back out. The granary walls were often weatherboarded, even in areas where weatherboarding is unusual, which helped ventilation; surprisingly, in Hertfordshire, where weatherboarding is usual on most farm buildings, the framing of granaries is in-filled with brick (Wilcox 2003, pp.84-6).

6.3 CART SHEDS AND IMPLEMENT SHEDS

6.3.1 NATIONAL OVERVIEW

The cart shed housed not only carts for transporting muck to fields, the harvest to the steading and grain to market, but also the implements needed (primarily for arable cultivation) on the farm. It could also accommodate the coach or pony trap. Left outside, wooden implements could shrink and crack in the sun, while rain and snow caused iron to rust, jamming any moving parts. Cart sheds often faced away from the farmyard and were often close to the stables and roadways, giving direct access to the fields. They have been found as additions to barns, but are more commonly found as detached single- or double-storey buildings, in the case of the latter invariably with a first-floor granary (see 6.2.1). The size of cart-shed ranges serves as a rough indication of the former arable acreage of the farm. In some parts of the country, often in pastoral areas, the difficult terrain meant that wheeled vehicles were not widely used and so cart sheds tended to be few and smaller, perhaps of only one or two bays. One bay was sometimes enclosed with a wide door for the storage of small implements, or perhaps a pony trap. Cart sheds and implement sheds with lockable doors did not appear in any great numbers until the mid-19th century, when horse-drawn hoes, and later reapers and mowing machines, became more prevalent (Walton 1973; Mingay 1989, pp.532–44).

Examples of pre-19th-century date, concentrated on estate farms and in the arable lowlands, are extremely rare.

6.3.2 CART SHEDS IN THE EAST OF ENGLAND

(Figure 23)

The Region does retain some very early examples of cart sheds dating from the 17th century, although the great majority of surviving examples date from the expansion of grain production from the late 18th century. Over most of the Region cart sheds formed part of a combination building, with a granary above and wooden, cast iron or brick piers supporting the upper floor along the open side. Occasionally wide brick arches supported the openings, but this was more unusual. One bay of the cart shed was sometimes enclosed, with a wide door for the storage of small implements or perhaps a pony trap. Hertfordshire cart sheds differ in that all are single-storey buildings, none having granaries above them.

6.4 HAY BARNS AND OTHER CROP-RELATED BUILDINGS

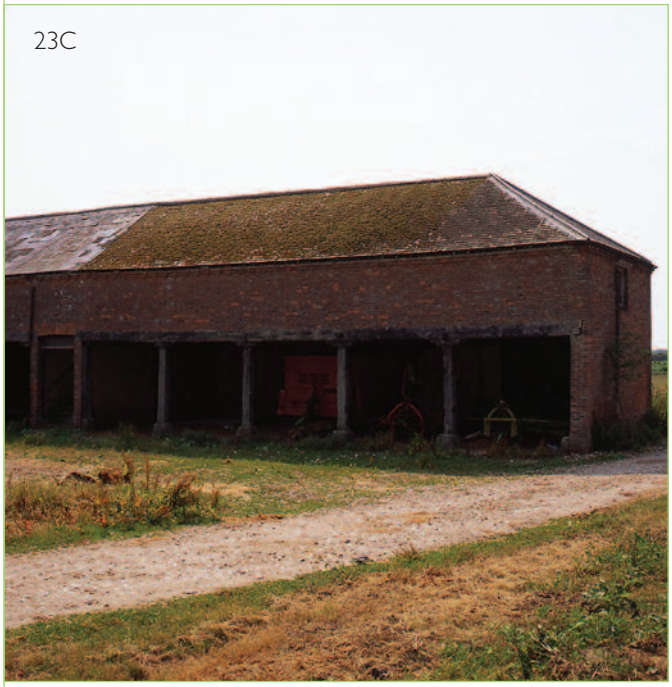
6.4.1 NATIONAL OVERVIEW

Hay would be kept in lofts over the cow house and stable, stored in stacks or in purpose-built barns. The

23 Granaries and cart sheds in the East of England Region
Until the 18th century it was usual on most farms to keep the threshed grain in the farmhouse. As output increased purpose-built granaries were built, typically as part of a combination cart shed/granary. A and B are 18th-century buildings (although A was extended from four bays to eight bays in the 19th century). C is a mid-19th-century example. Free-standing timber-framed granaries raised on plinth walls (D) or standing on staddle stones are characteristic of southern East Anglia and the south-east of England.
Single-storey cart sheds (E & F) built in timber frame, brick or, more rarely, in earth are found on many farmsteads.
(A North West Norfolk; B Breckland; C North West Norfolk; D East Anglian Chalk; E South Norfolk and High Suffolk Claylands; F South Suffolk and North Essex Claylands)


23A


23B


23C


23D


23E


23F

24 Hay barns and other crop buildings
A & B Hay barns are not a common building type in the East of England generally but some were built in areas that adapted to dairying at the end of the 19th century. (A The Broads; B Suffolk Coast and Heaths)
C Until the 19th century maltings often formed part of the farmstead. From the mid-19th century malting became a more industrialised activity concentrated in towns leaving farm maltings redundant. Accordingly, maltings such as this example in Cambridgeshire are now rare. (East Anglian Chalk)
A © *Jeremy Lake;* B & C © *Susanna Wade Martins*


24A


24B


24C

latter differed from corn barns in that they were open-sided to allow a good flow of air through the hay. They comprised little more than a roof supported on brick, stone or iron piers with solid gable walls. They mostly date from the second half of the 19th century, and are more typical of the wetter pastoral west than the arable east. A very small number of timber hay barns with adjustable roofs – as commonly survive in the Netherlands – survive intact, mostly in Yorkshire. The agricultural depression from the 1870s meant that dairy farming was one of the few branches of farming to remain profitable, leading to an increase in the production of hay. This period saw the introduction of some of the first mass-produced iron farm buildings, such as Dutch barns for hay storage, and also of airtight clamps for the preservation of silage. Silage towers were built in small numbers in the inter-war period, but were not generally adopted until the 1960s (Shaw 1990).

As the use of fodder crops, such as turnips, and over-wintering of cattle became countrywide, there developed a need to store the fodder in earth clamps or small rooms. In some of the better-planned farmsteads the root and fodder stores would be incorporated into the cattle housing, usually located close to where the cattle were stalled with access between the two. On smaller farmsteads the root store was either a separate building or formed part of a combination building, perhaps being associated with a granary or workshop. At present, it is not possible to identify any particular features of these buildings, other than the building materials, that are regionally characteristic.

Some areas of the country developed a specialisation in the production of particular crops such as hops or fruit. In some cases these crops required the construction of particular buildings that are regionally characteristic: for example, the oast house/hop kiln of the South East and West Midlands and the cider house of Herefordshire and the South West.

Small kilns for drying corn and particularly malt for brewing have been recovered through excavation (Le Patourel in Miller 1991, p.875) and a small number of much larger and more solidly constructed examples survive from the 17th century, especially in the North West and South West. Surviving examples of corn-drying kilns, concentrated in upland farming areas, are very rare. The processing of corn to flour was undertaken in mills normally powered by water or wind. Mill buildings are often found isolated from farmsteads but occasionally they can form part of the farmstead.

6.4.2 HAY BARNS AND OTHER CROP-RELATED BUILDINGS IN THE EAST OF ENGLAND

6.4.2.1 **Hay barns** (Figure 24)

Hay was either stored in haystacks or in haylofts above stables. Evidence for this previous use of lofts can be seen in the hay drops, open chutes above hayracks through which hay could be pushed down into the racks below. As some areas particularly in Essex and Hertfordshire adapted to dairying at the end of the 19th century, open-sided buildings often consisting of slate roofs supported on brick piers were built as hay barns.

Prefabricated corrugated-iron Dutch barns were also available by the end of the 19th century.

6.4.2.2 Farm Maltings

Malting barley was a significant crop in Norfolk and Hertfordshire and both were important malting counties. With the coming of the railways, most local maltings were given up and the industry became concentrated in the market towns, often around railway stations. In the 18th century, however, farm malthouses were a common sight and one survived in a ruinous state on a farm in north-east Norfolk into the 20th century. Its repair had not been recommended by the land agent in the 1890s who wrote, 'Would these malt houses be required by any other tenant in the case of Mrs Horsfield's retirement or death? I should say "no" as country malt houses in the present day are of very little use or profit…' (Wade Martins 1991, p.146). The example surviving at Burwell in Cambridgeshire (Figure 24C) is thus a great rarity. Stone built with a thatched roof, it is long and low allowing for open areas of floor for the germinating of grain that had been steeped at an upper-floor level for several days. The loading bay for the sacks of barley is halfway along the building at first-floor level. The thatched roof would help maintain an even, warm temperature for germination that would take between eight and ten days, when the grain would be dried in a kiln. Typically the kiln is at one end of the building with a tiled, conical chimney (Brunskill 1982, pp.98–9).

6.4.2.3 Onion Houses

A type of building associated specifically with the traditional market-gardening economy of the gravel soils of the Bedfordshire Greensand Ridge and adjacent Bedfordshire and Cambridgeshire Claylands is the onion shed. Onions were already a leading crop by the early 19th century, but by the second half of the century they were grown on a field scale with production encouraged by the arrival of the railway. When the onions were harvested they were firstly dried on the ground and then hung in high louvre-boarded black barns, which were once a familiar sight around Sandy and Biggleswade and a number survive in the Ivel valley (Clarke, 2001).

7.0 Key Building Types: Animals and Animal Products

7.1 CATTLE HOUSING

7.1.1 NATIONAL OVERVIEW (Figure 25)

There are great regional differences in the management of cattle and the buildings that house them. This extends to how they are described in different parts of the country: for example, 'shippon' in much of the South West; 'byre' in northern England; 'hovel' in central England. Stalls, drains and muck passages have also been given their own local vocabulary.

Evidence for cattle housing is very rare before the 18th century, and in many areas uncommon before the 19th century. The agricultural improvements of the 18th century emphasised the importance of farmyard manure in maintaining the fertility of the soil. It was also recognised that cattle fattened better and were more productive in milk if housed in strawed-down yards and buildings, and fed with carefully measured quantities of nutritious turnips and imported feed. There is hardly a farmstead without 19th-century adaptations for increased livestock accommodation.

The introduction of hygiene regulations early in the 20th century for the production of milk resulted in new floors, windows and stall arrangements being inserted. Animal welfare standards are also important; cows on farms seeking Soil Association assurance require more than double (at 6 square metres) the space of tethered beasts in traditional cow houses. Some, particularly under split-level barns, are too low for modern usage and so have been preserved by abandonment or occasional use by sheep.

Characteristic features of cattle housing include:

- Externally, lower and wider doorways than stabling, with wall ventilation slits (adjustable sliding ventilators from the early 19th century) and holes in gable ends or side walls for the throwing out of muck (especially in areas with limited straw for bedding, where cattle were wintered indoors).
- Internally, ceilings were typically low and there was very little light. Hay was stored above in lofts, and in some examples (such as the Pennines) on either side in 'sink mows', increasing the warmth and airlessness. It was not until the later 19th century that the importance of a well-ventilated cow house became fully appreciated. The size of the haylofts increased as more cows were kept and the production of hay rose; their ceilings were higher and air ducts went from the cow house up on to the roof above the hay barn.
- Interior stalling and feeding arrangements. Cows were usually tethered in pairs with low partitions of wood, stone, slate and, later, cast iron between them. As the breeding of stock improved and cows became larger, the space for the animals in the older buildings became limited and an indication of the date of a cow house can be the length of the stalls or the width of the building. Feeding arrangements can survive in the form of hayracks, water bowls and mangers for feed.
- Variations in internal planning, cattle being stalled along or across the main axis of the building and facing a wall or partition. They were fed either from behind or from a feeding passage, these often being connected to fodder rooms from the late 18th century.

In the following descriptions of buildings for cattle the wide variety in the means of providing accommodation for cattle, both over time and regionally, can be seen .

7.1.1.1 Longhouses

In this type of building the family and animals used a common entrance and the cattle (typically prized dairy cattle) were stalled at one end, usually the end down-slope. Examples (often high status in terms of their size, detail and construction) survive in parts of the north and west of England and are usually the only evidence for cattle housing before the 17th century. They were more widespread in the medieval period (see 5.1.1 and Figure 17).

7.1.1.2 Ox houses

Oxen were the favoured animals for draught work on the farm in the medieval period, although in some parts of the country horses were already replacing them.. They survived in some areas into the 19th and even 20th centuries. Ox houses can be very difficult to identify, the most distinguishing feature being wide doorways and wider-than-average stalling (see 7.3.2).

7.1.1.3 Combination barns

See 6.1.2. These were used for cattle accommodation from the 17th century, and in northern aisled barns from at least that period.

7.1.1.4 Open-fronted sheds

The earliest of these were the two-storey linhays of the South West, with cattle accommodated below a hayloft. Shelter sheds, facing on to yards and either with haylofts above or simply single-storey, were increasingly built from the mid-18th century. Cattle yards with open-fronted sheds were typical of mixed farming areas where cattle

25 Cattle housing
A & B Wooden cow stalls and slate cow stalls, the latter as found throughout the northern uplands. (A Durham Coalfield Pennine Fringe; B Yorkshire Dales)
C Cow houses needed to be well ventilated, by either slits in the wall or windows. Horizontal sliding hit-and-miss ventilators, as here, achieved wide popularity in the mid- to late 19th century. (Vale of York)
D A range of looseboxes, easily distinguishable by its rows of doors providing access to individual cubicles for fattening. (North Northumbrian Coastal Plain)
E The interior of a covered yard, on a home farm of the mid-19th century. (Shropshire, Cheshire and Staffordshire Plain)
A–C © *Jen Deadman*; D & E © *English Heritage / Michael Williams*


25A


25B


25C


25E


25D

were housed on the steading as fatstock and for their manure. Common internal fittings were mangers and hayracks, and sometimes stalls.

7.1.1.5 Lean-tos (outshots)

These were attached to other buildings (particularly barns) and farmyard walls, either as part of the initial phase of build or (particularly if the barn is pre-1750 in date) a later addition. These could be either open-fronted or closed with doorways to individual cow houses or loose boxes.

7.1.1.6 Free-standing cow houses

These comprised either single-storey ranges, or two-

storey ranges with haylofts. Pre-19th-century examples of the former include the neathouses of the claylands of Suffolk and examples of both types are found in the West Midlands. In cattle-rearing areas calf houses have also been found; typically they are smaller in scale and often sited close to the house.

7.1.1.7 Looseboxes (Figure 25D)

Mostly dating from the 1850s, these served as accommodation for sick or calving beasts, bulls or most commonly fatstock. They comprised individual boxes or more usually a row of boxes with a central or rear feeding passage. The latter were usually distinguished externally by continuous rows of doors. There was often a feeding passage along behind them, with a feed store at one end. If used for fatstock, the floor of the boxes was sunken and the manure would build up in them during the winter. They reflected a realisation that warm and dry conditions would promote weight gain (through minimising heat loss) and retain the quality of the manure. Double rows would have a central feeding passage and were to be found on many farms by 1860.

7.1.1.8 Covered yards

By the 1850s it had been proved by agricultural chemists that the nutritional value of manure would be better preserved if it were under cover, and as costly feeds produced richer manures, the incentive to protect them was great. The problem was that it could be difficult to provide enough ventilation, but this could be overcome by complex systems of louvers and shutters. Some continued to be built as the depression in grain prices focused attention on livestock production. The best-known examples of covered yards are on the most expensively designed model farms of the mid- to late 19th century, almost all of them being estate-owned. The introduction of roofs to existing yards became general in fatstock areas from the late 19th century and especially after 1940. Dairy cattle are now typically housed in portal-framed sheds erected in the post-war period.

7.1.2 CATTLE HOUSING IN THE EAST OF ENGLAND (Figure 26)

Pre-1750

This Region has some significant early examples of cattle housing. There is documentary evidence for the stall-feeding of cattle on hay and fodder in the Flegg Loams in the 13th century (see 4.2.5) and the stall feeding of cattle on cabbages and other fodder including turnips from the late 17th century (Thirsk 1967, p. 51; Holderness 1984, pp. 234-5). Before 1750 in Norfolk there is little evidence for the in-wintering of cattle, as opposed to their housing in yards (Wade Martins & Williamson 1991, p.123) and the housing of cattle in lean-tos to barns facing into cattle yards. Documents and maps from Suffolk of the 16th century and later refer to cattle housing called 'neathouses', many being sited out in the pastures rather than in the farmyard. On the High Suffolk clays a dairy industry based on cabbage-fed cows was important until the end of the 18th century. Arthur Young noted that every farm was 'well furnished with neathouses, where the cows had standings' and were tied three feet apart. However these were only used for milking and feeding (there are references to milking yards in the Suffolk claylands), rather than keeping in all winter; many dairy cows were kept outside, often tethered in the fields during the winter, and moved to neathouses with their calves after calving, thus reducing the need for buildings (Young 1786, pp.203–4). Surviving examples are difficult to identify, although 18th- and 19th-century examples – identifiable by their lack of lofts, internal subdivision and window openings, unlike stabling – have been recorded (Aitkens & Wade Martins 2002, p.18). There is abundant documentary evidence for cow houses in the other neighbouring county of Essex – for instance, a very detailed survey dated about 1556 of Ingatestone, near Chelmsford (Ryan 1986) – but no surviving structures have yet been identified.

Cattle housing in the Suffolk claylands could also be incorporated within barn or stable ranges (Aitkens & Wade Martins 2002, p.18). The growing of turnips from the late 17th century allowed for the keeping of more cattle and an increased number of store cattle were being bought in for fattening. The cool weather and agricultural depression of the 1660s to 1680s meant that landlords were encouraged to build neathouses to keep tenants. In 1670 John Bond of Common Farm, Rishangles, was to have £10 spent 'for building a cowhouse' because of 'the hardness of the tymes'. However by the time of the tithe maps virtually all the neathouses away from the main farm complexes had gone and the small number of cattle now kept were likely to be yarded. Contemporaries commented on the poor quality of the Region's cattle accommodation (Theobald 2000, pp.176–90). Any examples of cattle housing built before the early 19th century are extremely rare and this makes those that are identified all the more significant.

Post-1750

By the end of the 18th century the value of manure for the increased yields of the agricultural revolution was being appreciated, and by the mid-19th century the fattening of cattle had become a major industry in this Region. Cattle accommodation in this Region took several different forms:

The provision of *shelter sheds* around straw yards where manure would build up during the winter. The earliest examples of these, as recorded in Norfolk, comprise lean-tos on the south walls of barns (Wade Martins 1991, p.183). These brick buildings were usually roofed

26 Cattle housing in the East of England Region

A Pre-18th-century buildings for cattle are rare. This timber-framed cow shed or neathouse was built in the 16th century but may have originally served as a stable. Timber-framed structures were often replaced by more robust brick buildings (South Suffolk and North Essex Claylands)

B Across much of the Region buildings for cattle consist of open-fronted shelter sheds, often attached to a barn and forming part of a larger yard. Large examples of shelter sheds with mixing barns could be arranged to form E-plans as in photograph C, creating two cattle yards where straw and manure would be trampled by the animals. Such planned farmsteads are usually associated with 19th-century improving estates. (B Mid Norfolk; C The Fens)

D & E The covered cattle yard was the final development in cattle housing. The earliest covered yards date from the 1850s but spread in popularity in from the 1870s and again in the early 20th century. (D Bedfordshire and Cambridgeshire Claylands; E South Suffolk and North Essex Claylands)

F A specialist cattle-fattening building found only in the Flegg and Broads of the north-east of the Region. Cattle were housed in the side aisle with fodder (mostly turnips) stored in the central area. (North East Norfolk & Flegg)

with pantiles and supported along the open front with brick, cast-iron or wooden piers. Sometimes looseboxes formed part of the range. There were troughs and racks along the back wall, the troughs sometimes supported on chains so that they could be lifted as the level of litter in the yard rose. These regular U- and E-plan yards are to be found across the predominantly estate-owned areas of the Region such as north Norfolk where new farms were built on newly enclosed land. They are also found in the areas where brick and stone building predominated but are less usual in the timber-framed parts of the Region and are unusual in the claylands of South Norfolk, Suffolk and North Essex. In these areas free-standing buildings were roughly grouped around a yard and linked by walls or temporary hurdles to form an enclosure.

Specialist fattening buildings. Where cattle were being reared for their meat, fattening was a main consideration and buildings were designed primarily for efficient feeding. Specialised buildings took advantage of specific landscapes and opportunities. An example of this can be found in the cattle houses on the edge of the grazing marshes of the Norfolk Broads. Only a few examples of these sheds survive as evidence for a very localised system in which cattle were housed down side aisles, separated by a central feed-storage area entered through double doors at either end (Figure 26F). This specific type of building has only recently been recognised and it is likely that significant local variations are awaiting identification elsewhere.

Looseboxes. From the 1840s, the price of fatstock was rising and more intensive fattening systems were being introduced. The first development was the dividing up of yards so that groups of cattle could be managed individually. More capital intensive was the provision of looseboxes. The Norfolk farmer and MP Clare Sewell Read wrote, 'Where the landlord provides boxes, tenants are only too glad to avail themselves of the change. There can be no doubt that cattle do best in them and make the richest manure, but the first outlay entails a heavy expense on the proprietor.' (Wade Martins 1991, pp.185–6). These boxes were arranged in rows with a feeding passage along behind them, often with a feed store at one end. Double rows would have a central feeding passage and were to be found on many farms by 1860.

Covered yards, which are documented throughout the Region from the 1850s. Some covered yards were still being built as the depression in grain prices focused attention on livestock production. They were expensive and were mostly found on estate farms. The Chelmsford-based architect, Frederick Chancellor, produced designs for Essex, Cambridgeshire and Hertfordshire landowners. At a meeting of the Surveyors' Institution in 1883 Chancellor, 'who has had very extensive experience, having erected forty or fifty covered homesteads during the last thirty-five years', was reported as saying that, 'after a great deal of thought and experience, he did not think there was any homestead equal to a covered homestead' (Clarke 1899, p.85).

After the mid-1870s, many landlords were building extra yards for cattle to persuade tenants to stay. Many of these brick and flint ranges, often with date stones of between 1875 and 1900, survive on estate farms in Norfolk (Wade Martins 1980, pp.179–184).

7.2 DAIRIES

7.2.1 NATIONAL OVERVIEW

The dairy, where milk was stored and turned into butter or cheese, was usually located within the farmhouse (at its service end or in a rear room) or located in a lean-to at the rear of the house. Some dairies were separate buildings but, as the women of the household usually managed the dairy, they were normally situated close to the house. Within the dairy, which was commonly cool and damp, milk was poured into large shallow pans and the cream left to rise to the top before it was skimmed off and churned (usually with a plunger) in order to make butter. New types of churn appeared in the mid-19th century, the most important invention being the centrifugal separator in 1890. On some estates, the individual dairy building could be quite ornate in design; they were often circular, with a tall conical roof and plenty of ventilation, cool tiled floors and a low marble, slate or tiled shelf running almost all the way around inside.

Cheeses were made from the preservation and treatment of the curd, the solid mass that separates from the thin whey: harder cheeses were made from skimmed milk, softer cheese such as Cheshire from whole milk. After pressing, it needed space for storage. In areas where cheese making was important the dairies often had a room above called a cheese loft, where cheese was stored while maturing, or there would be a separate cheese house, the equivalent of the arable farmer's granary. In the 19th century more ornate dairy buildings were built on some of the larger farms, often located within the garden of the farmhouse rather than in the working farmyard.

Dairying for urban markets was already a specialised enterprise by the 1750s, and winter feeding and the ousting of less-productive breeds by the Dairy Shorthorn (after 1820) boosted yields. By the 1850s, butter production for the market was concentrated around towns, and the first small dairy factories started production around 1870. Cheese making in East Anglia gave way to cereal farming and fattening after 1800

27 A typical stable interior for working horses, showing the stalls that prevented the horses biting and kicking each other, the hay rack and cobbled floor. (Dorset Downs and Cranborne Chase) © *Bob Edwards*

(Holderness in Mingay 1989, pp.160, 158). Commercial cheese making and foreign imports (from the colonies) made inroads from the 1860s, and by around 1914 farmhouse butter was being sold only in Devon and Cornwall, and cheese made only in Cheshire, Leicestershire and the vales of Dorset and Somerset (Whetham 1978, pp.11, 15). Changes in hygiene regulations and the centralisation of production through the 20th century had a major impact on dairies, with the majority becoming redundant to their original use. Changes in use may have resulted in the removal of fixtures such as slate or stone shelves for cooling the milk.

The sale of liquid milk had become massively important in many areas by the early 20th century (Whetham 1978, pp.9–10). The stand for milk churns, often built at the farm gate to save the milk cart or lorry from having to come to the farmstead, and the abandonment of all but a handful of farmhouse dairies and cheese rooms for new milk-production plants were the other visible consequences of these developments.

The industrialisation of much of the dairy industry meant that the majority of farm dairies were redundant by the mid-20th century. Where the dairy was part of the farmhouse it is usual to find that it has been brought into domestic use, typically resulting in the removal of any fittings associated with butter or cheese making. Any survivals of dairy equipment in situ are rare. Detached dairy buildings may also have been brought into an alternative use, again usually resulting in the removal of associated fittings. Surviving historic dairies are both rare and highly vulnerable. Cheese rooms are now especially rare and hard to identify.

7.2.2 DAIRIES IN THE EAST OF ENGLAND

Dairies were incorporated in the planning of farmhouses rather than built as separate structures. Cheese rooms and dairies are well-documented in the claylands (e.g. Holderness 1984, p. 230). Biddell describes a cheese room or 'large upper chamber, shelved on both sides, with lattice windows at the ends for securing a draught', which he saw as a child, 'but has long been dismantled and used for other purposes' (Biddell 1907, p.306). It is worth looking for these cheese rooms in the upper floors of farmhouses.

In the claylands of Suffolk, the backhouse served as a combined kitchen / dairy / brewing area. They could be detached structures, only a very small number surviving unconverted, and from the 17th century were mostly added as lean-tos along the back of the farmhouse.

7.3 STABLES

7.3.1 NATIONAL OVERVIEW

After the barn, the stable is often the oldest building on the farmstead. The high value of horses to the running of the farm meant stables were well built and often placed near the house, with easy access to the fields, and given a certain level of architectural and decorative treatment. A few stables dating to before 1700 have been identified in local surveys, while many more date from the 18th century. One of the reasons for this rise in number was the decline in the use of oxen.

The size of stabling was, like granaries and cart sheds, loosely linked to the arable acreage of the farm. The number of horses needed to work a farm changed little until the arrival of the tractor, with one horse for every 20 acres being the frequently quoted figure. Smaller farms still needed a team of horses, so even a 50-acre farm might well have four horses. Most farms still kept a few working horses until the 1950s, and they were finally replaced by tractors during the 1960s. Farmsteads, and the farmyards attached to manor and gentry houses, often had stables for riding and coach horses, the upper floors commonly being used as accommodation for stable hands. These were usually well appointed and in some cases were used as displays of wealth and status, incorporating architectural detailing not found on most other farm buildings.

Stable interiors are characterised by:

- Horses commonly stalled in pairs with wooden stall divisions between them to stop them kicking each other (Figure 27). Cast-iron stable fittings often replaced wooden ones. More elaborate stalls and mangers were confined to the riding-horse rather than carthorse stable, but on many small farms the riding horse would have been kept alongside the working animals. In early (pre-1750) examples, the stalls are across the end walls; in later examples the stalls are along the side walls, allowing a lengthening of the building and thus housing more horses.

28 Stables in the East of England Region
A Relatively few early timber-framed stables survive. This stable forms part of a courtyard group. (North West Norfolk)
B Some timber-framed barns of 16th and 17th century date were originally constructed as multi-functional buildings incorporating cattle housing or stables. This large barn had three bays of stables, one of which was converted to provide additional barn space in the 18th century. (South Suffolk and North Essex Claylands)
C A 19th-century brick stable and implement shed range. (South Suffolk and North Essex Claylands)
All © English Heritage / Michael Williams


28A


28B


28C

- A manger and hayrack, the latter often accessed from a drop from the hayloft above. Other types of fodder, such as crushed oats and bean straw, became more general after the mid-19th century.
- Floors, cobbled and from the mid-19th century of engineering brick, sloping to a drainage channel.
- A ladder to the loft.
- The harness was usually kept in a separate room and chaff boxes were built in to the structure for storing feed. Small cubby-holes for keeping grooming brushes, medicines or lanterns were often built into the walls.

Stable exteriors are characterised by being:
- Usually two-storey, with pitching openings and ventilation to the first-floor loft and an external staircase. The upper floor sometimes provided accommodation for farm labourers or stable lads. Despite textbook advice on the tainting of the hay, the practice of housing horses below haylofts persisted, partly because of the perceived need to protect horses from chills and draughts. Single-storey stables, commonly with cast-iron ridge vents, were built from the later 19th century.
- Well lit, with windows ideally opening to the east to catch the early morning light. The door was wider and higher than that in the cow house.

As stables were usually well-lit buildings they tend to be less vulnerable to changes that affect their character externally. Carthorse stables are far less likely to retain floor surfaces, internal stalls and fitments (such as saddle hooks) than riding-horse stables. Many stables, particularly those located within ranges that included cow houses, were converted into dairies when modern electrically powered milking and cooling machinery was introduced from the 1950s.

7.3.2 STABLES IN THE EAST OF ENGLAND (Figure 28)

The East of England Region – as in the South East – is notable for the high number of early survivals of stable buildings. Work in Suffolk has demonstrated that before 1650, the only two buildings found on a typical farm were the barn and the stable and this is likely to be true of the rest of the Region (Theobald 2000, pp.161–2). Half of the surviving pre-1800 stables in Norfolk abut or form part of barns, and in Suffolk many barns incorporated stabling in an end bay (Wade Martins 1991, p.175; Aitkens & Wade Martins 2002). Some free-standing stables of the 16th and 17th centuries survive, some of which are timber framed and jettied (Brunskill 1987, p.170) although more are to be found dating from after 1700. These distinctive buildings are usually two-storey with a hayloft above, which could be approached by either an internal or external staircase. Free-standing stable buildings were the norm after 1800.

Small single-storey detached stables dating from the 16th century are rare. On a few manor sites in Suffolk much longer examples do survive, containing several units of

29 Pigsties
Pigsties have few regionally distinct features other than their building materials (A North Yorkshire Moors and Cleveland Hills). Most have a small yard attached to the shelter (B Arden) and they may have hatches and chutes for feeding, whilst some form part of a larger range of buildings. Some pigsties are combined with poultry housing (C South East Northumberland Coastal Plain). Generally these buildings are extremely vulnerable from neglect as they offer little opportunity for other uses.
A © *Jen Deadman;* B © *Peter Gaskell;*
C © *English Heritage / Michael Williams*

stabling and with more than a hint of composite use. On many farms there was certainly an increased provision for stabling during the 17th century. For example, at Badley Hall Farm, Suffolk, there were two 16th-century barns, one of which was much larger than the other. The smaller barn was converted some time after about 1650 into stabling; whereas only one of the five bays had previously been stabling, now a loft was carried across the whole building and barn doors were reduced to a more suitable size.

In earlier agricultural stables, either the building was a single storey with no loft accommodation at all, or else there was a second storey framed carefully into the design. Because the eaves line was at least at shoulder height it was easy to walk around in the loft and a number of examples have windows. In the 18th century a new category became popular in which the eaves line was only about one metre above the loft floor. There were no tie beams across the interior of the building because they would have been in the way; instead the side walls were tied by the floor beams of the loft. By about 1770, heavy solid knees fixed by bolts were used to support these beams. Increasingly in the 19th century, stables were built without lofts.

The internal arrangement of stables evolved. Before about 1700, it was normal practice to fix a manger with a hayrack above to partition walls across the building. The external gable wall may have been the site for harness racks in this arrangement, and the entrance door for each unit of stabling would be close to the end of one long wall with possibly a second doorway opposite in the rear wall. It appears that the principal of drops immediately above the hayrack was introduced, whereby hay or chaff stored in the loft could be dropped directly into the rack. The earliest examples of a stable with a central doorway and mangers fixed to the two gable walls of the same space appear in the 18th century. An alternative development was the provision of stalls along the rear wall of the building instead of on the cross walls. A feature peculiar to Norfolk was the lack of stalling in stables, and the practice of turning horses out into a horse yard at night was particularly a Norfolk and Suffolk practice, although it later spread to other areas where it was known as the 'midland system' (Wade Martins 1991, pp.179–80).

7.4 PIG HOUSING

7.4.1 NATIONAL OVERVIEW (Figure 29)

One or two pigs were kept on most farms, although the pigs often ran with other livestock in the fields, or roamed about the yard, rather than having their own dedicated housing. Pigs were most commonly kept in dairying areas or market-gardening areas, such as the Fens, where whey or potatoes were available for feed. The only requirements for special accommodation were

for farrowing, final fattening and accommodation of the boar. On most farms only a few pigs were kept for domestic use and here they were normally fed on kitchen scraps or whey (a by-product of dairying) and so sties were often placed near the kitchen or dairy. Sometimes they were also integrated into the planning of the farmyard, commonly on larger farms where commercial fattening was practised. Any pre-19th-century examples are of great rarity.

Characteristic features of pigsties are:

- Single-storey structures, with a gable entry to a first-floor hen house where lofts occur.
- Low entrances.
- Individual yards in some regions.
- Their construction in rows of three or more small and unlit boxes, often with a chute through the front wall into the feeding trough down which the swill could be thrown.
- A small chimneystack, marking the position of a boiler house for boiling swill for pig feed. These are most commonly found where pigs were kept on a commercial scale.

Imported feed sustained the growth of the pig industry in the inter-war period, more specialist producers taking the Danish or Scandinavian system as a model for the industrial housing of pigs. The American battery system of housing poultry was used for pigs from the late 1920s.

7.4.2 PIG HOUSING IN THE EAST OF ENGLAND

Pigs were not kept on a commercial scale, except in dairying areas (primarily the claylands) or market-gardening areas such as the Fens where whey or potatoes were available for feed. Here ranges of pigsties with a steaming house beside them were built in the 1840s (Wade Martins 1991, p.189). On most farms only a few pigs were kept for domestic use and here they were normally fed on kitchen scraps and so sties were often placed near the kitchen door or beside the dairy. There was frequently a chute through the front wall into the feeding trough to allow swill to be thrown in. The need for warmth meant that they were small buildings, large enough for two pigs and too low for a man to stand up, with a low entrance and an outrun.

7.5 SHEEP HOUSING

7.5.1 NATIONAL OVERVIEW

The great importance of sheep farming to many areas of the country is not reflected in surviving farm buildings. In medieval times it was common practice to provide sheep houses, or berceries, even in the south of England. Apart from possible medieval timber-framed sheepcotes in Hampshire (Lewis et al 1988, p.113–15) there is only earthwork evidence for these buildings, but documentary sources show that in Gloucestershire at least they ranged from between eight and eighteen bays (Dyer 1995, p.149). Barns, when empty, were sometimes used for shearing and sorting the wool.

In Cumbria and elsewhere in northern England a building similar in appearance to a field barn was provided for the hoggs or yearling sheep to give them protection over their first winter. Low floor-to-ceiling heights and upper-floor haylofts are characteristic features of these buildings. The low ceiling to the ground floor below a hayloft is the characteristic feature of hogg houses. Sheep housing in other areas is associated with outfarms, such as on the southern downlands.

Before the adoption of enclosures of rough grazing in upland areas sheep were kept on both the low-lying commons and high moors to which nearly all farmers had access. The only times of year when all the sheep would be gathered together was for shearing and salving and dipping. Salving involved the boiling of Stockholm tar and tallow to make a mixture that was smeared all over the coat to protect against lice and scab as well as keep the fleece waterproof through the harsh winter. The practice of salving was carried out until the introduction of compulsory dipping as protection from scab in the early 20th century and very few of the sheds used for salving survive. As well as salving, sheep were also washed or dipped. Sheep washing was often carried out in ponds or streams where the watercourse might be artificially deepened or walled or, more unusually, sheep were dipped in specially constructed tanks. Enclosures funnelled towards the water's edge have been found. In areas where watermeadows were a feature of the landscape sheep dips are sometimes found built in to the system of leats and sluices.

7.5.2 SHEEP HOUSING IN THE EAST OF ENGLAND

There are no known examples of sheep housing in the Region, although there are references to sheepcotes (for example in Suffolk: information from Steve Podd, FWAG).

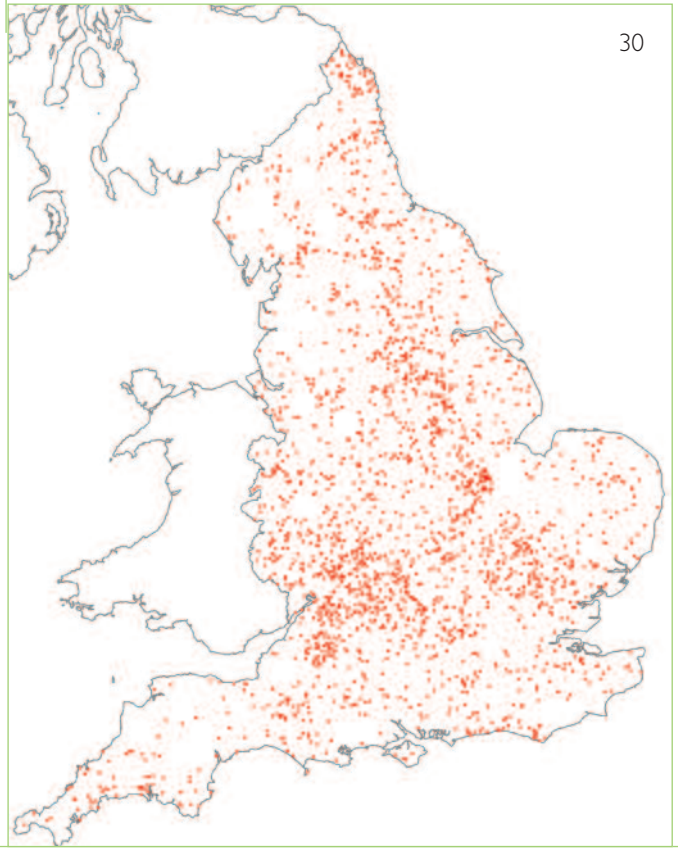
As elsewhere in the country, the farmyard and the barn (when empty in spring and summer) would have been utilised for handling and clipping.

7.6 DOVES AND POULTRY

7.6.1 NATIONAL OVERVIEW (Figures 30 & 31)

The construction of a dovecote indicated the status of the owner, as in the medieval period the keeping of doves or pigeons was usually restricted as a manorial right. The birds provided fresh meat and eggs as a supplement to the already varied diets of wealthier people, while the manure was also valued (see McCann 1991). As a consequence, dovecotes were often the

30 Distribution of listed dovecotes in England. This distribution includes both free-standing dovecotes and dovecotes that are incorporated into other buildings. Although dovecotes are found in all Regions, their concentration within Roberts and Wrathmell's Central Province from Gloucestershire to Northumberland is notable. Within this area manorial control was strongest and the higher numbers of dovecotes may reflect this



31 Dovecotes and buildings for poultry in England
A The corbelled stone roof of this beehive dovecote is a distinctive method of construction that is only found in the south-west and north-east parts of England. (Cornish Killas)
B Medieval circular dovecote. Note the low doorway. (Dorset Downs and Cranborne Chase)
A © *Eric Berry;* B © *Bob Edwards*

object of considerable display and decoration, and commonly associated with gentrified or manorial farms.

Dovecotes are usually square or circular towers with pyramidal or conical roofs, but a number of varying forms have been found, including tun-bellied dovecotes (where the walls bulge outward slightly before tapering upward) and beehive dovecotes with corbelled stone roofs. There are also lectern dovecotes, which are square or rectangular with a mono-pitch roof, and a small number of octagonal dovecotes that are usually of 18th- or 19th-century date. Externally, perching or sunning ledges formed either in stone, brick or timber have been found. Later dovecotes often incorporated other functions such as granaries or stables. As the keeping of pigeons became more widespread, nesting boxes were incorporated into other farmyard buildings, for example the gable ends of barns.

Internally the walls were lined with nest boxes. In the earliest examples the nest boxes were sometimes formed in the thickness of the wall but usually they were in stone, brick or wood. Dovecote doorways were low to discourage the birds from flying out and often a potence, a central pivoted post with arms supporting a revolving ladder, provided access to the nest boxes for collection of the squabs and eggs. Surviving internal fitments are of great rarity, notably potencies and nest boxes (especially the removable wooden types).

Studies have shown that the distribution of dovecotes may in part be affected by the robustness of the building material. For example, a study of Gloucestershire dovecotes suggests that the brick or timber-framed dovecotes typical of the Vale of Gloucester have fared less well than the stone-built examples of the Cotswolds. At the time of the Gloucestershire survey the author

31 Dovecotes and buildings for poultry in England (continued)

C Square stone dovecote with pitched roof. (Vale of Pickering) In the north of England a few 'lectern' dovecotes with mono-pitch roofs, more typical of Scotland, are found.

D Seventeenth-century timber-framed dovecote. Internally the nest boxes of this building are made from stone rubble, but wooden nest boxes and, in the East of England Region, clay bats forming the nest boxes are also found. (Herefordshire Lowlands)

E Octagonal brick dovecote dating from the 18th century. (Herefordshire Lowlands)

F Nest boxes incorporated into the gable end of a bastle house in Northumbria. The construction of nest boxes into the walls of other buildings, especially barns, was commonplace during the 18th and 19th centuries (Cheviot Fringe)

G Hen house built over a pigsty. Probably late 19th century. (Vale of York)

H Goose pen built against a farmyard boundary wall. (Herefordshire Plateau)

noted that the surviving dovecotes of the Vale were in noticeably poorer condition (Ariss 1992, p.14).

During the 17th and early 18th centuries the restrictions on keeping doves were lifted and small-scale accommodation for doves can be found built into other farm buildings. However, as cereal prices rose and improved methods of farming were adopted the popularity of pigeons declined. Investigation of a farmstead should include a search for small groups of nest boxes, which may be tucked away at the top of a gable or over a gateway.

Poultry keeping was usually the preserve of the farmer's wife and so the hen house was usually close to the farmhouse. This location was also chosen because poultry were often fed on kitchen scraps and looked after from the farmhouse. 'Accommodation for poultry is a modest, though necessary adjunct to all farm homesteads. The busy farmer himself pays little attention as a rule to the feathered tribe, but a thrifty wife knows too well the profit attached to them,' (Clarke 1899, p.172). Geese could be housed in free-standing pens or alcoves in farmyard walls. Hens usually ran freely about a farmyard, but were encouraged to nest safely away from predators and so that the eggs could be collected. Hen houses usually included a small pop hole for the hens as well as a full-sized door for human access for feeding and egg-collection. The walls were lined with nest boxes. As is still the case, hen houses were usually relatively short-lived buildings and there are few survivals that can be described as historic. Where historic examples do survive they usually form part of another building, such as a pig house: it was thought the chickens would keep the pigs warm and the pigs would frighten foxes away. The combination of a hen house located above a pig house was described as a poultiggery in some areas (for example in North Shropshire and Northumberland). These could be associated with a boiler house with a chimney for feed preparation.

7.6.2 DOVES AND POULTRY IN THE EAST OF ENGLAND

7.6.2.1 Doves in the East of England

Dovecotes are found in all Regions of the country but their distribution is not even. Within the East of England Region the greatest concentration of listed dovecotes is in the south-west, in Hertfordshire, Bedfordshire and the south-western parts of Cambridgeshire and Essex. The dovecotes of the Region include medieval examples but most are of 18th or 19th century date, often included as a decorative feature in a planned range, and usually form part of another building such as a stable or granary. Due to the lack of good building stone across much of the Region, many of the free-standing dovecotes were built in flint or timber frame, which was commonly covered in plaster. Clay lump was used to a lesser extent and now few survive. The majority of free-standing dovecotes in Hertfordshire are brick-built structures.

7.6.2.2 Poultry

Historic buildings for poultry are rare. Those that survive are likely to be associated with a pigsty (often known as a 'poultiggery').

8.0 Key Building Types: Other Farmstead Buildings

8.1 OUTFARMS AND FIELD BARNS

8.1.1 NATIONAL OVERVIEW

Field barns and outfarms, sometimes with a cottage beside them, can be prominent landscape features. Outfarms were usually created on larger farms or in areas where the farmsteads remained in the villages after enclosure, resulting in some fields being distant from the main farmstead. These complexes usually took the form of a yard that was often fully or partly enclosed by buildings. The outfarm saved on labour in that the harvested crop from the surrounding fields did not have to be carried back to the farmstead, and its straw turned into manure which, in turn, did not have to be carted back out to the distant fields.

Field barns were built in areas where farmsteads and fields were sited at a long distance from each other or where fields were interspersed with the land of other farms. Isolated field barns, cow houses and sheep houses are documented from the medieval period in upland areas (Le Patourel in Miller 1991, p.865). In some cases, such as the Craven Dales of Yorkshire or in the South Hams of Devon, they could be multi-functional buildings for cattle, corn and hay. The small and numerous field barns of the North Yorkshire Dales were built for a specialist dairy industry. In arable areas they were often simply threshing barns, which after 1770 were a typical part of outfarm groups.

Field barns and outfarms have always been vulnerable to dereliction once redundant. The widespread introduction of artificial fertilisers, bale silage production and the centralisation of farming activities are key factors in the abandonment and dereliction of field barns and outfarms.

8.1.2 OUTFARMS AND FIELD BARNS IN THE EAST OF ENGLAND (Figure 32)

Outfarms, with cattle yards and sheds to the south and placed out in the fields at some distance from the main steading, were an important feature of some large farms on improved estates. They occur on the lighter soils of the Region: North West Norfolk, Breckland and the Suffolk Coast and Heath. In the claylands of Suffolk, neathouses were also frequently built at a distance from the main buildings, and for the same reasons have also been subject to demolition. Survivals are therefore also rare, and early examples are likely to be of great interest.

8.2 MINOR AND MISCELLANEOUS BUILDINGS

8.2.1 NATIONAL OVERVIEW

A range of other, smaller, buildings have also been found in a farmstead. Every farmyard would have had a water supply, either a pond, a nearby stream or a well, which could be enclosed in a well house. Fast-flowing water would also be used (see 6.0) to process grain into flour and wool into textiles, although evidence for mills or loom shops is very rare on surviving farms. Fuel for heating, in the form of timber or turf, would also be kept close to the house; specialist houses for peat, such as in Eskdale (Cumbria) are very rare. Some farmyards had recesses in the walls called bee boles to house a straw skep beehive. Occasionally a farm had its own slaughterhouse but many of these buildings do not have any characteristic external features, although internal

32 Outfarms in the East of England Region
Outfarms and field barns were an important feature on some large improved estates in the Region from the 18th century although there do not appear to be any surviving examples in Essex. Later outfarms tend to consist only of cattle yards, reflecting the decline of the barn in the 19th century. (A South Norfolk and High Suffolk Claylands; B North West Norfolk)
A *279714 Taken as part of the Images of England project © Mr John Crabb;* B © *English Heritage / Michael Williams*

features often included a higher ceiling and possibly a wheel to raise carcasses. Detached structures or rooms with chimneystacks served a diversity of functions: boil houses for animal (usually pig) feed; smithies (most frequently found on large farms, and located close to cart sheds); or washhouses. Farm dogs were often accommodated beneath the flights of steps that led up to lofts. Kennels for hunting dogs are found in hunting areas and are typically low, single-storey buildings similar to pigsties, with attached individual yards enclosed by metal railings.

8.2.2 MINOR AND MISCELLANEOUS BUILDINGS IN THE EAST OF ENGLAND

The backhouse was important in Suffolk, being the kitchen / dairy / brewing area; after about 1600 they were mostly added as lean-tos along the back of the farmhouse, but earlier on, there could be a separate building, adjacent to the farmhouse, mostly at right angles to it. These are often referred to in contemporary 15th- and 16th-century documents as an 'inset' house. A good number of these survive but most have probably been converted to residential use.

9.0 Glossary

Aisled barn A barn in which increased width was obtained through the use of aisles – narrow extensions along one or more sides or ends of the barn. A series of posts stand in the place where the walls of an unaisled building would run. The roof is carried on beyond the line of the aisle posts so the height of the walls is reduced and the visual mass of the roof increased.

Allotment An area of land allotted to a farmer, often at the time of enclosure. The word changes meaning in the later 19th century to mean 'land allotted to villagers for growing their own fruit and vegetables'.

Arable Land cultivated for the growth of crops.

Bank barn A combination barn of usually two storeys. Through constructing the barn against a bank, both floors can be entered from ground level. Typically bank barns have a threshing barn, sometimes with a granary and hayloft, and over housing for cattle. The ground floor may be open-fronted or enclosed. Bank barns are characteristic of the Lakeland area of the North West Region and parts of Devon, Somerset and Cornwall in the South West Region. They could be placed across the slope or along the slope, the latter having the lower floor often accessed from doors close to or in one gable end.

Barn A building for the storage and processing of grain crops, and for housing straw. See also Combination barn.

Berceries (sheep houses) Medieval name for sheep houses – shelters provided for sheep usually in areas of grazing away from the farmstead.

Byre (see **shippon** and **hovel**) Dialect term for cow house, commonly used in Yorkshire and the North East.

Cart shed A building for housing carts and farm implements. Cart sheds are usually open-fronted buildings sited close to a road or track into the farmstead. One bay of a cart shed may be portioned off and provided with doors to create a secure storage area for smaller implements. In many areas cart sheds are combined with first-floor granaries.

Catch meadow system Similar to watermeadows. A system of drains cut along a hillside and made to overflow on to the pasture below in winter, encouraging the early growth of grass. Also known as field gutter systems.

Chaff box/chaff house Storage for the chaff, or outer husks of crops, a typical by-product of threshing. Chaff was used as fodder for horses.

Cider house A building for the milling and pressing of cider, found in the South West and the West Midlands. It usually forms part of a combination range, and is marked by a wide doorway.

Cob A term used for earth-walled buildings in the south and west of England. Cob buildings are heavily concentrated in Devon and Dorset and are also found in Wiltshire.

Combed wheat reed A method of thatching in which all the straw is laid in the same direction with butts down. The stems of the straw are not bruised or crushed as with longstraw. The finished roof resembles reed thatch rather than longstraw.

Combination barn A barn that also housed cattle or horses, and sometimes other functions such as cart sheds and granaries. Combination barns can be two-storey or single-storey buildings. They include bank barns.

Convertible husbandry A system whereby some fields were brought into arable cultivation for a short period – usually until the soil was exhausted – and then returned to pasture for a number of years. This system was commonly found in upland areas of the country.

Coping Usually flat stones but sometimes bricks laid on the top of a wall to prevent water getting into the core of the wall: for example, on the top of a gable wall of a building where the roofing material abuts the gable wall rather than covers it.

Covered yard A cattle yard that is fully covered by a roof – the aims of which were to protect the nutrients in the manure collecting in the yard from being washed away by the rain and to provide an environment where cattle would fatten more quickly.

Cow house An enclosed building for cattle in which the animals are normally tethered in stalls.

Cruck, Raised cruck, Jointed cruck A pair of curved timbers, usually halved from the same tree trunk, that form an A-frame extending from the ground to the apex of the roof. A raised cruck has the feet of the crucks raised off the ground, usually embedded in a masonry wall. Jointed crucks are individual cruck blades formed by two timbers joined together.

Dairy A building, or more often a room within the farmhouse, where milk was processed to make cheese and butter.

Daub A mixture of clay and straw applied to wattle infill of timber-framing to make a wall.

Demesne farm A manorial farm managed directly as opposed to land within the manor farmed by tenants.

Dipping The washing of sheep by immersing them in water.

Dispersed settlement Settlement consisting of scattered, isolated farmsteads and small hamlets. Dispersed settlement is the predominant settlement form over much of western parts of England, and an area extending from East Anglia to the South East.

Dovecote A building, or part of a building, providing nest boxes for pigeons or doves.

Downland The higher land of the chalk areas of the country. These areas typically had a poor, thin soil and were the preserve of sheep which grazed on the extensive, unenclosed areas. This form of management suppressed the growth of scrub and allowed a rich flora to establish.

Dutch barn Now used to describe an iron-framed, open-fronted building for the shelter of hay or corn. They typically date from the late 19th to the mid-20th centuries.

Enclosure Enclosed land. Enclosure of land may have occurred at an early date – possibly medieval and in a few rare cases in the prehistoric period. In other areas open fields or common land was enclosed either by agreement or, in the 18th and 19th centuries, by act of parliament.

Fallow land Land left uncultivated, allowing it to rest. In a 3-field open field system one field was left fallow by rotation each year.

Farmstead The homestead of a farm where the farmhouse and some or all of the farm buildings are located.

Fatstock Farm animals reared for meat.

Field Barn A building set within the fields away from the main farmstead, typically in areas where farmsteads and fields were sited at a long distance from each other. Field barns are often combination buildings providing storage for hay or straw and shelter for animals.

Flail An implement comprising two linked wooden sticks used to beat grain from the ear (*see* Thrashing).

Granary A building for storing grain before it has been milled. Granaries are usually at first-floor level to prevent rodents and damp damaging the grain. They.could be free-standing structures or be an enclosed upper floor above a cart shed or stable.

Grange A farmstead belonging to and run by a monastic house.

Grazier A person who farms grazing animals, typically for meat or wool.

Half-hipped roof A roof in which the gable wall rises above the height of the eaves but does not extend to the apex. The upper part of the gable has a short sloping roof with rafters lying axially (in the same line of the orientation of the building). In a fully hipped roof, axial rafters are of the same length as the rafters of the main roof slopes.

Hay barn A structure to shelter but ensure the adequate ventilation of hay. They are typically open-sided structures with roofs supported on high brick, stone, timber or iron piers.

Hay loft Storage for hay above cart shed or stables.

Hayrack A rack made of wood and from the later 19th century often made in iron, in which hay could be placed to be eaten by cattle, horses or sheep.

Hemmels Small open-fronted cattle shelters with their own yards, mostly found in the North East.

Hipped roof A roof with slopes at the gable ends of equal or similar length to the side slopes. The gable walls do not rise up to the apex but are of similar height to the side walls. The top ends of the rafters that do not extend to the ridge are carried on a hip rafter.

Hit-and-miss timber boarding (also called **Yorkshire boarding**) Usually vertical boarding forming a wall to animal housing which has gaps between the boards to provide ventilation for the animals.

Holding A farm.

Hovel A dialect term for cow house, formerly common in parts of the Midlands and central southern England.

Hurdle work Hurdles, usually made from hazel or another pliable wood woven to form fence panels, were arranged to form temporary enclosure for animals, especially sheep.

Husbandry Farming, the management of the production of crops and animals.

Infield-outfield system A type of agriculture practised in pastoral (usually upland) areas, where the fields closest to the farmstead or settlement were the most intensively cropped and animals were only permitted to graze after the hay or corn crop was cut. Beyond was rough grazing for sheep and cattle, which was occasionally ploughed for corn.

Kneeler A stone, often shaped, which supports the stone coping to the gable end.

Laithe house A linear range of one construction comprising a farmhouse with attached barn and usually a stable. There is no internal link between the house and the agricultural element of the range. Laithe houses are usually associated with small part-time farmers who were often involved in the textile industries of the Pennines.

Lean-to A building, usually a later addition, which is constructed against the side of a larger building. Lean-tos typically have a mono-pitch roof.

Lias A form of limestone, typically split into thin pieces.

Linear farmstead A farmstead where the farmhouse and agricultural buildings are ranged in a line, usually attached to each other.

Linhay Two-storeyed building with open-fronted cattle shelter with an open-fronted hay loft or tallet above characteristic of Devon and south Somerset. The tallet may be constructed as a conventional floor or simply created from poles. Historically the term linhay was used to refer to a wider range of buildings including field barns.

Loosebox An individual cubicle for housing fatstock, found in the form of lean-tos attached to barns or other buildings, or as continuous ranges with an optional central or rear feeding passage.

Longhouse A building that housed humans and cattle under one roof and in which there was direct access from the accommodation into the byre. The byre was always built down-slope from the accommodation.

Originally animals and humans used the same entrance but as living standards changed the animals were often provided with separate access.

Longstraw Term used to describe a thatching method where the ears and butts of the straw are mixed. The stems of the straw are bruised and crushed and the result is a generally looser coat than combed wheat reed or water reed. The appearance of the roof is quite different from combed wheat reed and water reed, with a much thicker covering of straw.

Manger An open trough in a stable or cowshed from which horses or cattle could eat.

Mass-walled building Buildings where the walls are constructed of solid materials such as stone, earth or brick as opposed to timber-framed walling.

Meadow A field maintained for providing grass for grazing and for making hay.

Midstrey Term used in southern England and East Anglia for the projecting porch to a threshing barn.

Nucleated settlement Settlement pattern consisting mainly of villages with relatively few isolated farmsteads or hamlets.

Oast house A building in which hops are dried.

Oolite An easily worked form of limestone from the Jurassic period.

Open-field system A system in which farmland was held in common with the strips of individual farmers intermixed across several fields. Open-field systems rarely had hedges between strips or fields. Over time the strips were usually consolidated and eventually enclosed. Enclosure of open fields results in characteristic field patterns where the boundaries form an elongated reversed 'S'.

Outfarm A barn with animal accommodation either within the barn or separately, located away from the main farmstead, which avoided transporting straw and manure to and from distant fields.

Outshot *See* Lean-to.

Pantiles Clay roofing tiles with a wavy profile. Originated in Holland and became popular along the north-east coast. Also made in Somerset.

Pastoral farming Farming system based predominantly on the rearing or fattening of stock. Pastoral areas are usually predominantly grassland but in some areas arable cultivation was also important, providing fodder crops for the animals as well as corn crops for domestic use.

Pasture/pasturage Grazing land.

Piecemeal enclosure The enclosure of areas of land field by field, possibly through assarting, as opposed to the wholesale enclosure of large tracts of land and the creation of large field systems.

Pigsty A small building for housing pigs. Typically built as individual boxes, individually or in rows and with external feeding chutes. They were often built with their own individual yards.

Pilaster An ornamental rectangular column projecting from a wall.

Portal-framed shed Mass-produced iron-framed shed usually clad in metal sheeting.

Poultiggery A building combining a pigsty at ground level with a poultry house in a loft above.

Processing room A room in a farmstead where fodder for animals would be prepared, usually with the aid of machinery such as chaff cutters, cake breakers and root crushers.

Quoin The stones or brickwork set at the corner of a building. Where poor-quality building stone was used it was difficult to form corners to a building so the quoins would be made out of bricks or a better quality stone that could be worked square.

Rickyard A yard, usually sited close to the barn, in which the harvested corn crops could be stored in ricks to await threshing. The ricks would be built on raised platforms to protect the grain from rodents and thatched to protect from rain.

Ridge and furrow Long, parallel ridges of soil separated by linear depressions, caused by repeated ploughing using a heavy plough.

Ring-fenced A term to describe a farm in which all the fields are held in a compact block as opposed to being intermixed with the fields of other farmers.

Root and fodder stores Room often located close to or incorporated within the cattle housing.

Salving The rubbing of a tar-based mix into sheep, in order to guard against ticks, etc.

Shelter sheds Open-fronted structures for cattle facing on to cattle yards.

Shippon A dialect term for cow house, commonly used in the North West and the South West peninsula.

Silage clamp An airtight container for the storage of freshly cut grass.

Stable A building for housing horses or working oxen.

Staddle barn Threshing barn, usually timber framed and raised on staddle stones. Staddle barns date from the later 18th and early 19th centuries and may be an attempt to counter the greater predation of the brown rat.

Staddle stone Staddle stones usually comprise two stones: an upright column that is capped by a circular stone of larger diameter, typically with a rounded top, together forming a mushroom shape. Staddle stones prevented rodents climbing up into granaries, ricks and staddle barns.

Stall A standing for a cow or horse within a byre or stable. Stalls are usually divided by wooden or stone partitions to prevent animals biting and kicking each other.

Thrashing (or **Threshing**) The removal of grain from the ears of corn crops. Threshing by hand involved hitting the ears with a flail.

Threshing barn *See* barn.

Tillage The tending of land to prepare it for a crop.

Tithe A payment of a tenth of crops and produce paid to the Rector of the church for his maintenance. Payment in kind was generally changed to a cash payment in the mid-19th century although this occurred earlier in some parishes.

Topography The features of the landscape; its hills, rivers, roads, woods and settlement.

Vaccary A stock farm for cattle. Most vaccaries are of 12th- or 13th-century origin, and were built for ecclesiastical or lay lords. They are concentrated in the Pennines.

Watermeadow A valley-floor meadow that was subject to controlled flooding using a system of drains and sluices to encourage early grass growth, providing spring food for sheep. The flooding brought nutrients on to the land, improving hay crops. Watermeadows were first developed in the West Midlands but became a characteristic feature of the chalk river valleys of Wessex.

Wattle An interwoven panel usually made from hazel used to infill timber framing. Wattle could be covered in daub or left uncovered if more ventilation was required.

Wheel house A structure which housed a horse-engine for powering threshing machinery, and typically found projecting from barns. Also known as a gin gang in northern England.

Winnowing The separation of grain from the chaff, usually achieved by throwing the grain into the air and using the wind to blow the lighter chaff away from the grain.

Yorkshire boarding *See* Hit-and-miss boarding.

10.0 Sources

10.1 GENERAL SOURCES

The great barns of the medieval period were the first farm buildings to attract the attention of artists and antiquarians, from the 18th century. In the early 20th century this interest broadened out to studies of other iconic building types, such as Arthur Cooke's *A Book of Dovecotes* (1920), and their inclusion in the famous regional landscape studies published by Batsford (*The Face of Britain*). A milestone in the serious academic study of the subject was the publication of a regional study by J.E.C. Peters (1969), which was followed a year later by Nigel Harvey's inspirational general history of the subject (1970, 2nd edition 1984). Peters has usefully summarised his work in a booklet (1981, 2nd edition 2003) and studies examining farm buildings in their broader national and regional contexts have been taken forward by Brunskill (1982, revised 1987), Darley (1981), Lake (1989) and Wade Martins (1991). Individual studies have been published in the journal of *The Historic Farm Buildings Group*, founded in 1985. A major project by the Royal Commission for Historical Monuments in England, which targeted sample areas for recording, was published in 1997 (Barnwell & Giles 1997). There are a small number of county-wide studies, for example in Kent (Wade in Giles & Wade Martins 1994, pp.26–27) and Surrey (Gray 1998).

Despite an increasing level of interest in historic farm buildings, some of the smaller, less impressive building types have not been subject to the level of study and research that buildings such as barns have received. Therefore there is a limited understanding of the regional variations that may be encountered. As a consequence, the National Overview texts provided in this document for farmstead and building types are sometimes longer than their regional summaries.

There are a number of sources that provide a good overview of agricultural history and the development of farm buildings including:

The Board of Agriculture *General View of the County of…*, published from 1795 to 1814 describe the state of agriculture in individual counties at the time. They often include a map of agricultural regions and a section of farm buildings. They are inevitably biased towards the large, publicity-conscious and 'improving' farmers and estates.

County *Directories* from the second half of the 19th century often include essays on different aspects of the county, such as agriculture.

The British Association for the Advancement of Science published regional studies to coincide with the venues of their annual meetings in the 1950s and '60s. Many contain useful chapters on geology and agriculture.

The various volumes of *The Agrarian History of England and Wales* (Collins, Hallam, Thirsk, Miller, Mingay, Whetham) include essays by leading scholars.

James Caird (1852) *English Agriculture in 1851–2* is a collection of county essays written for *The Times*.

Haggard R. (1902) *Rural England* describes English agriculture county by county.

Hall, A.D. (1913) *A Pilgrimage of British Farming* describes farming in various counties in 1913.

The *Journal of the Royal Agricultural Society* has prize and regional essays on farming and farm buildings, especially useful for the mid- and late 19th century.

The *Victoria County Histories* are of variable use. The more recent volumes contain chapters on agricultural history and buildings.

The *Vernacular Architecture Group* has produced, besides its journal, a comprehensive national and regional bibliography (see Hall, Michelmore and Pattison for reference).

Barnwell, P.S. & Giles, C. (1997) *English Farmsteads 1750–1914* contains a short general introduction, a general concluding chapter and regional studies from west Berkshire, south Lincolnshire, north Northumberland, east Cornwall and central Cheshire.

Brunskill, R.W. (1982) *Traditional Farm Buildings of Britain* gives a very useful farming and building overview.

Darley, G. (1981) *The National Trust Book of the Farm* contains a general introduction followed by regional studies.

The revised Pevsner's *Buildings of England*, published county by county, often have useful introductions on landscape regions and building types.

Many county archaeological and historical journals include relevant articles. National journals of particular interest include those of the following societies:

British Agricultural History Society
Historic Farm Buildings Group
Local Historian

Society for Medieval Archaeology
Society for Post-Medieval Archaeology
Rural History
Society of Architectural Historians
Society for Landscape Studies
Vernacular Architecture Group

10.2 NATIONAL BIBLIOGRAPHY

Airs, M. (1983) 'Hovels or Helms; some further evidence from the 17th century', *Vernacular Architecture*: **14**: pp.50–51
Aitkens, P. & Wade-Martins, S. (1999) 'The farmsteads of Suffolk', *Journal of the Historic Farm Buildings Group* **13**: pp.1–17
Alcock, N.W. (1981) *Cruck Construction*, CBA Research Report **42**: Council for British Archaeology, York
Alcock, N.W. (2003) *Documenting the History of Houses*, British Records Association, London
Alcock, N.W., M.W. Barley, P.W. Dixon, & R.A. Meeson (1996) *Recording Timber-framed Buildings: an illustrated Glossary*, CBA, York
Allen, R.C. (1991) 'The two Agricultural Revolutions, 1459–1850', in Campbell, B. & M. Overton, *Land, Labour & Livestock*, Manchester University Press, Manchester
Andrews, G.H. (1852) *Agricultural Engineering 1: Buildings*, John Weale, London

Barley, M.W. (1961) *The English Farmhouse and Cottage*, Routledge, London
Barnwell, P.S. (1992) 'The National Farm Survey, 1941–1943', *Journal of the Historic Farm Buildings Group* **7**: pp.12–19
Barnwell, P.S. & Giles, C. (1997) *English Farmsteads 1750–1914*, RCHME, Swindon
Bateman, J. (1883) *The Great Landowners of Great Britain & Ireland*, Harrison, London
Beacham, P. [Ed] (1990) *Devon Building. An introduction to local traditions*, Devon Books, Exeter
Beckett, J.V. (1990) *The Agricultural Revolution*, Basil Blackwell, Oxford
Belhaven, Lord (1699) *The Country-men's Rudiment, or An Advice to the Farmers of East Lothian on how to Labour and Improve their Ground*, Heirs of A. Anderson, Edinburgh
Benoy, W.G. (1956) *Farm Buildings. Conversions and Improvements*, Ministry of Agriculture, London
Bettey, J.H. (1993) *Know the Landscape: Estates and the English Countryside*, B.T. Batsford, London
Beresford, M. & J. Hurst (1971) *Deserted Medieval Villages*, Lutterworth, Cambridge
Brigden, R. (1986) *Victorian Farms*, Crowood, London
Brigden, R. (1992) 'Bucking the Trend: New Farms between the Wars', *Journal of the Historic Farm Buildings Group* **6**: pp.35–48
Browick, T. (1862) 'On the management of a Home Farm', *Journal of the Royal Agricultural Society of England (JRASE)* **23**: pp.247–269
Brown, J. (1987) *Agriculture in England, A Survey of Farming 1870–1947*, Manchester University Press, Manchester
Brunskill, R.W. (1982) *Traditional Farm Buildings of Britain*, Gollancz, London

Caffyn, L. (1983) 'A Study of Farm Buildings in Selected Parishes of East Sussex', *Sussex Archaeological Collections* **121**: pp.149–71
Caird, J. (1852) *English Agriculture in 1850–51*, Longmans, London
Caird, J. (1878) *The Landed Interest and the Supply of Food*, Cassell & Co, London
Chambers, J.D. & G.E. Mingay (1966) *The Agricultural Revolution*, B.T.Batsford, London
Clark, J., J. Darlington & G. Fairclough (2004) *Using Historic Landscape Characterisation*, English Heritage and Lancashire County Council
Clarke, D.W. (1972) 'Pennine Aisled Barns', *Vernacular Architecture* **4**: pp.25–7
Clarke, D.W. (1974) 'Aisled timber barns in the Pennines', *Brigantian* **3**: pp.18–20
Clay, C. (1985) 'Landlords and Estate Management in England', in Thirsk, J. [Ed] *Agrarian History of England and Wales* 7, Cambridge University Press, Cambridge: pp.119–251
Cobbett, W. [Cole Ed.] (1930) *Rural Rides*, Peter Davies, London
Collins, E.J.T, A.K. Giles & J.G. Malleson (1989) *Ernest Edward Cook and his country estates*, University of Reading, Reading
Collins, E.J.T. (2000) *The Agrarian History of England and Wales*, Volume VII, 1850–1914, Cambridge University Press, Cambridge
Colvin, H. (1978, 1995, 3rd ed) *Biographical Dictionary of British Architects, 1600–1840*, Yale University Press, Newhaven and London

Colvin, H. & J. Newman [Eds.] (1981) *Of Buildings: Roger North's Writings on Architecture*, Oxford University Press, Oxford
Copland, S. (1866) *Agriculture, Ancient and Modern*, James Virtue, London
Curwen, J.C. (1809) *General Hints on Agricultural Subjects*, J. Johnson, London

Darley, G. (1981) *The National Trust Book of the Farm*, Weidenfeld & Nicholson, London
Dean, G.A. (1844) *On the Construction of Farm Buildings*, Charles Henry Knight, Worthing
Dean, G.A. (1850) 'On the Cost of Farm Buildings', *JRASE* **11**: pp.558–73
Dean, G.A. (1851) *The Land Steward*, Atchley & Co., London
Dean, G.A. (1867) *Selected Designs for Country Residences, Entrance Lodges, Farm Offices, Cottages, etc*, Charles Henry Knight, Worthing
Dean, P. (1999) *Sir John Soane and the Country Estate*, Ashgate, Aldershot
Denton, J.B. (1864) *The Farm Homesteads of England. A collection of plans of English homesteads existing in different parts of the country*, Chapman & Hall, London
Denton, J.B. (1879) 'Report of the judges of the farm plans sent in for competition at the London International Exhibition, 1879', *JRASE* 2nd ser. **15**: pp.774–81
Dyer, C. (1984) 'Evidence for Helms in Gloucestershire', *Vernacular Architecture* **15**: pp.42–5
Dyer, C. (1986) 'English peasant building in the later Middle Ages', *Medieval Archaeology* **30**: pp.19–43
Dyer, C. (1995) 'Sheepcotes: Evidence for Medieval Sheepfarming', *Medieval Archaeology* **39**: pp.136–64
Dyer, C. (1997) 'History and Vernacular Architecture', *Vernacular Architecture* **28**: pp.1–8

Edwards, B. (2005) *Farmsteads and Landscape Character in Hampshire – Pilot Project*, unpublished report for English Heritage Forum Heritage Services
English Heritage (1998) *Conservation-led Regeneration: the Work of English Heritage*, English Heritage, London
English Heritage (2000) *Thatch and Thatching, a Guidance Note*, English Heritage, London

Fox, C. (1952) *The Personality of Britain*, National Museum of Wales, Cardiff
Fletcher, T.W. (1960–61) 'The Great Depression of English Agriculture, 1873–1896', *Economic History Review* 2nd ser. **13**: pp.417–32

Gardiner, M. (2000) 'Vernacular Buildings and the Development of the Later Medieval Domestic Plan in England', *Medieval Archaeology* **44**: pp.159–79
Giles, C. & S. Wade Martins [Eds] (1994) *Recording Farm Buildings*, Historic Farm Buildings Group, Norwich
Gray, P. (1998) *Farmsteads and Farm Buildings in Surrey*, Surrey County Council
Grey, J. (1843) 'On Farm Buildings', *Journal of the Royal Agricultural Society of England* **4**: pp.12–13

Hallam, H.E. (1988) *The Agrarian History of England and Wales, Volume II, 1042–1350*, Cambridge University Press, Cambridge
Hall, A.D. (1913) *A Pilgrimage of British Farming*, John Murray, London
Hall, L. (1983) *The Rural Houses of North Avon and South Gloucestershire*, City of Bristol Museum and Art Gallery, Bristol
Hall, R de Z. (1972) *A Bibliography of Vernacular Architecture*, David and Charles, Newton Abbot
Hansell, P. & J. Hansell (2001) *Dovecotes*. Shire Publications, Princes Risborough
Harris, R. (1978) *Discovering Timber-Framed Buildings*, Shire Publications, Aylesbury
Harvey, N. (1984) *A History of Farm Buildings in England and Wales*, 2nd ed, David and Charles, Newton Abbot
Harvey, N. (1985) *Historic Farm Building Study, Sources of Information*, ADAS, MAFF
Hobbs, S. (ed) (2000) *Wiltshire Glebe Terriers, 1588–1827*, Wiltshire Record Society **56**
Hooke, D. [Ed] (1985) *The Medieval Village*, Oxford University Committee for Archaeology, Oxford
Howkins, A. (1994) 'Peasants, servants and labourers: the marginal workforce in English agriculture', *Agricultural History Review* **42**: pp.49–62
Hudson, J. (1850) 'On the construction of farm buildings', *JRASE* **11**: pp.280–82
Hunt, G. (1874) 'On concrete as a building material for Farm Buildings and Cottages', *JRASE* 2nd ser. **10**: pp.211–32
Hunt, R. (1797) 'Essay on the design of farms, farm buildings, etc', *Communications to the Board of Agriculture*, Board of Agriculture, London
Hutton, K. (1976) 'The distribution of wheel houses in the British Isles', *Agricultural History Review* **24**: pp.30–35

Jones, E.L. (1968) *The Development of English Agriculture 1815–1873*, Macmillan, London

Kennedy, A.T. (1988) 'The influence of wind on the orientation of threshing barns', *Vernacular Architecture* **19**: pp.19–23
Kent, N. (1775) *Hints to Gentlemen of Landed Property*, J. Dodsely, London
Kerridge, E. (1967) *The Agricultural Revolution*, George Allen & Unwin, London

Lake, J. (1989) *Historic Farm Buildings*, Blandford Press, London
Lake, J. & P. Gaskell (2002) 'Historic Farm Buildings: Audit and Evaluation'. *Conservation Bulletin* **42** (March 2002): pp.28–9
Lake, J. & B. Edwards (2006) 'Farmsteads and Landscapes: Towards an Integrated View', *Landscapes*, **7**: pp.1–36
Laurence, E. (1727) *The Duty of a Steward to his Lord*, John Shuckburgh, London
Lawrence, J. (1801) *The Modern Land Steward*, Symonds, London
Lawson, W. (1874) *Ten years of Gentleman Farming at Blennerhasset*, Longmans, London
Loch, J. *An Account of the Improvements on the Estates of the Marquess of Stafford*, Longmans, London
Loudon, J.C. (1831) *Encyclopedia of Agriculture*, 2nd ed, Longman Press, London
Lucas, R. (1997) 'When Did Norfolk Cross 'The Brick Threshold'?', *Vernacular Architecture* **28**: pp.68–80

McCann, J. (1991) 'Enquiry into the Design and Use of Dovecotes', *Transactions of the Ancient Monuments Society* **35**: pp.88–162
McCann, J. (1996) 'The Influence of Rodents on the Design and Construction of Farm Buildings in Britain to the mid-19th Century', *Journal of the Historic Farm Buildings Group* **10**: pp.1–28
McCann, J. (2004) *Clay and Cob Buildings*, Princes Risborough, Shire Publications
MacDonald, S. (1975) 'The progress of the early threshing machine', *Agricultural History Review* **24**: pp.63–77
MacDonald, S. (1981) 'Model Farms' in Mingay, G.E. [Ed] *The Victorian Countryside* 1, Routledge & Kegan Paul, London: pp.214–26
Mercer, E. 'The unfulfilled wider implications of vernacular architecture studies', *Vernacular Architecture* **28**: pp.9–12
Miller, E. (1991) *The Agrarian History of England and Wales, Volume III 1350–1500*, Cambridge University Press, Cambridge
Mingay, G.E. (1989) *The Agrarian History of England and Wales, Volume VI 1750–1850*, Cambridge University Press, Cambridge
Michelmore, D.J.H. (1979) *A Current Bibliography of Vernacular Architecture*, Vernacular Architecture Group
Moir, J. (1997) 'Vernacular Architecture: Open Air Museums and the Ecological Framework', *Vernacular Architecture* **28**: pp.20–24
Moir, J. & J. Letts (1999) *Thatch Thatching in England 1790–1940*, English Heritage Research Transactions **5**, James and James, London
Morton, J.C. (1842) *On the Nature and Property of Soils*, 4th ed., J. Ridgeway, London
Morton, J.C. (1855) *Cyclopedia of Agriculture*, Blackie & Sons, Glasgow
Morton, J.C. (1863) *The Prince Consort's Farms*, Longmans, London
Morton, J.C. (1868) 'Town Milk' in *JRASE* 2nd ser. **5**: pp.69–98
Moscrop, W.J. (1865) 'Covered cattle yards' in *JRASE* 2nd ser. **1**: pp.88–99
Moscrop, W.J. (1872) 'On the housing of fattening cattle', *Transactions of the Highland and Agricultural Society of Scotland* 4th ser. **4**: pp.156–165
Moscrop, W.J. (1890) 'Covered Cattle Yards' in *JRASE* 3rd ser. **1**: pp.473–90

Needham, S. (1984) 'Helms, hovels and belfreys: more evidence from probate inventories', *Vernacular Architecture* **15**: pp.45–6

Ojala, E.M. (1952) *Agriculture and Economic Progress*, Oxford University Press, Oxford
Orwin, C.S. & E.H. Wretham (1971) *History of British Agriculture, 1846–1914*, David and Charles, Newton Abbot
Overton, M. (1996) *Agricultural Revolution in England 1500–1850*, Cambridge University Press, Cambridge
OAU (1995) *Dovecotes*, Monuments Protection Programme Step 1 Report, Oxford Archaeological Unit for English Heritage

Pattison, I.R., D.S. Pattison & N.W. Alcock (1992) *A Bibliography of Vernacular Architecture, Vol III, 1977–1989*, Vernacular Architecture Group
Pattison, I.R., D.S. Pattison & N.W. Alcock. (1999) *A Bibliography of Vernacular Architecture, Vol III, 1990–1994*, Vernacular Architecture Group
Perren, R. (1970) 'Landlords and Agricultural Transformation, 1870–1900', *Agricultural History Review* **18**: pp.36–51

Perren, R. (1973) 'The Landlord and Agricultural Transformation 1870–1900' in Perry, P.J., [Ed.] *British Agriculture 1875–1914*, Methuen, London: pp.109–28
Perry, P.J. (1974) *British Farming in the Great Depression, 1870–1914: An historical geography*, David and Charles, Newton Abbot
Perry, P.J. (1981) 'High Farming in Victorian Britain', *Agricultural History* **55**: pp.156–65
Peters, J.E.C. (1969) *The Development of Farm Buildings in West Lowland Staffordshire up to 1880*, Manchester University Press, Manchester
Peters, J.E.C. (1981) *Discovering Farm Buildings*, Shire Publications, Aylesbury
Platt, C. (1969) *The Monastic Grange in Medieval England: a reassessment*, Macmillan, London

Rackham, O. (1972) 'Grundle House: on the quantities of timber in certain East Anglian buildings in relation to local supplies', *Vernacular Architecture* **3**: pp.3–8
Rigold, S. (1973) 'The distribution of aisled timber barns', *Vernacular Architecture* **2**: pp.20–22
Rippon, S., with Clark, J. (2004) *Historic Landscape Analysis: Deciphering the Countryside*, Council for British Archaeology, York.
Roberts, B.K. (1977) *Rural Settlement in Britain*, Hutchinson University Press, London.
Roberts, B.K. *The Making of the English Village*, Batsford, London
Roberts, B.K. (1996) *Landscapes of Settlement*. Prehistory to the Present, Routledge, London.
Roberts, B.K. & S. Wrathmell (2000) *An Atlas of Rural Settlement in England,* English Heritage, London
Roberts, B.K. & S. Wrathmell (2002) *Region and Place A study of English rural settlement*, English Heritage, London
Robinson, J.M. (1983) *Georgian Model Farms*, Oxford University Press, Oxford
Robinson, J.M. (1988) *The English Country Estate*, National Trust/Century, London
Ryan, C. (1988) 'An Introduction to the Recording of Farm Buildings', *Journal of the Historic Farm Buildings Group* **2**: pp.56–9

Scott, J. (1885) *Text Book of Farm Engineering: Part 4, Buildings*, Crosby Lockwood & Co., London
Shaw, J. (1990) 'Pastures in the Sky: Scottish Tower Silos 1918–1939', *Journal of the Historic Farm Buildings Group* **4**: pp.73–91
Sheldon, J.P. (1879) *Dairy Farming*, Cassell, London
Sheldon, J.P. (1908) *British Dairying*, 3rd ed, Crosby Lockwood, London
Smith, J.T. (1965) 'Timber Framed Building in England – its development and regional differences', *Archaeological Journal* **122**: pp.133–58
Smith, P. (1975) *Houses of the Welsh Countryside*. London, HMSO
Smith, P. (1980) 'The Architectural Personality of the British Isles' *Archaeologia Cambrensis*: pp.1–36
Spooner, W.C & J. Elliott (1850) 'On the Construction of Farm Buildings', *JRASE* **9**: pp.270–82
Stamp, L.D. [Ed.] (1937–44) *The Land of Britain*, Royal Geographical Society, London
Stephens, H. (1844) *Book of the Farm*, 4th ed, W. Blackwood, London
Sturgess, T. (1850) 'Farm Buildings', *JRASE* **11**: pp.288–99

Taylor, C.C. (1983) *Village and Farmstead: A History of Rural Settlement in England*, George Philip, London
Tancred, T. (1850) 'On the Construction of Farm Buildings', *JRASE* **11**: pp.192–214
Thirsk, J. [Ed.] (1967) *The Agrarian History of England and Wales, Volume IV, 1500–1640*, Cambridge University Press, Cambridge
Thirsk, J. [Ed.] (1984) *The Agrarian History of England and Wales, Volume V.i, 1640–1750* (Regional Farming Systems), Cambridge University Press, Cambridge
Thirsk, J. [Ed.] (1985) *The Agrarian History of England and Wales, Volume V.ii, 1640–1750* (Agrarian Change), Cambridge University Press, Cambridge
Thirsk, J. [Ed.] (2000) *The English Rural Landscape*, Oxford University Press, Oxford
Thirsk, J. (1987) *England's Agricultural Regions and Agricultural History, 1500–1750*, Macmillan, London
Thompson, F.M.L. (1959) 'Agriculture since 1870', *Victoria History of the Counties of England: A History of Wiltshire* **4**, University of London, London
Thompson, F.M.L. (1963) *English Landed Society in the 19th Century*, Routledge & Kegan Paul, London
Turner, M. (1980) *English Parliamentary Enclosure*, Dawson, Folkestone

Walton, J.R. (1973) *A Study in the Diffusion of Agricultural Machinery in the 19th Century*, Oxford School of Geography Research Paper No. 5

Wade Martins, S. (1980) *A Great Estate at Work*, Cambridge University Press, Cambridge
Wade Martins, S. (1991) *Historic Farm Buildings*, B.T.Batsford, London
Wade Martins, S. (1995) *Farms and Fields*, B.T.Batsford, London
Wade Martins, S. (2002) *The English Model Farm*, Windgather Press, Macclesfield
Wade Martins, S. & T. Williamson (1999) 'The Roots of Change', *Agricultural History Review Monograph*, British Agricultural History Society, Exeter
Waistell, C. (1827) *Designs for Agricultural Buildings*, Longmans, London
Warren, J.W. [Ed] (1990) *Wealden Buildings*, Wealden Buildings Study Group Coach Publications, Horsham
Whetham, E. (1978) *The Agrarian History of England and Wales, Volume VIII, 1914–1939*, Cambridge University Press, Cambridge
Wiliam, E. (1986) *The Historical Farm Buildings of Wales*, John Donald, Edinburgh
Wiliam, E. (1987) 'The use of barns', *Journal of the Historic Farm Buildings Group* **1**: pp.16–24

Young, A. (1764) 'Common farmers vindicated from the charges of being universally ignorant', *Museum Rusticanum* **3**
Young, A. (1770) *A Farmer's Guide to the Hiring and Stocking of Farms*, W. Strachan, London
Young, A. (1771) *A Farmer's Tour through the North of England*, 4 vols, W. Strachan, London
Young, A. (1784) 'A Minute of the Husbandry at Holkham by Thomas William Coke', *Annals of Agriculture* **11**: p.382
Young, A. (1793) *General View of the Agriculture of Yorkshire*, Board of Agriculture, London
Young, A. (1804) *General View of the Agriculture of Norfolk*, Board of Agriculture, London
Young, A. (1808) *General View of the Agriculture of Sussex*, Board of Agriculture, London
Young, A. (1809) *General View of the Agriculture of Oxfordshire*, Board of Agriculture, London
Young, A. (1813) *General View of the Agriculture of Suffolk*, Board of Agriculture, London

10.3 REGIONAL BIBLIOGRAPHY

Aitkens, P. (1989) 'Aisled barns in Suffolk', *Journal of the Historic Farm Buildings Group* **3**: pp.58–72
Aitkens, P. & S. Wade Martins (2002) *The Farmsteads of Suffolk A thematic survey*, unpublished report for English Heritage
Ariss, P. (1992), 'The Dovecotes of Gloucestershire', *Journal of the Historic Farm Buildings Group* **6**: pp.3–34

Baker, R. (1845) 'Farming in Essex', *JRASE* **5**: pp.1–43
Batchelor, T. & W. Pitt (1813) *General View of the Agriculture of Bedfordshire*, Board of Agriculture, London
Bennett, W. (1852) 'The farming of Bedfordshire', *JRASE* **18**: pp.1–30
Biddell, H. (1907) 'Agriculture', *Victoria County History of Suffolk* **2** [Page, W. Ed]
Bigmore, P. (1979) *The Bedfordshire Landscape*, Hodder & Stoughton, London
Brigden, R. (1992) 'Bucking The Trend: New Farms between the Wars', *JRASE* **6**: pp.35–48
Britnell, R.H. (1991) 'Eastern England', in Miller (ed) *The Agrarian History of England and Wales*, Volume III 1350–1500, Cambridge University Press, Cambridge: pp. 611–23.

Darby, H. C. (1948) 'Agriculture 1500–1800', *Victoria History of the County of Cambridgeshire*: pp.72–6
Darby, H. C. (1948) 'Agriculture 1800–1900', *Victoria History of the County of Cambridgeshire*: pp. 111–23

Davenport, F.G. (1967) *The Economic Development of a Norfolk Manor 1086–1565*, Frank Cass & Co Ltd, London (Reprint of 1903 volume)
Dymond, D. (1989) 'Enclosure and reclamation'. in Dymond & Martin [Eds.] (1989) 2nd edition, Suffolk County Council and Suffolk Institute of Archaeology and History, Ipswich
Dymond D. and E. Martin (eds. 1989) *An Historical Atlas of Suffolk* 2nd edition, Suffolk County Council and Suffolk Institute of Archaeology and History, Ipswich

English Heritage (1997) *Farmsteads of Norfolk; a pilot thematic survey*, English Heritage, London
English Heritage (1997) *Understanding Listing: The East Anglian Farm*, English Heritage, London
Essex County Council (1980) *The Essex Countryside, Historic Barns*, Essex County Council, Chelmsford

Gooch, W. (1813) *General View of the County of Cambridge*, Board of Agriculture, London

Hallam, H.E. (1988) 'Eastern England', in Hallam [Ed] *The Agrarian History of England and Wales*. Vol II, 1042–1350, Cambridge University Press, Cambridge: pp.272–311

Hall, A. D. (1908) 'Agriculture' in *Victoria History of the County of Hertfordshire* pp.129–39 [Page, W. Ed] Constable, London
Hewett, C.A. (1969) *The Development of Carpentry 1200–1700: an Essex Study*, David & Charles, Newton Abbot
Holderness, B.A. (1984) 'East Anglia' in Thirsk, J [Ed] (1987): pp.197–238
Hunter, J. (1999) *The Essex Landscape*., Essex Record Office, Chelmsford

Johnson, M.H. (1993) *Housing Culture Traditional Architecture in an English Landscape*, UCLP, London
Jonas, S. (1846) 'On the farming of Cambridgeshire', *JRASE* **7**: pp.35–72

McConnell, P. (1891) 'Experiences of a Scotsman on the Essex Clay', *JRASE* 3rd series, **2**: pp.311–25
MAFF (2000) *England Rural Development Programme: Appendix A6 – East of England Region*
Munby, L.M. (1976) *The Hertfordshire Landscape*, Hodder & Stoughton, London

Office of the Deputy Prime Minister (2000) *Regional Planning Guidance 6, East Anglia to 2016*

Richardson, R.C. (1984) 'The Home Counties' in Thirsk, J. [Ed] (1987): pp.239–69
Ryan, P. (1986) 'The barns of Ingatestone 1556–1601', *Essex Historic Buildings Group* **3**, November

Theobald, J. (2000) 'Changing Landscapes, changing economies: holdings in Woodland High Suffolk', unpublished PhD thesis, University of East Anglia
Theobald, J. (2002) 'Agricultural Production in Woodland High Suffolk', *Agricultural History Review* **50**: pp.1–24

Wade-Martins, P. (1980) 'Village sites in Launditch Hundred', *East Anglian Archaeology* **10**
Wade Martins, S. (1980) *A Great Estate at Work*, Cambridge University Press, Cambridge
Wade Martins, S. (1995) *Farms and Fields*, Batsford, London
Wade Martins, S. & T. Williamson (1999) 'The Roots of Change: Farming and the Landscape in East Anglia, c.1700–1870', *Agricultural History Review*, Supplement Series **2**
Wilcox, S. (draft 2003) *Historic Timber Farm Buildings of Hertfordshire*.

Young, A. (1786) 'Minutes relating to Dairy Farms in High Suffolk', *Annals of Agriculture* **5**: pp.192–224
Young, A. (1804) *General View of the County of Norfolk*, Board of Agriculture, London
Young, A. (1813) *General View of the Agriculture of Hertfordshire*, Board of Agriculture, London
Young, A. (1813) *General View of the County of Suffolk*, Board of Agriculture, London

11.0 Joint Character Area Descriptions: URLs for PDF Documents

1 **North Northumberland Coastal Plain** www.countryside.gov.uk/Images/JCA01_tcm2-21114.pdf
2 **Northumberland Sandstone Hills** www.countryside.gov.uk/Images/JCA02_tcm2-21115.pdf
3 **Cheviot Fringe** www.countryside.gov.uk/Images/JCA03_tcm2-21116.pdf
4 **Cheviots** www.countryside.gov.uk/Images/JCA04_tcm2-21117.pdf
5 **Border Moors and Forests** www.countryside.gov.uk/Images/JCA5_tcm2-21066.pdf
6 **Solway Basin** www.countryside.gov.uk/Images/JCA6_tcm2-21068.pdf
7 **West Cumbria Costal Plain** www.countryside.gov.uk/Images/JCA7_tcm2-21069.pdf
8 **Cumbria High Fells** www.countryside.gov.uk/Images/JCA8_tcm2-21070.pdf
9 **Eden Valley** www.countryside.gov.uk/Images/JCA9_tcm2-21071.pdf
10 **North Pennines** www.countryside.gov.uk/Images/JCA10_tcm2-21072.pdf
11 **Tyne Gap and Hadrian's Wall** www.countryside.gov.uk/Images/JCA11_tcm2-21073.pdf
12 **Mid Northumberland** www.countryside.gov.uk/Images/JCA12_tcm2-21120.pdf
13 **South East Northumberland Coastal Plain** www.countryside.gov.uk/Images/JCA13_tcm2-21121.pdf
14 **Tyne and Wear Lowlands** www.countryside.gov.uk/Images/JCA14_tcm2-21122.pdf
15 **Durham Magnesian Limestone Plateau** www.countryside.gov.uk/Images/JCA15_tcm2-21123.pdf
16 **Durham Coalfield** www.countryside.gov.uk/Images/JCA16_tcm2-21124.pdf
17 **Orton Fells** www.countryside.gov.uk/Images/JCA17_tcm2-21074.pdf
18 **Howgill Fells** www.countryside.gov.uk/Images/JCA18_tcm2-21075.pdf
19 **South Cumbria Low Fells** www.countryside.gov.uk/Images/JCA19_tcm2-21077.pdf
20 **Morecambe Bay Limestones** www.countryside.gov.uk/Images/JCA20_tcm2-21078.pdf
21 **Yorkshire Dales** www.countryside.gov.uk/Images/JCA21_tcm2-21079.pdf
22 **Pennine Dales Fringe** www.countryside.gov.uk/Images/JCA22_tcm2-21125.pdf
23 **Tees Lowlands** www.countryside.gov.uk/Images/JCA23_tcm2-21126.pdf
24 **Vale of Mowbray** www.countryside.gov.uk/Images/JCA24_tcm2-21128.pdf
25 **North Yorkshire Moors and Cleveland Hills** www.countryside.gov.uk/Images/JCA25_tcm2-21129.pdf
26 **Vale of Pickering** www.countryside.gov.uk/Images/JCA26_tcm2-21131.pdf
27 **Yorkshire Wolds** www.countryside.gov.uk/Images/JCA27_tcm2-21132.pdf
28 **Vale of York** www.countryside.gov.uk/Images/JCA28_tcm2-21133.pdf
29 **Howardian Hills** www.countryside.gov.uk/Images/JCA29_tcm2-21134.pdf
30 **Southern Magnesian Limestone** www.countryside.gov.uk/Images/JCA30_tcm2-21135.pdf
31 **Morecambe Bay and Lune Estuary** www.countryside.gov.uk/Images/JCA31_tcm2-21080.pdf
32 **Lancashire and Amounderness Plain** www.countryside.gov.uk/Images/JCA32_tcm2-21082.pdf
33 **Bowland Fringe and Pendle Hill** www.countryside.gov.uk/Images/JCA33_tcm2-21083.pdf
34 **Bowland Fells** www.countryside.gov.uk/Images/JCA34_tcm2-21084.pdf
35 **Lancashire Valleys** www.countryside.gov.uk/Images/JCA35_tcm2-21085.pdf
36 **Southern Pennines** www.countryside.gov.uk/Images/JCA36_tcm2-21086.pdf
37 **Yorkshire Southern Pennine Fringe** www.countryside.gov.uk/Images/JCA37_tcm2-21136.pdf
38 **Nottinghamshire Derbyshire and Yorkshire Coalfield** www.countryside.gov.uk/Images/JCA38_tcm2-21137.pdf
39 **Humberhead Levels** www.countryside.gov.uk/Images/JCA39_tcm2-21138.pdf
40 **Holdemess** www.countryside.gov.uk/Images/JCA40_tcm2-21139.pdf
41 **Humber Estuary** www.countryside.gov.uk/Images/JCA41_tcm2-21140.pdf
42 **Lincolnshire Coast and Marshes** www.countryside.gov.uk/Images/JCA42_tcm2-21141.pdf
43 **Lincolnshire Wolds** www.countryside.gov.uk/Images/JCA43_tcm2-21142.pdf
44 **Central Lincolnshire Vale** www.countryside.gov.uk/Images/JCA44_tcm2-21143.pdf
45 **Northern Lincolnshire Edge With Coversands** www.countryside.gov.uk/Images/JCA45+47_tcm2-21144.pdf
46 **The Fens** www.countryside.gov.uk/Images/JCA46_tcm2-21145.pdf
47 **Southern Lincolnshire Edge** www.countryside.gov.uk/Images/JCA45+47_tcm2-21144.pdf
48 **Trent and Belvoir Vales** www.countryside.gov.uk/Images/JCA48_tcm2-21146.pdf
49 **Sherwood** www.countryside.gov.uk/Images/JCA49_tcm2-21147.pdf
50 **Derby Peak Fringe** www.countryside.gov.uk/Images/JCA50_tcm2-21148.pdf
51 **Dark Peak** www.countryside.gov.uk/Images/JCA51_tcm2-21087.pdf

52 **White Peak** www.countryside.gov.uk/Images/JCA52_tcm2-21149.pdf
53 **South West Peak** www.countryside.gov.uk/Images/JCA53_tcm2-21088.pdf
54 **Manchester Pennine Fringe** www.countryside.gov.uk/Images/JCA54_tcm2-21089.pdf
55 **Manchester Conurbation** www.countryside.gov.uk/Images/JCA55_tcm2-21090.pdf
56 **Lancashire Coal Measures** www.countryside.gov.uk/Images/JCA56_tcm2-21091.pdf
57 **Sefton Coast** www.countryside.gov.uk/Images/JCA57_tcm2-21095.pdf
58 **Merseyside Conurbation** www.countryside.gov.uk/Images/JCA58_tcm2-21096.pdf
59 **Wirral** www.countryside.gov.uk/Images/JCA59_tcm2-21097.pdf
60 **Mersey Valley** www.countryside.gov.uk/Images/JCA60_tcm2-21098.pdf
61 **Shropshire Cheshire and Staffordshire Plain** www.countryside.gov.uk/Images/JCA61+62_tcm2-21100.pdf
62 **Cheshire Sandstone Ridge** www.countryside.gov.uk/Images/JCA61+62_tcm2-21100.pdf
63 **Oswestry Uplands** www.countryside.gov.uk/Images/JCA063%20-%20Oswestry%20Uplands_tcm2-21174.pdf
64 **Potteries and Churnet Valley** www.countryside.gov.uk/Images/JCA064%20-%20Potteries%20and%20Churnet%20Valley_tcm2-21175.pdf
65 **Shropshire Hills** www.countryside.gov.uk/Images/JCA064%20-%20Potteries%20and%20Churnet%20Valley_tcm2-21175.pdf
66 **Mid Severn Sandstone Plateau** www.countryside.gov.uk/Images/JCA066%20-%20Mid%20Severn%20Sandstone%20Plateau_tcm2-21177.pdf
67 **Cannock Chase and Cank Wood** www.countryside.gov.uk/Images/JCA067%20-%20Cannock%20Chase%20and%20Cank%20Wood_tcm2-21178.pdf
68 **Needwood and South Derbyshire Claylands** www.countryside.gov.uk/Images/JCA68_tcm2-21150.pdf
69 **Trent Valley Washlands** www.countryside.gov.uk/Images/JCA69_tcm2-21151.pdf
70 **Melbourne Parklands** www.countryside.gov.uk/Images/JCA70_tcm2-21152.pdf
71 **Leicestershire and South Derbyshire Coalfield** www.countryside.gov.uk/Images/JCA71_tcm2-21153.pdf
72 **Mease/Sence Lowlands** www.countryside.gov.uk/Images/JCA72_tcm2-21154.pdf
73 **Charnwood** www.countryside.gov.uk/Images/JCA73_tcm2-21155.pdf
74 **Leicestershire and Nottinghamshire Wolds** www.countryside.gov.uk/Images/JCA74_tcm2-21156.pdf
75 **Kesteven Uplands** www.countryside.gov.uk/Images/JCA75_tcm2-21157.pdf
76 **North West Norfolk** www.countryside.gov.uk/Images/JCA076%20-%20North%20West%20Norfolk_tcm2-21179.pdf
77 **North Norfolk Coast** www.countryside.gov.uk/Images/JCA077%20-%20North%20Norfolk%20Coast_tcm2-21180.pdf
78 **Central North Norfolk** www.countryside.gov.uk/Images/JCA078+084%20-%20Central%20North%20Norfolk%20+%20Mid%20Norfolk_tcm2-21181.pdf
79 **North East Norfolk and Flegg** www.countryside.gov.uk/Images/JCA079%20-%20North%20East%20Norfolk%20and%20Flegg_tcm2-21182.pdf
80 **The Broads** www.countryside.gov.uk/Images/JCA080%20-%20The%20Broads_tcm2-21183.pdf
81 **Greater Thames Estuary** www.countryside.gov.uk/Images/JCA081%20-%20Greater%20Thames%20Estuary_tcm2-21184.pdf
82 **Suffolk Coast and Heaths** www.countryside.gov.uk/Images/JCA082%20-%20Suffolk%20Coasts%20and%20Heaths_tcm2-21185.pdf
83 **South Norfolk and High Suffolk Claylands** www.countryside.gov.uk/Images/JCA083%20-%20South%20Norfolk%20and%20High%20Suffolk%20Claylands_tcm2-21186.pdf
84 **Mid Norfolk** www.countryside.gov.uk/Images/JCA078+084%20-%20Central%20North%20Norfolk%20+%20Mid%20Norfolk_tcm2-21181.pdf
85 **Breckland** www.countryside.gov.uk/Images/JCA085_tcm2-21187.pdf
86 **South Suffolk and North Essex Clayland** www.countryside.gov.uk/Images/JCA086%20-%20South%20Suffolk%20and%20North%20Essex%20Clayland_tcm2-21188.pdf
87 **East Anglia Chalk** www.countryside.gov.uk/Images/JCA087%20-%20East%20Anglian%20Chalk_tcm2-21189.pdf
88 **Bedfordshire and Cambridgeshire Claylands** www.countryside.gov.uk/Images/JCA88_tcm2-21158.pdf
89 **Northamptonshire Vales** www.countryside.gov.uk/Images/JCA89+94_tcm2-21159.pdf
90 **Bedfordshire Greensand Ridge** www.countryside.gov.uk/Images/JCA090_tcm2-21190.pdf
91 **Yardly-Whittlewood Ridge** www.countryside.gov.uk/Images/JCA91_tcm2-21160.pdf
92 **Rockingham Forest** www.countryside.gov.uk/Images/JCA92_tcm2-21161.pdf
93 **High Leicestershire** www.countryside.gov.uk/Images/JCA93_tcm2-21162.pdf
94 **Leicestershire Vales** www.countryside.gov.uk/Images/JCA89+94_tcm2-21159.pdf
95 **Northamptonshire Uplands** www.countryside.gov.uk/Images/JCA95_tcm2-21163.pdf

96 **Dunsmore and Feldon** www.countryside.gov.uk/Images/JCA96_tcm2-21164.pdf
97 **Arden** www.countryside.gov.uk/Images/JCA097%20-%20%20Arden_tcm2-21191.pdf
98 **Clun and North West Herefordshire Hills** www.countryside.gov.uk/Images/JCA098%20-%20Clun%20and%20North%20West%20Herefordshire%20Hills_tcm2-21192.pdf
99 **Black Mountains and Golden Valley** www.countryside.gov.uk/Images/JCA099%20-%20Black%20Mountains%20and%20Golden%20Valley_tcm2-21193.pdf
100 **Herefordshire Lowlands** www.countryside.gov.uk/Images/JCA100%20-%20Herefordshire%20Lowlands_tcm2-21194.pdf
101 **Herefordshire Plateau** www.countryside.gov.uk/Images/JCA101+102%20-%20Herefordshire%20Plateau%20+%20Teme%20Valley_tcm2-21195.pdf
102 **Teme Valley** www.countryside.gov.uk/Images/JCA101+102%20-%20Herefordshire%20Plateau%20+%20Teme%20Valley_tcm2-21195.pdf
103 **Malvern Hills** www.countryside.gov.uk/Images/JCA103%20-%20Malvern%20Hills_tcm2-21196.pdf
104 **South Herefordshire & Over Severn** www.countryside.gov.uk/Images/JCA104%20-%20South%20Herefordshire%20and%20Over%20Severn_tcm2-21197.pdf
105 **Forest of Dean and Lower Wye** www.countryside.gov.uk/Images/JCA105%20-%20Forest%20of%20Dean%20and%20Lower%20Wye_tcm2-21198.pdf
106 **Severn and Avon Vales** www.countryside.gov.uk/Images/JCA106%20-%20Severn%20and%20Avon%20Vales_tcm2-21199.pdf
107 **Cotswolds** www.countryside.gov.uk/Images/JCA107%20-%20Cotswolds_tcm2-21200.pdf
108 **Upper Thames Clay Vales** www.countryside.gov.uk/Images/JCA108%20-%20Upper%20Thames%20Clay%20Vales_tcm2-21201.pdf
109 **Midvale Ridge** www.countryside.gov.uk/Images/JCA109%20-%20Midvale%20Ridge_tcm2-21202.pdf
110 **The Chilterns** www.countryside.gov.uk/Images/JCA110%20-%20Chilterns_tcm2-21203.pdf
111 **Northern Thames Basin** www.countryside.gov.uk/Images/JCA111_tcm2-21204.pdf
112 **Inner London** www.countryside.gov.uk/Images/JCA112_tcm2-21516.pdf
113 **North Kent Plain** www.countryside.gov.uk/Images/JCA113_tcm2-21533.pdf
114 **Thames Basin Lowlands** www.countryside.gov.uk/Images/JCA114_tcm2-21554.pdf
115 **Thames Valley** www.countryside.gov.uk/Images/JCA115_tcm2-21205.pdf
116 **Berkshire and Marlborough Downs** www.countryside.gov.uk/Images/JCA116%20-%20Berkshire%20and%20Marlborough%20Downs_tcm2-21206.pdf
117 **Avon Vales** www.countryside.gov.uk/Images/JCA117%20-%20Avon%20Vales_tcm2-21207.pdf
118 **Bristol, Avon Valleys and Ridges** www.countryside.gov.uk/Images/JCA118%20-%20Bristol,%20Avon%20Valleys%20and%20Ridges_tcm2-21208.pdf
119 **North Downs** www.countryside.gov.uk/Images/JCA119_tcm2-21553.pdf
120 **Wealden Greensand** www.countryside.gov.uk/Images/JCA120_tcm2-21552.pdf
121 **Low Weald** www.countryside.gov.uk/Images/JCA121_tcm2-21571.pdf
122 **High Weald** www.countryside.gov.uk/Images/JCA122_tcm2-21572.pdf
123 **Romney Marshes** www.countryside.gov.uk/Images/JCA123_tcm2-21573.pdf
124 **Pevensey Levels** www.countryside.gov.uk/Images/JCA124_tcm2-21631.pdf
125 **South Downs** www.countryside.gov.uk/Images/JCA125_tcm2-21629.pdf
126 **South Coast Plain** www.countryside.gov.uk/Images/JCA126_tcm2-21630.pdf
127 **Isle of Wight** www.countryside.gov.uk/Images/JCA127_tcm2-21660.pdf
128 **South Hampshire Lowlands** www.countryside.gov.uk/Images/JCA128_tcm2-21661.pdf
129 **Thames Basin Heaths** www.countryside.gov.uk/Images/JCA129_tcm2-21662.pdf
130 **Hampshire Downs** www.countryside.gov.uk/Images/JCA130%20-%20Hampshire%20Downs_tcm2-21209.pdf
131 **New Forest** www.countryside.gov.uk/Images/JCA131%20-%20New%20Forest_tcm2-21210.pdf
132 **Salisbury Plain and West Wiltshire Downs** www.countryside.gov.uk/Images/JCA132%20-%20Salisbury%20Plain%20and%20West%20Wiltshire%20Downs_tcm2-21211.pdf
133 **Blackmoor Vale and Vale of Wardour** www.countryside.gov.uk/Images/JCA133%20-%20Blackmoor%20Vale%20and%20Vale%20of%20Wardour_tcm2-21212.pdf
134 **Dorset Downs and Cranborne Chase** www.countryside.gov.uk/Images/JCA134%20-%20Dorset%20Downs%20and%20Cranborne%20Chase_tcm2-21213.pdf
135 **Dorset Heaths** www.countryside.gov.uk/Images/JCA135%20-%20Dorset%20Heaths_tcm2-21214.pdf
136 **South Purbeck** www.countryside.gov.uk/Images/JCA136%20-%20South%20Purbeck_tcm2-21215.pdf
137 **Isle of Portland** www.countryside.gov.uk/Images/JCA137+138%20-%20Isle%20of%20Portland%20%20+%20Weymouth%20Lowlands_tcm2-21216.pdf

138 **Weymouth Lowlands** www.countryside.gov.uk/Images/JCA137+138%20-%20Isle%20of%20Portland%20%20+%20Weymouth%20Lowlands_tcm2-21216.pdf
139 **Marshwood and Powerstock Vales** www.countryside.gov.uk/Images/JCA139%20-%20Marshwood%20and%20Powerstock%20Vales_tcm2-21217.pdf
140 **Yeovil Scarplands** www.countryside.gov.uk/Images/JCA140%20-%20Yeovil%20Scarplands_tcm2-21218.pdf
141 **Mendip Hills** www.countryside.gov.uk/Images/JCA141%20-%20Mendip%20Hills_tcm2-21219.pdf
142 **Somerset Levels and Moors** www.countryside.gov.uk/Images/JCA142+143%20-%20Somerset%20Levels%20and%20Moors%20+%20Mid%20Somerset%20Hills_tcm2-21220.pdf
143 **Mid Somerset Hills** www.countryside.gov.uk/Images/JCA142+143%20-%20Somerset%20Levels%20and%20Moors%20+%20Mid%20Somerset%20Hills_tcm2-21220.pdf
144 **Quantock Hills** www.countryside.gov.uk/Images/JCA144%20-%20Quantock%20Hills_tcm2-21221.pdf
145 **Exmoor** www.countryside.gov.uk/Images/JCA145%20-%20Exmoor_tcm2-21222.pdf
146 **Vale of Taunton and Quantock Fringe** www.countryside.gov.uk/Images/JCA146%20-%20Vale%20of%20Taunton%20and%20Quantock%20Fringes_tcm2-21223.pdf
147 **Blackdowns** www.countryside.gov.uk/Images/JCA147%20-%20Blackdowns_tcm2-21224.pdf
148 **Devon Redlands** www.countryside.gov.uk/Images/JCA148%20-%20Devon%20Redlands_tcm2-21225.pdf
149 **The Culm** www.countryside.gov.uk/Images/JCA149%20-%20The%20Culm_tcm2-21226.pdf
150 **Dartmoor** www.countryside.gov.uk/Images/JCA150%20-%20Dartmoor_tcm2-21227.pdf
151 **South Devon** www.countryside.gov.uk/Images/JCA151%20-%20South%20Devon_tcm2-21228.pdf
152 **Cornish Killas** www.countryside.gov.uk/Images/JCA152%20-%20Cornish%20Killas_tcm2-21229.pdf
153 **Bodmin Moor** www.countryside.gov.uk/Images/JCA153%20-%20Bodmin%20Moor_tcm2-21230.pdf
154 **Hensbarrow** www.countryside.gov.uk/Images/JCA154%20-%20Hensbarrow_tcm2-21231.pdf
155 **Carnmenellis** www.countryside.gov.uk/Images/JCA155%20-%20Carnmenellis_tcm2-21232.pd
156 **West Penwith** www.countryside.gov.uk/Images/JCA156%20-%20West%20Penwith_tcm2-21233.pdf
157 **The Lizard** www.countryside.gov.uk/Images/JCA157%20-%20The%20Lizard_tcm2-21234.pdf
158 **Scilly Isles** www.countryside.gov.uk/Images/JCA158%20-%20Isles%20of%20Scilly_tcm2-21235.pdf
159 **Lundy** www.countryside.gov.uk/Images/JCA159%20-%20Lundy_tcm2-21236.pdf