

HOUSE WASHES

Landscape Character Assessment





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Landscape character areas mapping at 1:25,000
 Note: this is provided as a separate document



'Fen islands' and roddons adjacent to the Ouse Washes



The pattern of arable fields, shelterbelts and dykes has a striking geometry



Reeds, wet meadows and wetlands at the Welney Wildlife Trust Reserve

Introduction

Context

Sets the scene

Objectives

Purpose of the study

Study area

Rationale for the Landscape Partnership area boundary

A unique archaeological landscape

Structure of the report



Introduction

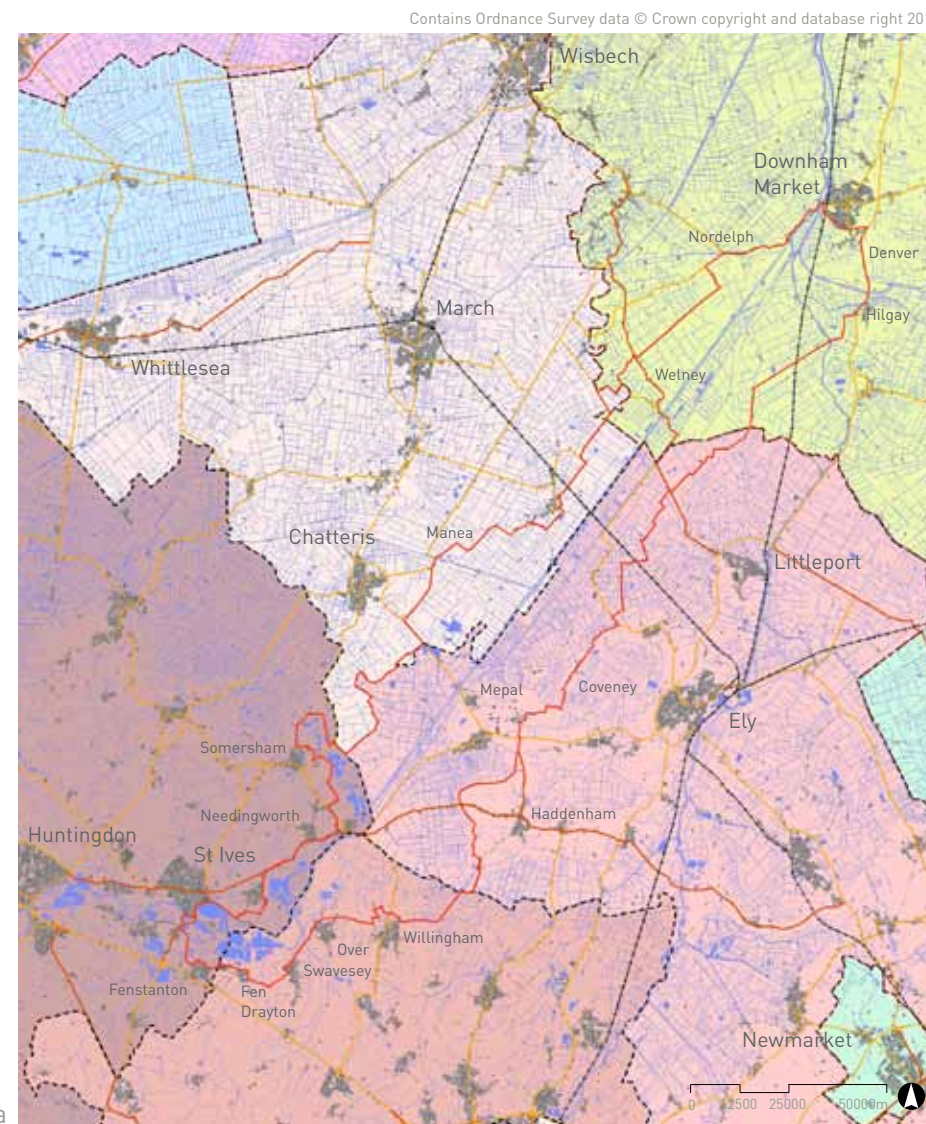
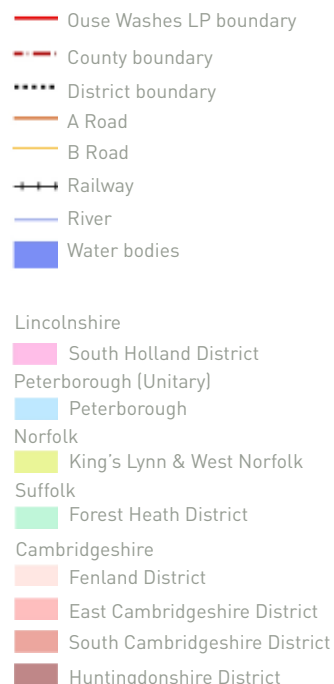
Context

This landscape character assessment (LCA) was commissioned in 2013 by Cambridgeshire ACRE as part of the suite of documents required for a Landscape Partnership (LP) Heritage Lottery Fund bid entitled 'Ouse Washes: The Heart of the Fens.' However, it is intended to be a stand-alone report which describes the distinctive character of this part of the Fen Basin that contains the Ouse Washes and supports the positive management of the area. The LCA has been prepared by Sheils Flynn.

Objectives

The twin objectives of the Ouse Washes Landscape Character Assessment are to:

- provide a technical assessment of the area by developing landscape typologies and descriptions, with guidelines for their future management, together with appropriate digital mapping.
- develop a public-facing narrative that tells the story of the landscape, defining landscape areas that make sense locally and with which people can associate. The intention is that this narrative will help improve people's understanding of the Ouse Washes, their connection to it, and thereby building their 'sense of place'.



Map 1
Ouse Washes LCA study area

Study area

The boundary of the LP area is shown on Map 1. It covers parts of Norfolk and Cambridgeshire and falls within five different local authority areas:

- Kings Lynn & West Norfolk (Norfolk);
- Fenland District Council (Cambridgeshire);
- South Cambridgeshire District Council (Cambridgeshire);
- Huntingdonshire (Cambridgeshire); and
- East Cambridgeshire (Cambridgeshire).

Each of these local authority areas has its own policies covering environment and planning issues and this LCA sets out to supplement and complement these existing formal decision-making frameworks. It draws on the existing LCAs within the area¹, re-interpreting the material to provide a tailored, local LCA which fits within the hierarchy of available landscape characterisation work.

The hinterland of the Ouse Washes can be defined by historic patterns of settlement and land use within the fen basin. The fen basin is part of a large clay vale extending from the Humber Estuary southwards along the Ancholme Valley into Cambridgeshire. This is an expansive and historically marshy landscape in which

settlement developed on 'islands' of higher land. The most productive arable fields were concentrated on the more elevated, relatively well-drained land surrounding the villages, with pasture on seasonally water-logged meadows. The marshy fenlands, which covered vast areas of the fen basin, were also an important resource, used for cutting peat, reeds and sedge and to provide a constant supply of wildfowl, fish and eels. The fen was treated as a common resource, used by all the surrounding settlements.

The Ouse Washes were created at the low-lying centre of the fen basin in what became known as the Bedford Levels. The washlands are a linear man-made feature which cut across the local landscape character areas that surround it. The historic relationship between the fen and its adjacent settlements was disrupted by the creation of the Ouse Washes, but the transect of historic land uses can still be traced in the landscape today through the grouping of field patterns and drainage dykes, the alignment of drove roads and the siting of farmsteads. It has informed the definition of local landscape character areas within the vicinity of the Ouse Washes.

There are no views to the Ouse Washes as the washlands are 'hidden' behind their enclosing embankments but there is still a sense of territory and a perceived association between

individual settlements and their surrounding areas of fenland (now arable fields) and outlying farmsteads.

The boundary of the Landscape Partnership Scheme (LP) area has been drawn with reference to this historic relationship between fen and settlement, which in turn responds to subtle variations in the topography of the land and the underlying soils of the fen basin. The 'area of search' for the LP area covers the land between the roads and villages that surround the Ouse Washes.

This area extends from Denver on the sandstone edge of the fen basin to the north, southwards to the broad vale of waterlogged fen and river gravels that developed where the River Ouse flowed into the fen basin to the south-west of St Ives. Its eastern and western limits are defined by the roads linking the villages on the 'Fen Isles' that developed on the fringe of higher land surrounding the low-lying marsh at the centre of the Bedford Levels which was the focus of the original 17th Century Ouse Washes drainage scheme. Together, these villages and the roads that link them, define the hinterland of the Ouse Washes. They act as the gateways to the washlands, controlling the approaches to the Ouse Washes and the way they are perceived by residents and visitors alike.

¹ See full list of LCAs with weblinks on page 41



Above - an example of preserved wood remains from a fenland context: eel trap from a Bronze Age paleoriver at Must Farm, Whittlesey

Below - a Late Bronze Age ditch and bank causeway used to cross the marsh (from Bradley Fen, Whittlesey). The bank, revetted in places, was constructed from material dug from the ditch, thrown over a brush wood core. Organic muds rapidly infilled the quarry ditch.

A unique archaeological landscape

The fen deposits are known for their preservation qualities and enable the survival of organic remains of ancient sites, such as wood, leather, plant and other palaeoenvironmental remains, skin, and secondary products such as textiles, woven reed or rush mats, structural timbers and hurdle walling of houses or structural timbers of more industrial usage, withies, basketry, fish traps, boats, leather objects ranging from sword scabbards to buckets and book covers. It has been estimated that dry land archaeological sites might preserve only about 10-15% of their inhabitants' material objects and the structural evidence of the buildings that they occupied. So 85 - 90% of evidence is usually lost through the gradual decay of archaeological sites. Organic remains can be preserved through waterlogging, full or partial charring, or benefitting from being contained within deposits from which air has been excluded (anaerobic conditions). They can also benefit from association with the corrosion products of metal objects, especially copper or copper alloy, such as bronze and tin².

In the Fens, high groundwater levels in some areas with deep peaty/humic soils may yet contain preserved remains of habitation sites, sacrificial or votive objects or evidence of industry and transport (fishing platforms, warehouses, docks, boats) where these have become waterlogged, usually at some depth below the ground surface. The exclusion of air from fine grained waterlain silts and clays that derived from various marine or freshwater flooding events may enable the preservation of organic remains of habitation sites - in anaerobic conditions. If such deposits are allowed to dry out, or be perforated by construction cuts, ploughing or new drainage, archaeological organic remains quickly decay and turn to dust or mineral-rich stains within their soil/deposits contexts. These are uninterpretable and the value of these important archaeological resources that had the ability to inform us of the people, past land uses and environments in Fenland is lost forever.

² Brunning, R and J. Watson. 2010. *Waterlogged Wood: guidelines on the recording, sampling, conservation and curation of waterlogged wood*. Swindon: English Heritage for further information

Structure of the report

Following this introduction, the report is subdivided into the following sections:

1. Evolution of the landscape

- i. **Physical influences** - an overview of the physical character of the fen basin, including its geology, topography and soils, and the formation of the characteristic peat fen;
- ii. **Human Influences** - the history of human settlement from post glacial times to the present day;
- iii. **Biodiversity** and the international importance of the Ouse Washes; and
- iv. **Landscape change**, including the management of flood risk and the exciting large scale fen restoration projects that are currently underway.

2. Landscape character

- i. **Overview** - how this study fits into the hierarchy of existing LCAs;
- ii. **Method** - how the LCA has been developed and a description of the specific landscape typology (landscape types and areas) that has been developed for the Ouse Washes LP area.
- iii. **The nine landscape character areas** - a description of each landscape character area, identifying key characteristics and describing the landscape features and patterns that contribute to local distinctiveness. These sections identify landscape elements and features that are particularly sensitive to change and provide guidance for directing landscape change so that it conserves and enhances distinctive landscape character.

Within the landscape character area descriptions, there are six case studies which tell the story of aspects of local heritage in more detail. Entitled 'Traces of history', these case studies cover:

- buried Bronze Age landscape at Over;
- the Fen Causeway;
- Roman saltworks;
- Willingham Mere;
- medieval waterways; and
- the Earith Bulwark - a Civil War fort.

Evolution of the landscape

Physical influences

Formation of the fens - topography, geology and geomorphology

Human influences

Evolving history of the land, from prehistory to the present day

Biodiversity

Important habitats and ecological designations

Landscape change

Flood risk management, fenland restoration initiatives and guidance for managing landscape change



Physical influences

The information in this section is based on evidence from the Historic Environment Record, the Fenland Survey and *Changing Landscapes: The Ancient Fenland*, John Coles and David Hall, 1998. References to archaeological sites and excavations are provided where possible.

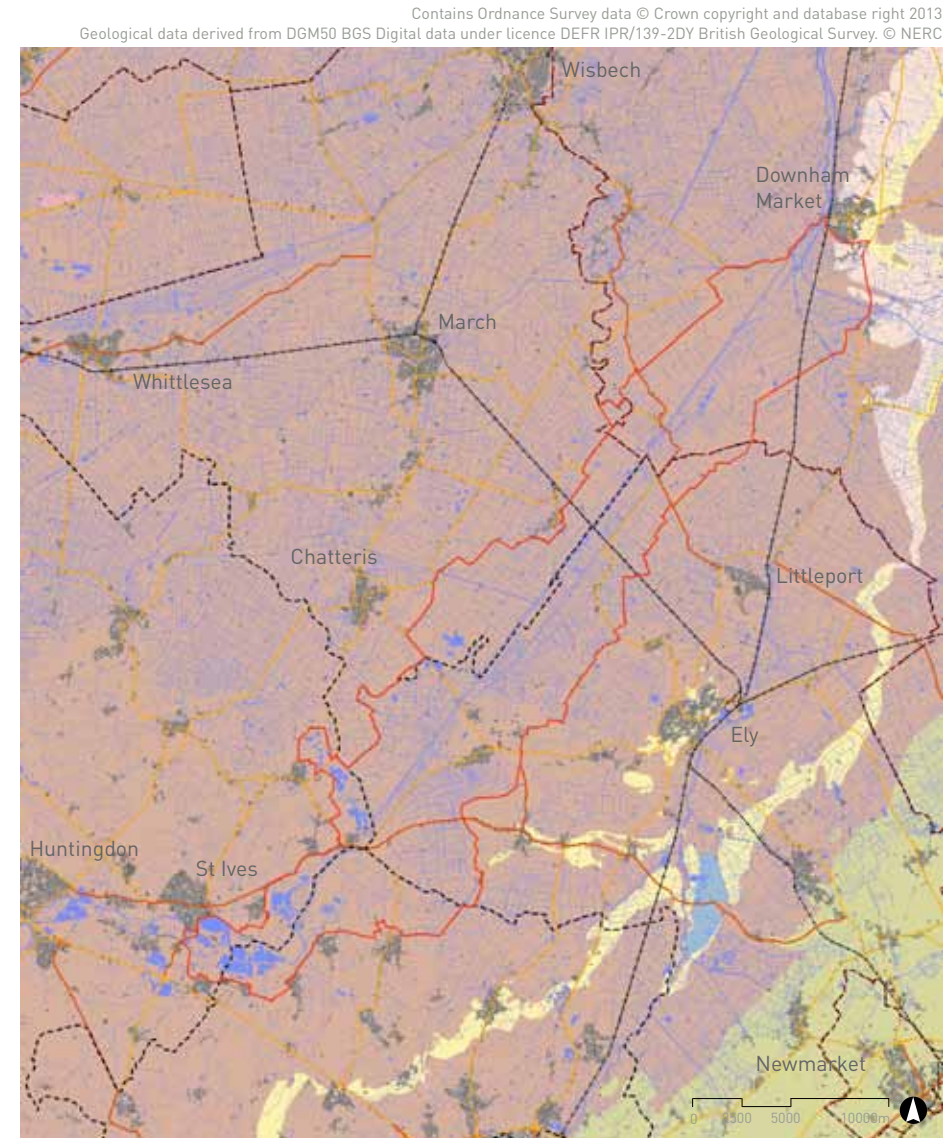
In geological terms, the fen basin is relatively recent. During the millennia before the end of the last Ice Age, when Britain was joined to the European continent, the area was a wide clay plain drained by tributaries of the River Rhine. As the glaciers melted, sea levels rose, Britain was severed from the continent and the fenlands were flooded, save for a few islands of higher land. The story of the present day fen begins at this point, with the ebb and flow of seawater counter-balanced by the erosion and deposition of inland rivers, which led to the infilling of the basin with deposits that derived from marine and freshwater environments.

Geology

The bedrock geology of the south-eastern part of the fen basin is underlain by Jurassic, Oxford, Ampthill and Kimmeridge Clays with some later areas of Cretaceous Gault Clays (Map 2), The chalk ridge (that extends across England from Dorset to Norfolk) to the south-east and an outcrop of sandstone to the north east at Downham Market define the eastern edge of the basin. However,

- Ouse Washes LP boundary
- · - · County boundary
- · · · · District boundary
- A Road
- B Road
- + — Railway
- River
- Water bodies

- Chalk
- Mudstone
- Mudstone and Siltstone
- Sand
- Sandstone
- Limestone



Map 2
Geology - Bedrock

Formation of the Fens

Diagrams based on maps illustrating the formation of the fen landscape in *Changing Landscapes: the Ancient Fenland*, John Coles and David Hall, Cambridgeshire County Council, 1998



Neolithic - c.2500 BC



Bronze Age - c.1800 BC



Iron Age - c.300 BC



Roman - c.200 AD

■ Silt
■ Peat

the character of the fen landscape is determined by its surface geology – the interlocking layers of marine clay, silt and peat that filled the Fen Basin over the centuries since the Ice Age.

The initial incursion of seawater killed the post-glacial forest that had covered the area, but the sea then retreated and the dead trees became buried in the residual swamp. This pattern was repeated again and again but was complicated by changing levels of land as the rivers deposited layers of sediment on the landward side of the basin which were then overtopped by blankets of marine silts left by seawater floods. Gradually peat developed from decaying plants in the shallower waters nearest to land. As the layers of decayed vegetation built up, reeds became established and further impeded water flow.

Eventually other plants could grow, including oak, pine and yew but these woodlands were submerged by subsequent floods of seawater and the resulting deposits of silt. During rapid development of the marsh in the Bronze Age the dead trees were once again buried in the peat and became partially fossilised. The huge, incredibly hard black tree trunks are all known as 'bog oaks' and are sometimes dug out from fields as the plough strikes them.

Marsh development and peat formation occurred periodically throughout the course of human occupation from the period of the first settlers

(Neolithic) during the later Bronze and Iron Ages, again in the late Roman period and throughout the Anglo Saxon and medieval periods. The sequence of diagrams shows how peat (inland) and marine silts (on the edge of The Wash) changed as the layers of peat deposits grew, encroaching on the silt to the north.

We think of the fen basin as a flat, low-lying area and while it certainly is that today, recent archaeological excavations and other research investigation of the fenland sequence of deposits have shown that it was once an undulating plain, where low hills and ridges formed topographic relief and where many rivers, peaty ponds and freshwater meres provided rich natural environments both for wildlife and the post-glacial settlers. This dryland landscape initially supported vast plains and areas of dense woodland with scrubby carr in wetter areas. But it was a dynamic landscape, where incursions into the basin from the sea resulted in the formation of salt marsh environments and tidal creeks, which rapidly infilled following marine incursions.

Over time, higher 'land' development in the basin meant that the rivers flowing into it from the Midlands became choked, forcing over-bank flooding of their silt loads and capping great expanses of the former salt marsh in their catchment. High ground water levels resulted in stagnant water ponding against silt bars and



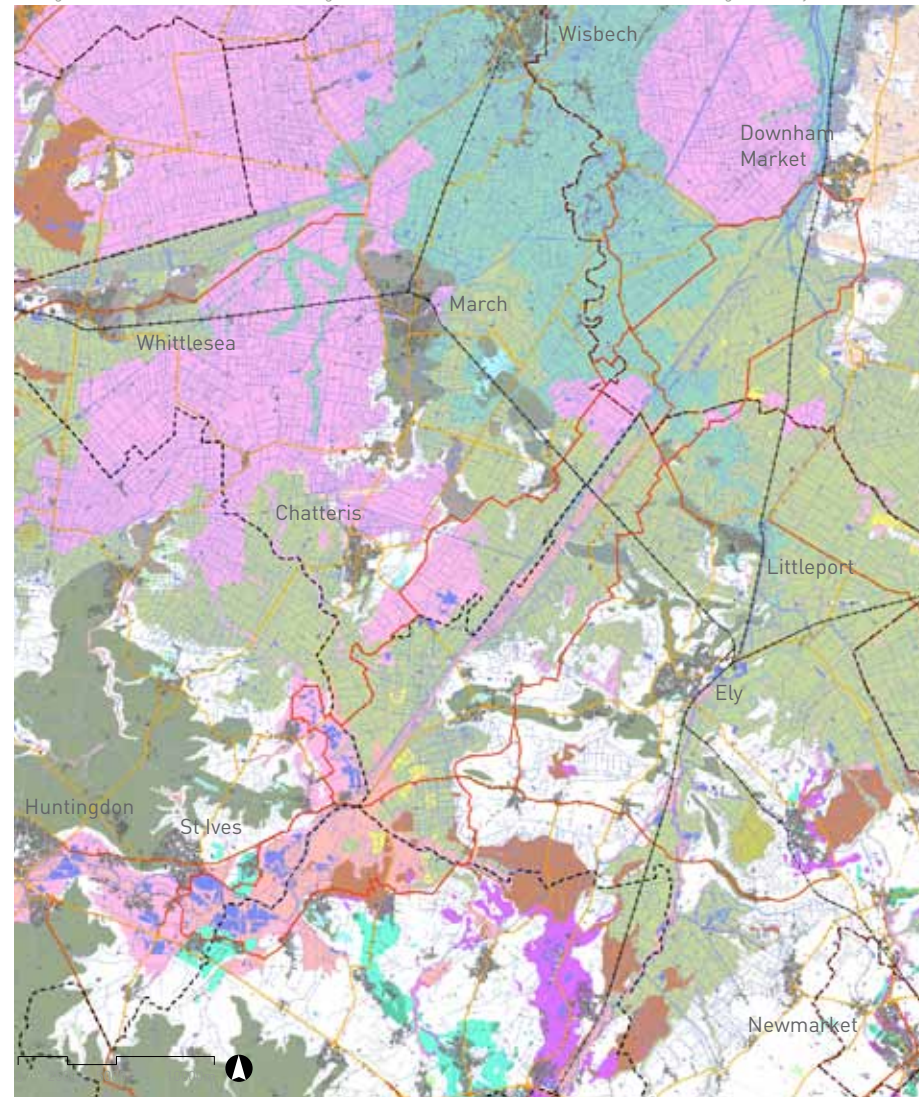
The Willingham Mere 'Digging Environment' project (Cambridge Archaeological Unit, RSPB and Hanson Aggregates) was a small-scale community based archaeological excavation through the deposits of this former fenland lake. It encouraged members of the public to participate in its investigation, receive expert tuition and learn about the area's palaeoenvironmental history with a variety of specialist researchers in pollen and plant remains; sediment deposition, and animal, bird and fishbone analysts (see also page 116).

vegetation barriers, leading to the formation of reed swamps and peat development. This depositional environment repeated many times to greater or lesser extent in different parts of the basin, not uniformly but with a very rough sequence of lower peat, marine clay, upper peat interleaved with a series of alluvial deposits, forms the short-hand description of the fen sequence. It is this history of salt and freshwater deposits that create the flatness of the landscape that we see today.

Map 3 shows the surface geology of the south east fen basin. The mosaic of silt, clay and peat deposits has been complicated by the mixing and sorting effects of the rivers which meandered across the lowlands. The present day artificial drainage system is quite different, but the remnant meanders of the earlier tidal river systems and creeks are preserved as sinuous ridges of silt and sand known as 'roddons'. The paths of these ancient water courses still show up on aerial photographs and the roddons long provided a stable foundation for siting roads and buildings.

The former course of the Great Ouse (known as the 'Old Croft River') is clearly discernible on the surface geology map as it meanders between Littleport, Welney and Tipps End. This channel formerly collected all the waters of the south-eastern fen basin, the longest tributary of which was the River Cam. The combination of deep

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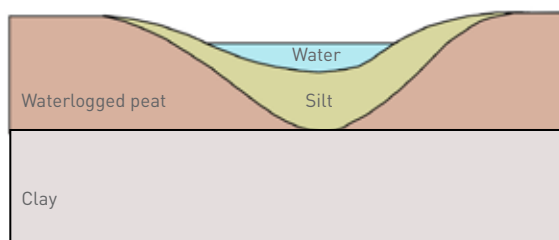
- Ouse Washes LP boundary
 - - - County boundary
 - District boundary
 - A Road
 - B Road
 - +— Railway
 - River
 - Water bodies
-
- Abbey Sand and Gravel
 - Alluvium
 - Glaciofluvial Deposits
 - Head
 - Lacustrine Deposits
 - Lowestoft Formation
 - March Gravels Member
 - Peat
 - River Terrace Deposits 1
 - River Terrace Deposits 1-2
 - River Terrace Deposits, 2
 - River Terrace Deposits 3
 - River Terrace Deposits 4
 - Shell Marl
 - Tidal Flat Deposits
 - Tidal Flat Deposits 1
 - Tidal River/Creek Deposits
 - Till, Mid Pleistocene

Map 3
 Geology - Superficial

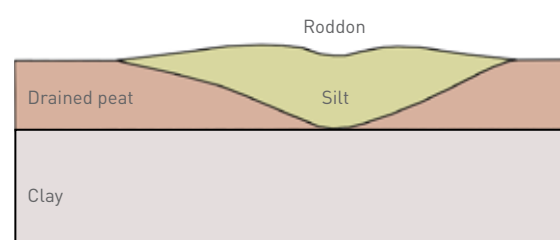
Sheils Flynn Google Licence - JCPMB8T1Z8S2M11



Before peat shrinkage



After peat shrinkage



Arable farmland near Littleport - the dendritic pattern of ancient watercourses, known as 'roddons', is visible in aerial photographs

Formation of a roddon - from a river channel which fills with silt deposits, to a low ridge which emerges when the surrounding peat is eroded

layers of peat and silt crossed by large sluggish rivers created a vast watery landscape of marsh, bog, wide rivers and open meres. Settlement gradually retreated to the higher ground of the fen 'islands' and to the resource-rich edges of the fen basin.

Map 4 is an image from a digital terrain model which shows the topography of the south east fens. The largest island is the Isle of Ely, but there are many smaller islands and promontories. Comparison between Maps 3 and 4 reveals that the Fen Isles are often capped by Boulder Clay left by the Ice Age glaciers so villages sited on the Fen Isles were supported by pockets of agricultural land with very different soils to those of the fen.

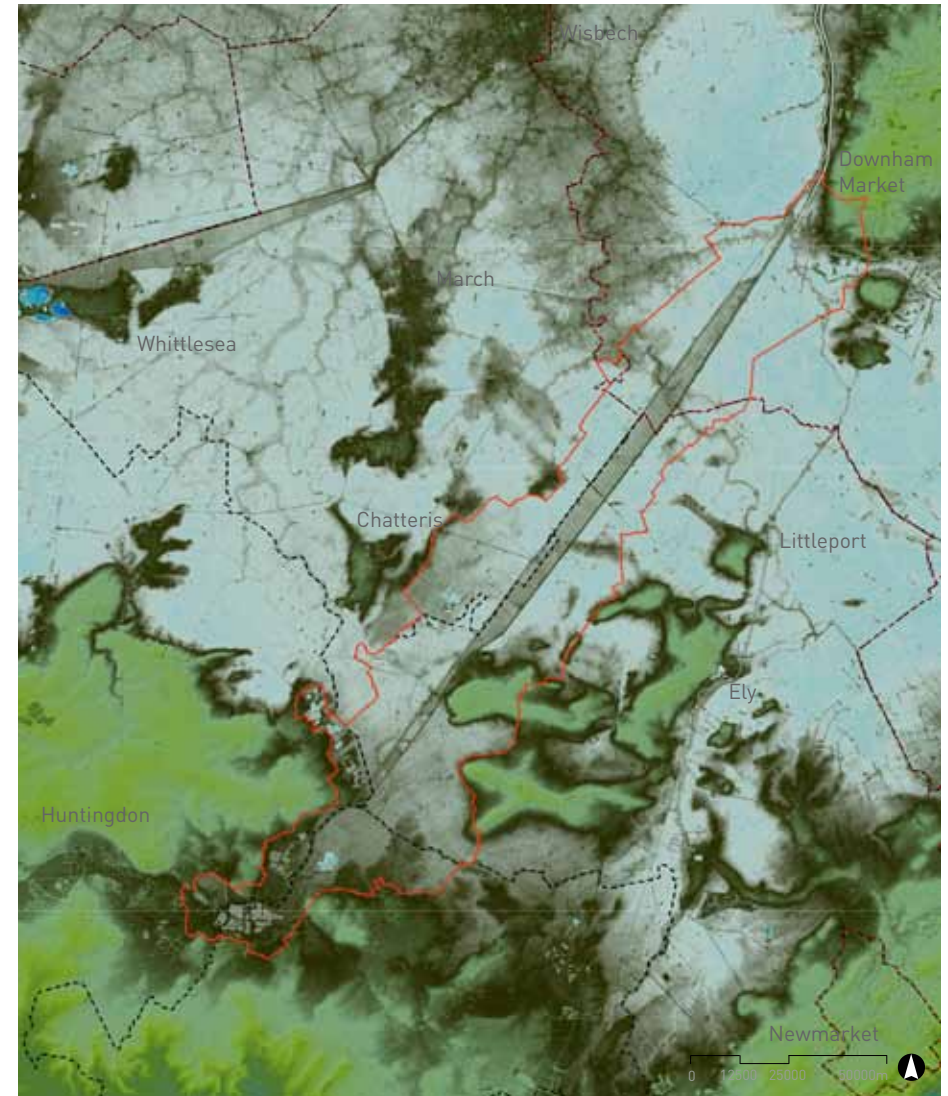
The balance of peat and silt changed again with the drainage of the fens from the 17th century onwards. As peat is drained it dries



- Ouse Washes LP boundary
- - - County boundary
- - - - District boundary
- A Road
- B Road

Map 4
Topography

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Terrain Map © Cambridgeshire County Council



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- | | |
|--------------------------------------------------------------|-----------------------------------------------|
| 0342d - extreme calcareous rendzina | — Ouse Washes LP boundary |
| 0343g - calcareous rendzina | - - - County boundary |
| 0346 - humic gley rendzina | District boundary |
| 0372 - gleyic rendzina-like alluvial soils | — A Road |
| 0411c - slowly permeable deep clay & fine loam | — B Road |
| 0411d - typical calcareous pelosols | — Railway |
| 0511a - calcareous fine loam over limestone | — River |
| 0511e - brown calcareous soil | — Water bodies |
| 0512f - calcareous fine silty soils | |
| 0513 - fine loamy & clayey soils | |
| 0521 - sandy with calcareous subsurface | |
| 0541a - fine loamy deep sandy soils | |
| 0551e - deep sandy, often ferruginous soils | 0861b - Typical humic-sandy gley soils |
| 0551g - deep sandy soils | 0872a - Calcareous humic gley soils |
| 0555 - sandy and coarse loamy soils | 0872b - seasonally wet peat to loam over clay |
| 0571k - clay enriched brown earths | 0873 - seasonally wet peat to loam over sandy |
| 0571s - deep loam over gravel | 0961 - restored calcareous loam over clay |
| 0571u - deep loam over gravel, locally calcareous | 1022a - Drained well structured peat soils |
| 0572h - clay enriched brown earths - fine loam over clay | 1022b - deep peat soils, in part very acid |
| 0572n - deep loam (mix of coarse and fine) | 1024b - Earthy eutro-amorphous peat soils |
| 0572q - deep red loam to clay | |
| 0573a - deep fine loams - some groundwater effects | |
| 0711f - clay enriched brown earths | |
| 0712b - seasonally wet deep clay | |
| 0812b - seasonally wet deep silty (coarse) | |
| 0812c - seasonally wet deep silty (fine-coarse) | |
| 0813a - seasonally wet deep clay over peat (river alluvium) | |
| 0813b - seasonally wet deep clay (over river alluvium) | |
| 0813g - seasonally wet deep clay (over marine alluvium) | |
| 0813h - seasonally wet deep clay over peat (marine alluvium) | |
| 0815 - seasonally wet deep clay (often acid layer) | |
| 0821b - permeable sandy & coarse loamy soils | |
| 0841d - seasonally wet deep loam over sandy soils | |
| 0851a - seasonally wet deep clay, calcareous in places | |

Map 5
Soils





out and shrinks causing the land to subside. In some areas this process has led to a lowering of the land surface by 5-6m! The situation is exacerbated by the fact that the desiccated peat can easily be blown by the wind in a 'fen blow'. Map 3 shows that there is relatively little peat remaining today, although areas of deep peat remain in the deepest parts of the basin - such as at Holme Fen.

The soil map of the area (Map 5) shows that the low-lying 'peat fen' has a complex mosaic of seasonally wet deep clay and silty soils over peat, with pockets of peat near Fordham Fen, Downham Hythe and Haddenham's Lower Delphs. Much of the Ouse Washes study areas is underlain by amorphous peat soils. The Fen Isles are a mix of clay till, deep clay and chalky till. On the southern fringes of the fen basin, the mosaic of soils includes deep loams over the river terrace gravels of the Ouse Valley; the wide valley floor of the Ouse Valley to the south of St Ives is formed of river alluvium over peat.

As a result of intensive drainage and the erosion of the peat, the rivers that cross the fens are perched high above the level of the surrounding farmland and enclosed by steep embankments. The fen today is an artificial landscape, with water levels carefully controlled to manage the risk of flooding and to conserve some of the most productive farmland in the country.



Behind the banks the water within the New Bedford River is perched above the level of the surrounding land. The embankments form the skyline in local views

Physical influences - summary



Bedrock geology
(Map 2 p.10)

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Superficial geology
(Map 3 p.13)

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Topography
(Map 4 p.15)

Terrain Map copyright of Cambridgeshire County Council,



Soils
(Map 5 p.16)

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Human influences

Early settlers

Mesolithic ('Middle Stone Age' c.8300 – 4000 BC)

The shifting layers of peat and silt in the Fen Basin have long buried early occupation sites, but traces are exposed, where occupation sites were located on higher ground that has become exposed, or through deep investigation opportunities in quarries. Finds of flint tools and stone axes from the hunter gatherers have occasionally been found close to former water courses, although they favoured the lighter soils of sand bars and sandy hillocks. The location of the finds, including an encampment at Sutton Gault and flint scatter sites at Eye Hill Farm, Soham and on small islets in Woodwalton fen indicate their location in shallow parts of the fen basin, while other task sites and encampments were found on sand bars buried beneath 5-6m of fen deposits, such as at Shippea Hill near Littleport and at Hockwold, Feltwell and Methwold in Norfolk. Occupation sites located on low ridges of infilled glacial rivers are known from excavations in sand and gravel quarries at Sutton Gault and Over, or at the early fen edge when the basin first started to become flooded, as at Foulmire Fen.

Between 9000-6000 BC, the fens were densely forested and the hunter gatherers would have

killed deer, boar, aurochs (wild cattle) and birds. There is evidence that fire was used to clear areas of forest in order to encourage pasture to attract grazing deer and elk.

Neolithic ('New Stone Age' c. 3500 – 2100 BC)

The first settled farming communities had developed during this period. By 2500 BC, peat was forming in the river channels and backwaters, but the silts and clays of the wider fen basin and the numerous rivers and meres would have been a productive environment. Concentrations of flint scatters ploughed up from near-surface locations of early prehistoric settlements and funerary monuments are known in abundance from the gravel terraces of the River Great Ouse in the southern part of the study area, such as around the old Fen Drayton gravel pits where they were also excavated in advance of quarrying, on the lower edges of the islands, such as at Manea, and on the islets and ridges of the Old Croft River where settlement may have been seasonal.

Surviving earthworks are rare although some scheduled remains are known at Horsely Fen in the eastern part of Chatteris parish. A 50m long early Neolithic long barrow (burial monument) with a preserved organic mortuary structure was excavated in the Upper Delphs at Haddenham in



Charred wooden remains of a Collared urn phase (1800-1600 BC) cremation funeral pyre from The Low Grounds Barrow Group within the Over Narrows site at Needingworth Quarry

association with a large causewayed enclosure, its interrupted ditch circuit enclosing 8.75ha of land. Such monuments indicate the investment of these early communities in their landscape, and a strong sense of association with it.

Later settlement evidence denoted by pit clusters, postholes and utilised land surfaces full of flint tools, knapping waste, diagnostic Grooved Ware pottery and animal bones, particularly those excavated on either side of the river at the Needingworth quarry sites of Barleycroft Farm and Over, suggests that the location of these ceremonial, funerary and settlement sites in and above the complex floodplain of the braided palaeoriver system of the Great Ouse was particularly favoured by the Neolithic communities who also constructed small henges (circular ceremonial ditched enclosures with external banks) above the floodplain.

Elsewhere in the Ouse Washes, where these early sites are covered by blanketing fen deposits far less is known, although artefacts recovered by dyke slodgers and ditch diggers of the 19th and early 20th centuries are recorded sporadically throughout the area. At Apes Hall, Neolithic sites are buried by 4-5m of fen deposits.

Bronze Age and Iron Age (c.2000 BC – AD43)

By 1800 BC layers of peat had encroached across the whole of the south east fen basin and settlement would have been limited to the higher land of the emerging fen islands and fen edge promontories. Clusters of Bronze Age burial mounds, ring ditches, post alignments and enclosures at the fen edge near Over and Willingham, at Honey Hill, Chatteris and on the fen islands near Haddenham suggest significant settlements which were the centre for ceremonial activities.

Evidence from a range of sites demonstrates that settlements were associated with enclosures and droeways with areas for holding and grazing livestock. By this time the woodland had been cleared, farming was concentrated on the higher, drier land near settlements and the peat fen was a mosaic of marsh and water meadows. The fen edge communities would have had access to a very wide range of resources from wetlands to woodland, pasture and farmland. However, the peat fen was actively encroaching on the drier land throughout this period, choking the rivers and infilling their floodplains, and archaeological evidence of ritual offerings and sacrifice suggests that Bronze Age communities treated the expanding wetlands with fear and respect.



Wood, animal and human remains in an Iron Age settlement enclosure ditch at Barleycroft Plant Site, Needingworth Quarry.

By about 1000 BC the waterlogging of the basin was complete and the higher land forms became islands in a surrounding marsh - such as Chatteris, Stonea and Manea. Dyke cleaning and small excavations have shown that many wooden trackways were built at this time, and hoards of bronze weapons, tools, decorated fittings and other objects were buried in the marsh (eg the Wilburton and Isleham hoards) - a practice that continued well into the Iron Age period.

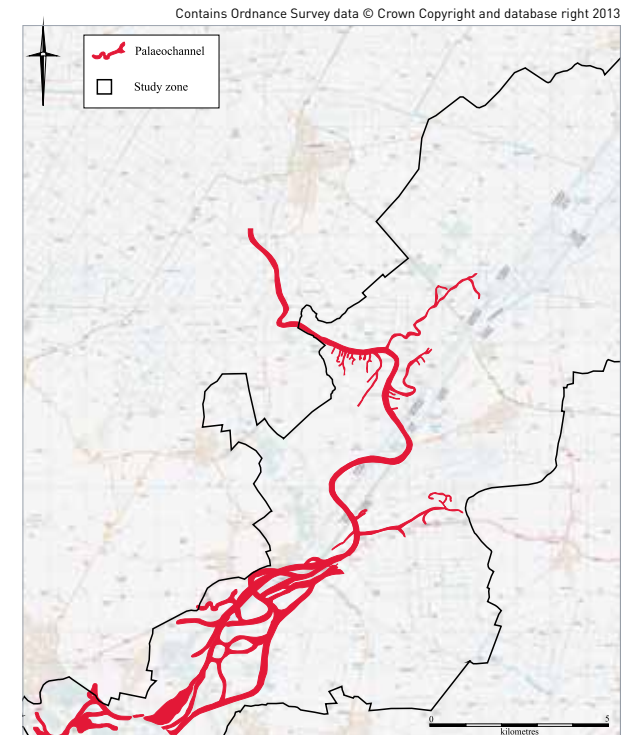
Excavations of large mounds of burnt flint and charcoal, for instance at Wardy Hill and Sutton Gault, indicate industrial processes involving the heating of water and stone though little evidence as to what such processes might be. At Feltwell Anchor, the burnt stone mounds contained preserved wooden troughs, and were later used as burial mounds for interments, whereas animal bone and pottery found in the mounds at Northwold suggested cooking/food preparation was taking place. Whether the mounds were also used to create steam for the bending of wood and antler, or as steam baths for purification rituals is not yet known, as such activities leave little or no traces.

By 300 BC, peat had engulfed the low-lying lands and the ridges of higher land near Chatteris and Ely had become islands in the fen. Low-lying buildings and pastures would have become waterlogged and abandoned - as at the quarry

sites at Meadow Lane, St. Ives, Colne Fen and Knobbs Farm, Somersham - all subsequently submerged by peat. Formerly unenclosed early Iron Age settlements gradually became enclosed - in part to prevent against rising flood waters, but over time their forms also became decidedly more defensive in character, fitted with complex entrance routes and dead-ends. Other settlements concentrated on higher fen islands as at the Hurst Lane reservoir site to the west of Ely.

During the Iron Age technological advances greatly increased the repertoire of metal items, including the production of plough shares. These could be used effectively on the heavy clay soils of the fen islands, while wooden spades fitted with iron shoes could make lighter work of ditch digging. The excavations of a small 'hillfort' or ring work, surrounded by a series of ditches at Wardy Hill suggest a well defended settlement, with high rampart banks beside the ditches surrounding at least four circular huts. Pottery evidence suggests that the people who lived here were engaged in trade with other communities.

A large circular earthwork on the southern edge of the fen at Belsar's Hill, Willingham, may have been a regional centre, while another late pre-Roman Iron Age large D-shaped enclosure at Stonea Camp to the east of March is believed to have been a defended stronghold of the Iceni



The remnant paleochannel of the River Ouse, which would have flowed across the fen basin towards the Wash. The braided water course and associated wet, marshy conditions would have persisted until medieval times, when the first attempts at drainage began.

From Twice Crossed River: prehistoric and paleoenvironmental investigations at Barleycroft Farm, Over, Cambridgeshire.

The Archaeology of the Lower Ouse Valley, Vol III, Christopher Evans et al, forthcoming 2014

tribe. This was certainly the site of a considerable fight as evidence of human remains (including a sword slashed child's skull) in the deep defensive ditches attests, possibly the fight recorded by Tacitus of Publius Ostorius Scapula's battle with the Iceni in the mid 1st century AD.

Romans (AD 43 – AD 410)

The water table was lower during the Roman period and a wider range of dry land was available for settlement than in the preceding centuries. A proliferation of Roman rural settlements with extensive field systems is known from across the area, on island crests and at the fen edges, but important stone buildings at the second century AD Roman town of Stonea Grange (to the north west of Chatteris, north of Stonea Camp) and Langwood Fen may have been centres for regional administration and/or trade. At Haddenham, a Romano-Celtic shrine was incorporated within a site of a Bronze Age barrow, suggesting continuity of ritual and ceremonial use. This, together with another shrine identified near Willingham, may have served the cluster of Roman sites on the gravel terraces near Over. The southern fen edge gravel terraces contain myriad Roman settlements, served by a complex network of new roads - such as the villa sites at Fen Drayton and Rectory Farm, Godmanchester.

Salt-making sites dating from the Iron Age

period have been found on silt-based soils along the fen edge, including at Denver and in profusion along the course of the Old Croft River. Brackish water from nearby creeks was brought in via feeder channels to a central clay-lined pit used as a settling tank. A boiling hearth nearby was fuelled by peat and the water was heated on clay evaporation trays supported by small brick columns.

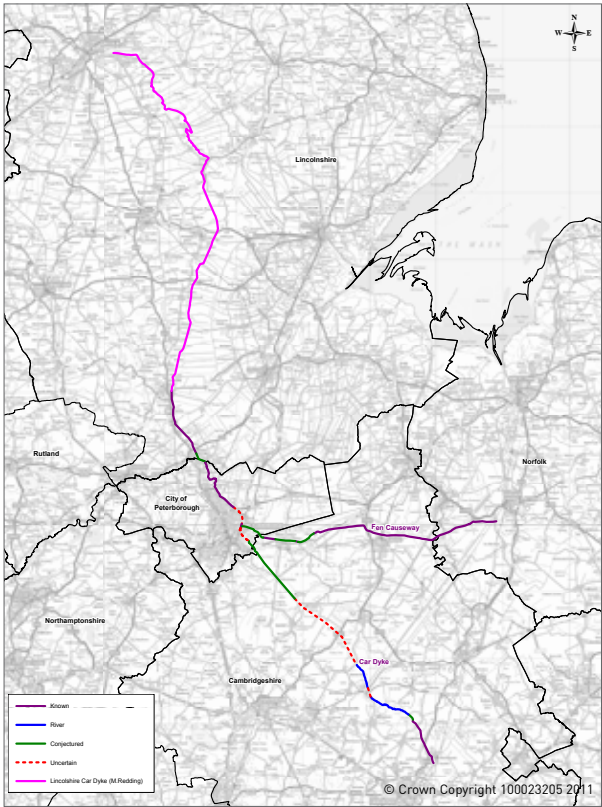
Salt production was a key Fenland industry and salt was traded widely for use in the preservation of a variety of foodstuffs. The intensification in agriculture to supply the demands of the military garrisons across the country saw the expansion of field systems and stock enclosures across the dryland areas, particularly around the fertile margins of the fen basin. How to cross the marshland was a principal concern of the new Governors of Roman Britain after the conquest in the mid 1st century AD.

The Fen Causeway was one such solution. Crossing the fen between Denver and March, it originated as a canal but was converted to an embanked road after the canal was prone to siltation. From March it continued westwards to the fen edge at Peterborough, hopping across islands, islets and roddons with its course. The Romans also constructed the Car Dyke, a canal system between the River Cam at Waterbeach and the River Witham at Lincoln. This canal

utilised existing natural water courses and linked these with specially constructed lengths of canal, forcing the portage of goods at key locations as it changed elevation.

In the study area the Car Dyke forms part of the Old West River between Roman settlements at Bullock's Haste in Cottenham's Smithy Fen and the Upper Delphs at Haddenham, where it is buried as a palaeochannel beneath fen deposits. Between the Bedford Rivers its course followed the path of the present-day Cranbrook Drain, which continues north-west, skirting the Colne Fen gravel pits, north of Earith, on their eastern side. Here an extensive major Roman centre was established supplanting the Iron Age settlements that preceded it. This was an inland port³ trading in marine and freshwater fish, pottery and agricultural produce, and had an associated settlement with an internal road system and shrines.

³ Evans, C., G. Appleby, S. Lucy and R. Regan. 2013. Process and History. Romano-British Communities at Colne Fen, Earith: An Inland Port and Supply Farm, Cambridge Archaeological Unit: CAU Landscape Archives The Archaeology of the Lower Ouse Valley, Vol 2.



Car Dyke and Fen Causeway Routes
 The Roman Car Dyke and Fen Causeway routes provided strategic connections at a national scale. Map prepared by Cambridgeshire County Council



The route of the Roman Fen Causeway is visible on the digital terrain model as a band of silt running broadly east-west across the fen between March and Denver

- Study area (LP) boundary
- - - County boundary



Now a footpath, the Aldreth Causeway was one of the principal connections across the fen between the Isle of Ely and the higher land on the fen edge to the south

Middle Ages

Anglo Saxon (AD c. 410 – 1066)

For the early Anglo Saxon period, water tables remained relatively stable, but by 700 AD conditions had become much wetter, with flooding from both the sea and by inland waters. The south east part of the fen basin was engulfed by peat and the topography of the area began to resemble its current levels, but with areas of low lying peat fen submerged within a morass of marsh, bog, mud and mere.

Early Saxon settlements often developed on or nearby abandoned Roman sites, but settlement generally expanded across the fen islands and on the fen edge gravels. Construction of the Sea Bank around the Wash during the Late Saxon period would have helped to prevent sea flooding and there is evidence that other river embankments and diversions may also have been implemented at this time.

Medieval (AD 1066 – 1550)

The fen islands attracted reclusive Christian hermits, some of whom established religious cells which grew to become important monasteries. Monasteries were centres of learning and they acquired vast tracts of land out of piety and in return for praying for the souls and educating the children of land owning families. They established fisheries, implemented simple local drainage schemes and organised grazing on summer pastures which were accessed by drove roads. The Anglo Saxon monastery at Ely developed as a regional centre which owned almost the whole of the south east fen. Medieval settlements were surrounded by open fields which were cultivated as strips. The strips were grouped into blocks called furlongs, each bounded by long soil banks which sometimes survive within the present day arable fields. On areas of silt (such as the Old Croft River) there was a denser pattern of enclosure following the meander of the roddon.

Medieval fen edge and fen island villages exploited a range of different types of soil including the fen, which was used for peat, wood and rushes (for fuel), sedge (for thatch) and grazing for livestock, as well as fish and wildfowl. The fenland meres, including Soham and Willingham, were an important part of the medieval economy and were mostly controlled by the monasteries and abbeys, although local landlords also held rights over fishing, fowling and sedge cutting. Other areas were reserved for common use. The fens fringing the higher ground were treated as common land, but access to its rich variety of wetland resources was strictly controlled by manorial law. The area was poor and people relied on access to the

common fens to support a marginal existence. Village land holdings were typically controlled by the manorial lord and tenants were obliged to pay dues and undertake specific works for the lord in return for the right to work the land. Such works might include maintenance works on the dykes, lodes and causeways.

The process of diverting and embanking rivers and brooks continued in a piecemeal fashion, in order to protect and improve summer grazing. For instance, a 12km channel was cut from March to the Old Croft River to divert the waters of the River Ouse and improve the drainage of the siltlands to the north.

Hayward's 1604 map (opposite) shows the historic alignment of the West Water (indicated by the black arrow on the historic map), which flowed north west from Earith towards Ramsey, but it also shows that waters from the Ouse/West Water had been diverted eastwards to serve Ely by the date of this map, possibly during the 12th century. In the late 13th century a major cut was made between the River Ouse at Littleport and the Wash at King's Lynn, but these works caused excessive silting along the original course of the river and at the important port of Wisbech. Away from the main rivers, a complex network of dykes and lodes provided a functional network of waterways for trade and communication between villages.



"An Exact Copy of A Plan of the Fens as it was taken Anno 1604 by William Hayward, carefully copy'd from ye Original". Plan of the Great level of the Fens, showing the pre-drainage water courses. Scale 1" to 1 mile. Not the original, but a 1727 copy by Payler-Smith. The original is not known to survive. Hand drawn on linen-backed paper. The black arrow indicates the alignment of the historic West Water. Ref. R59/31/40/1. Reproduced by kind permission of Cambridgeshire Archives.

North to right on this map

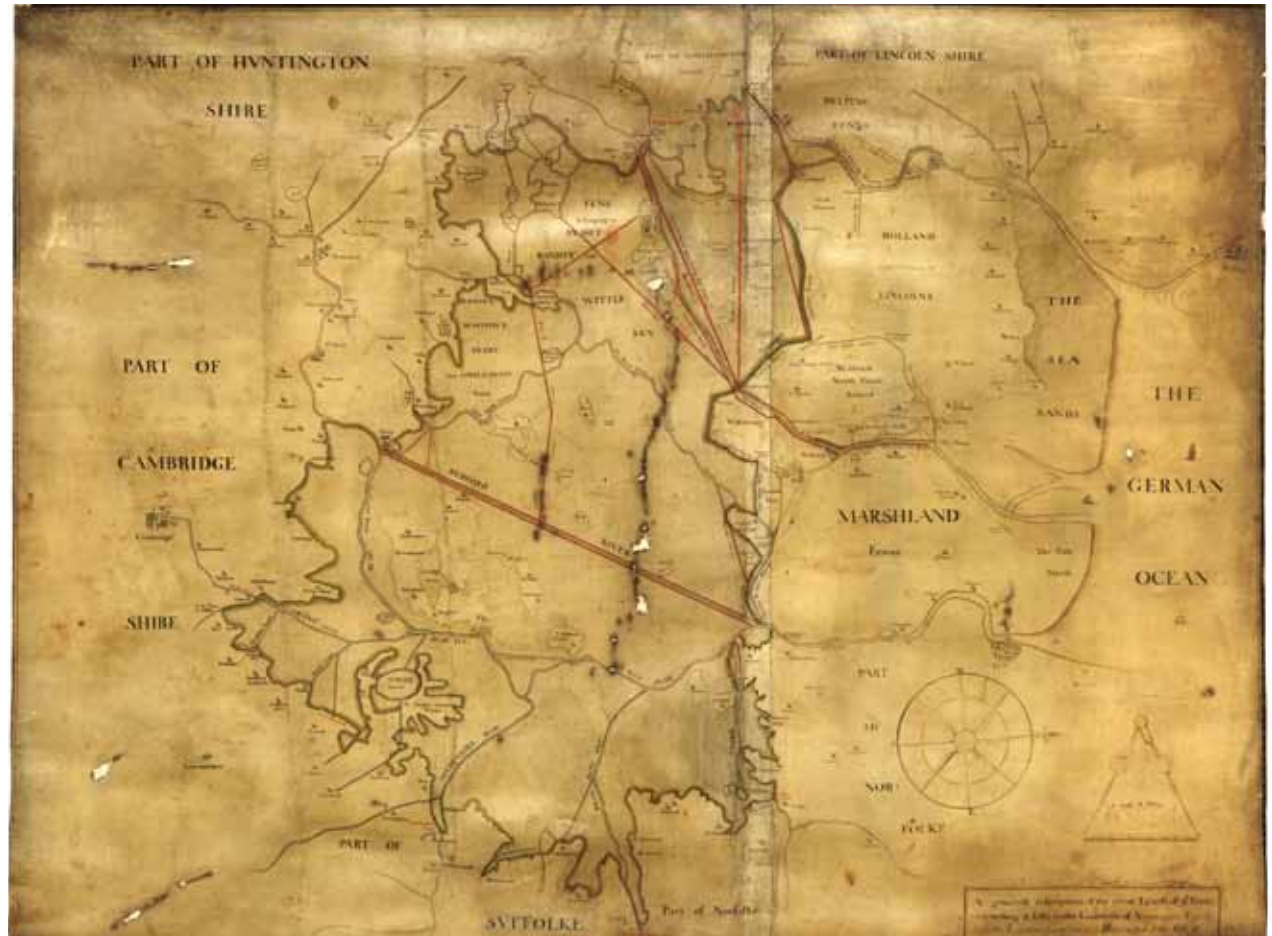
Post medieval to present day

Early drainage schemes

Despite the drainage efforts of the Anglo Saxon and medieval engineers, the waterlogged peat fen was subject to a series of disastrous floods. The monastic landowners provided a degree of coordination and communal effort but, with the dissolution of the monasteries in 1539, landownership became more fragmented and the maintenance of drainage works and causeways was often neglected. New landowners attempted local drainage schemes, enclosing common fen to increase their profits, and arousing significant local opposition amongst those who lost their rights to fishing, wildfowling and peat and sedge cutting. That, and the difficulty of raising the necessary capital, vitiated the wider drainage schemes proposed following major flooding in the 1570s.

The first drainage scheme (1631-1636)

A visionary scheme was developed in the early 17th to create an agricultural plain from the watery marsh of the fen by diverting the waters of the Ouse, where they left the higher land and entered the fen, into a shorter route to the sea. At the heart of the scheme was a straight cut, 21 miles long, from Earith to Salters Lode on the Ouse in Denver parish. Only after the apparent success of the scheme undertaken by Cornelius



"A generall description of the great Levell of ye Fenns extending it selfe in the Countyes of Northampton, Norfolke, Suffolke, Lincolne, Cambridge and Huntingdon & the Isle of Ely with severall works described thereupon for draining thereof." By Jonas Moore. Plan of the Bedford Level, showing drainage works created before 1650. Scale 1" to 1¼ miles. Hand drawn on linen-backed paper. Not the original, but probably a 1727 copy by Payler-Smith.

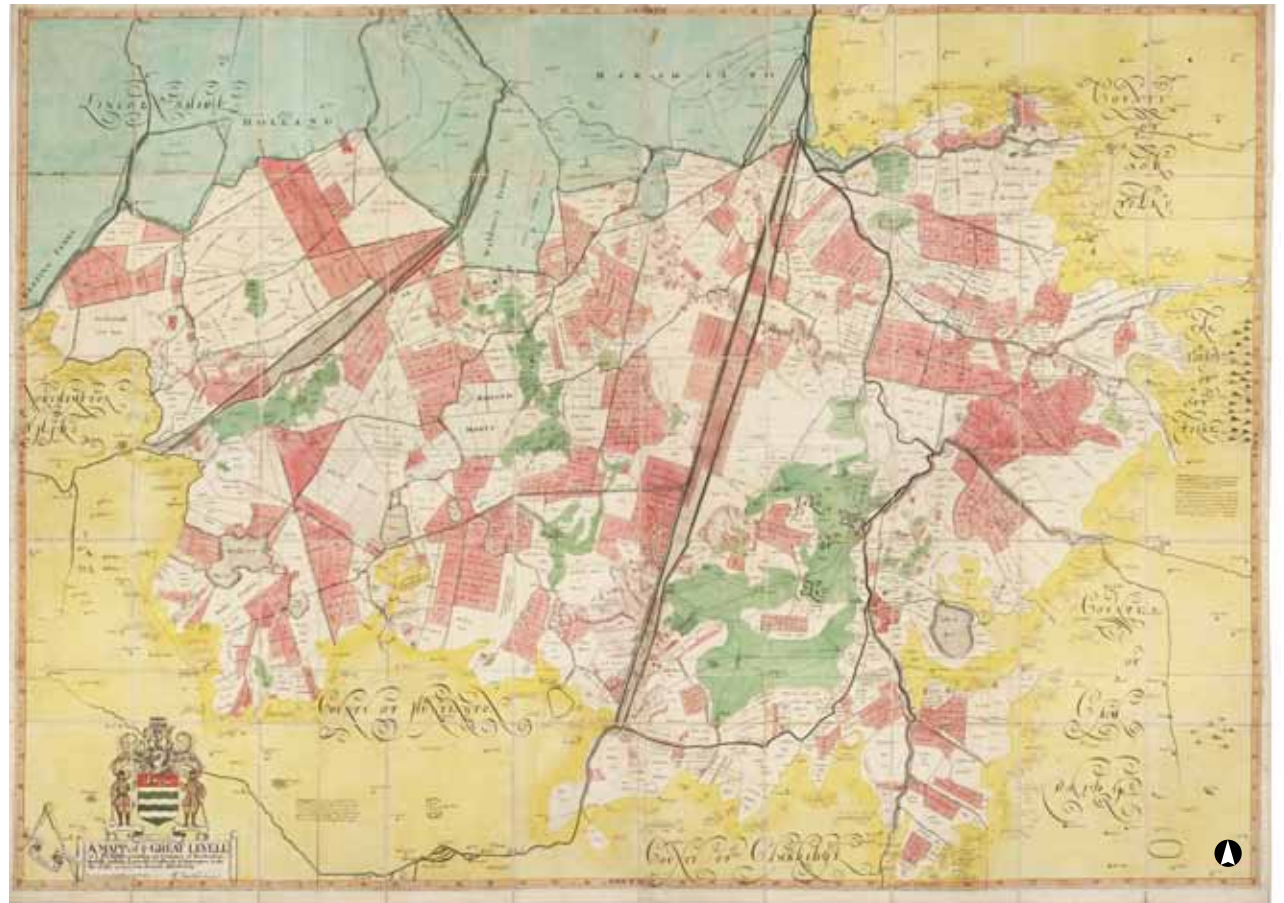
Ref. R59/31/40/3. Reproduced by kind permission of Cambridgeshire Archives.

North to right on this map.

Vermuyden for James I at Hatfield Chase in Yorkshire, did the larger scheme for the whole of the Great Fen seem realistically possible. In late 1630, Francis, 4th Earl of Bedford agreed to assume the role of 'undertaker' and in February 1632 a group of mainly English investors reached formal agreement for the work, and the head of the 'Bedford River' (afterwards the 'Old Bedford River') was set out. In 1634 the 'participants' received a charter of incorporation, and by 1636 the work was formally adjudged complete. However, disagreement as to the extent of drainage intended to be achieved (the agreement permitted winter flooding), and the incapacity of the new cut to take the whole Ouse flow, led to dispute and a realisation that further work was necessary.

The second drainage scheme (1649-1656)

In 1638 Charles I declared himself undertaker and appointed Vermuyden to improve the scheme, but political difficulties made progress impossible, and only after the Civil War and Charles' death was work able to recommence, with a revival of the partnership of participants and 'adventurers' (those who joined the investment scheme, injecting the necessary capital in return for lands). This time agreement was eventually reached with Vermuyden, who had some seven years earlier published a plan based on wide 'wash lands' to hold winter floods. He divided the scheme into three areas, north



"A Mapp of ye Great Levell of ye Fenns extending into ye countyes of Northampton, Norfolk, Suffolke, Lyncolne, Cambridge and Huntingdon and the Isle of Ely as it is now drained.' By Jonas Moore. Plan of the Bedford Level showing the principal drainage channels built by the Bedford Corporation and the location of Adventurers' land. Scale 2" to 1 mile. Printed on linen-backed paper by Christopher Browne, of London, [c. 1700].

Wisbech & Fenland Museum Ref. BB.10.52 [Cambridgeshire Archives Ref, R59/31/40/13]. Courtesy of Wisbech and Fenland Museum.

and middle, to drain the main wide area west of Ely and up to Peterborough, and south, to relieve the areas east of Ely where the River Cam and a number of tributaries brought water from the higher lands of Cambridgeshire, Suffolk and Norfolk into the fen basin.

The diversion from Earith to Salters Lode remained central to the scheme. A second cut, the New Bedford River, was made parallel to the Old Bedford River and embanked. The banks of the Old Bedford River were raised and the pastures between these two artificial waterways became a vast linear washland, which allowed floodwater to be stored safely during the winter or any abnormally wet periods. Sluices controlled flows and allowed the release of water to scour the original channel of the Great Ouse to the north of Denver. This is the origin of the Ouse Washes.

The scale of the task was immense, involving it has been calculated some 11,000 men. Difficulties in cash flow meant wages often went unpaid, and the Adventurers were grateful for the addition first of Scottish and then of Dutch prisoners of war to the labour force. In some areas (especially in the south level, drained last) there was strong resistance from the poorer inhabitants, deprived of their commons and the opportunities (wildfowl, fish, peat and sedge) which came from the undrained fen, drainage banks and other works were damaged and



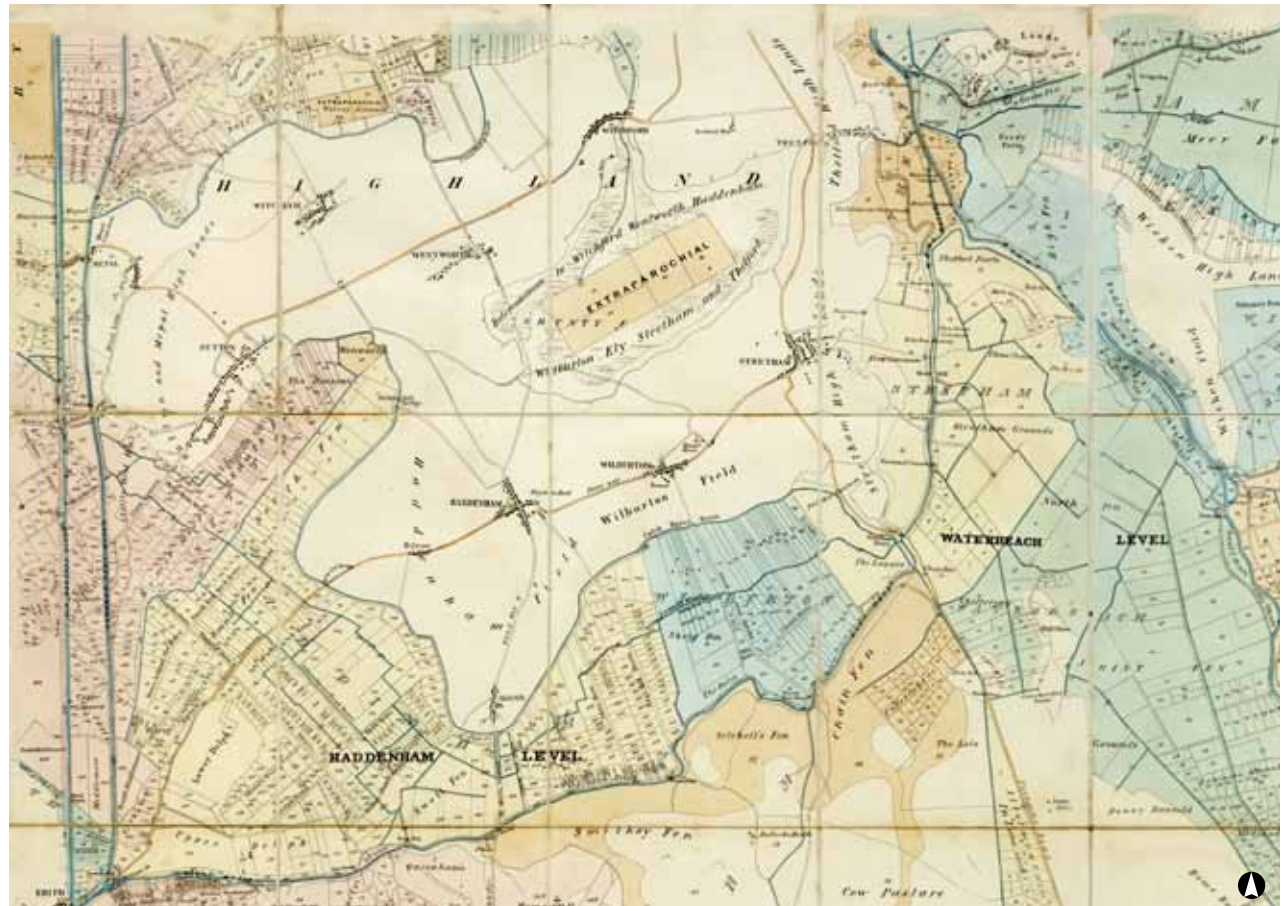
Detail of 'Map of the Great Level of the Fens called Bedford Level', prepared for Samuel Wells, Register, published with alterations and additions by his son, Hardy Wells, civil engineer, 85 Gracechurch St, London. Scale 1½ miles to an inch. 1878.

Ref, R59/31/40/24 and 65/P2. Reproduced by kind permission of Cambridgeshire Archives

guards had to be set.

Most of the larger cuts and ditches of the present landscape, for example the Forty Foot drain, derive from these mid-seventeenth century schemes, though some from earlier (for example Popham's Eau) were incorporated in the mid-century works, and further amelioration was made in the nineteenth century. Many of the roads and bridges were also set out by the Adventurers. The 1878 map prepared for Wells (page 29) shows the various schemes and the extent of the Adventurer's land (drained farmland acquired by those who had invested in Vermuyden's works) in pink.

At first the second scheme seemed successful, but Vermuyden had not anticipated the problems of peat shrinkage. As the peat fen was drained and dried out, the peat shrank and the surface level of the ground became progressively lower. The natural gradient of the land, together with the ability of the water to flow through the system of dykes, was lost and silting in the lower rivers at the Wash ports caused problems for water borne trade. Windmills were used to pump water from low level drains to the main (higher and embanked) rivers and drains, but the system was under pressure and major floods occurred at intervals, when the embankments were breached. At times parts of the fen returned to its pre-drained, watery state, with significant agricultural losses.



Detail of "Plan of part of the Bedford Level and Lands Adjacent subject to the Eau Brink Tax." By J.G. Lenny of Bury St Edmunds, 1833. Plan of the Middle and South Levels, showing the land subject to the Eau Brink Tax. Scale 1" to 30 chains. Hand-drawn on linen-backed paper. Section showing Witchford, Mepal, Sutton, Earith, Haddenham and Stretham. Ref. R59/31/40/25. Reproduced by kind permission of Cambridgeshire Archives.

18th century and Victorian drainage schemes

The use of private windmills proved problematic. The Bedford Level Corporation, given taxing of adventure lands and management of the works by act of the Restoration Parliament in 1663, understood their role to extend legally only to the upkeep of existing works. Private pumping endangered their banks, and could also prove disastrous to neighbouring land owners. Coordinated systems were required and, in 1726, a group of farmers at Haddenham formed their own drainage organisation to manage the drainage of a local area. Other areas followed suit and eventually the internal drainage of the Bedford Level was managed by numerous local drainage boards, each responsible for pumping water from their designated areas into the main rivers and ditches (which remained under the overall management of the Bedford Level Corporation). The 1833 map of lands subject to the Eau Brink Tax (see p. 30) shows the local drainage districts for the area near Haddenham.

As the peat fen continued to shrink and fall, windmills were increasingly ineffective and, in 1817, steam pumps were introduced. A new cut (the Eau Bank Cut) at Kings Lynn carried the waters of the lower Great Ouse directly to the sea and created a stronger outfall which reduced silting upstream. A similar scheme followed at Wisbech, together with further cuts to improve

the flow of the Rivers Great Ouse (near Ely) and Nene. The combination of steam pumps and these later cuts proved to be effective and the fens gradually became a productive agricultural landscape, reasonably secure from the risk of flooding.

Twentieth century drainage

Flooding and the deteriorating state of the drainage system caused governmental concern during the first part of the century, and in 1930 the Bedford Level Corporation was dissolved and the Great Ouse Catchment Board set up. Pumping stations with improved capacity were installed, and diesel pumps gradually came into more general use, but in 1947 exceptionally winter weather again resulted in severe floods. Again embankments were raised, catchment drains dug, and pumps improved (gradually replaced or augmented by electric pumps).

Today responsibility for managing the drainage system lies with the Environment Agency. Most watercourses have been modified, straightened and canalised between raised embankments but The Ouse Washes remain a critically important part of the current system for flood risk management.



The sheer scale of Vermuyden's Forty Foot Drain is impressive.

The Historic Environment Record - (HER) can be accessed at <http://www.heritagegateway.org.uk/gateway/chr/herdetail.aspx?crit=&ctid=95&id=4759> for Cambridgeshire (mapped data via the Heritage Gateway tab) and <http://www.heritage.norfolk.gov.uk/> for Norfolk.

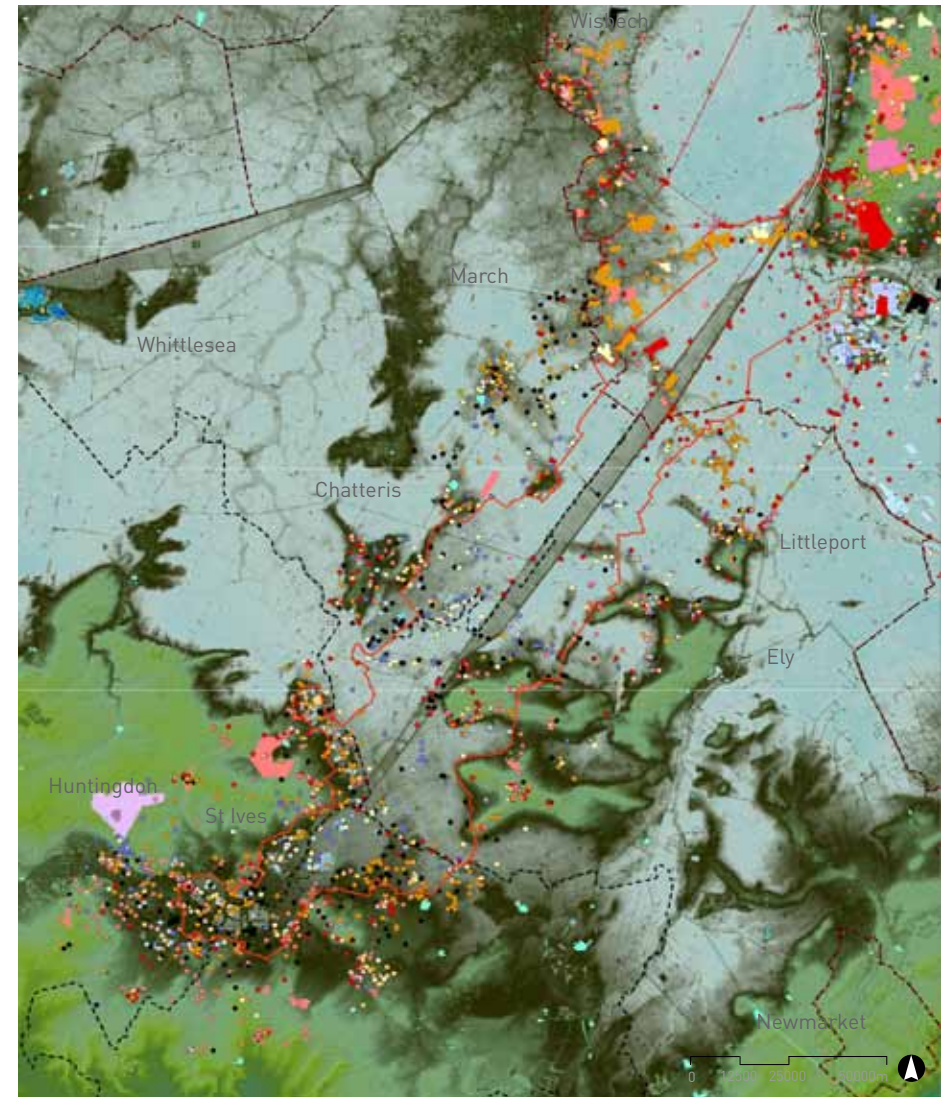
The distribution of sites and monuments on this surface model is the result of HER transect searches centred on the corridor of the Ouse Washes. All other evidence outside the transect has been omitted from display. The map clearly depicts the areas of high, dry ground of the fen edge to the south and northeast, and the 'fen islands' coloured in green.

A great density of multi-period sites cluster along the meandering river terraces of the natural course of the River Great Ouse to the south of St Ives and Huntingdon, and on the rising chalk and sandstone at the Norfolk fen edge in the top right corner of the map. These areas contrast greatly with the relative emptiness of the fenland between - though we can anticipate that many early prehistoric sites lie buried beneath the suite of later deposits that over time formed the different fen environments, and which are now hidden from view. The historic rivers of the Ouse Washes are seen to cut across the extinct sinuous course of the Old Croft River, the banks of which were favoured for settlement and salt-making sites in the Roman period (note the string of orange coloured sites). The snaking grey courses of ancient roddonised rivers and wetland edges occupy a large part of the fen basin, particularly to the northwest of the Ouse Washes, while deeper basins at the north end of the Washes and to the east of the Isle of Ely conceal former dry land surfaces that lay many metres below the present ground level.

- Ouse Washes LP boundary
- - - County boundary
- - - - District boundary
- Prehistoric 500000 BC to 42 AD
- Palaeolithic 500000 BC to 10001 BC
- Mesolithic 10000 BC to 4001 BC
- Neolithic 4000 BC to 2201 BC
- Bronze Age 2500 BC to 701 BC
- Iron Age 800 BC to 42 AD
- Roman 43 AD to 409 AD
- Saxon 410 AD to 1065 AD
- Medieval 1066 AD to 1539 AD
- Post medieval 1540 AD to 1900 AD
- English Civil Wars 1640 AD to 1651 AD
- ▲ World War I 1914 AD to 1818 AD
- ▲ World War II 1939 AD to 1945 AD
- ★ Cold War 1946 AD to 1991 AD
- ★ Modern 1901 AD to 2050 AD
- Scheduled Monument
- Undated

Map 6
Historic Environment Record

Terrain map © Cambridgeshire County Council. Contains Ordnance Survey data © Crown copyright and database right 2013. Historic Environment Record Data by kind permission of Cambridgeshire County Council and Norfolk County Council



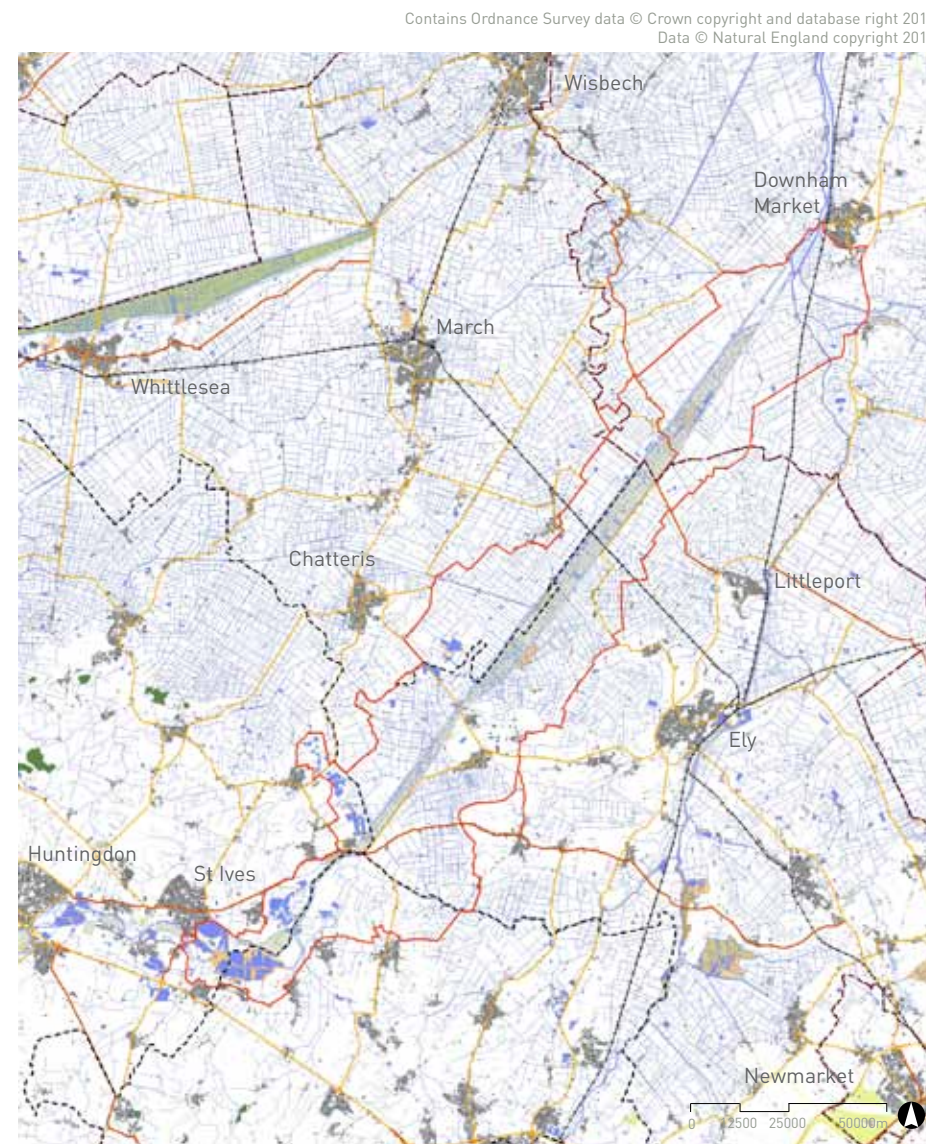
Biodiversity

Remnant semi-natural habitats

The exceptionally high productivity of the drained fenland soils has been the catalyst for ongoing investment in drainage and improvement. By the 1970s virtually no real fenland remained and the nature reserves of Wicken Fen, Holme Fen and Woodwalton Fen have become valuable remnant wetland habitats which provide a refuge for rare and endangered fenland species.

As Map 7 shows, the only sites of semi-natural habitat within the LP area are the Ouse Washes and the newly created wetland habitats associated with fen restoration following mineral extraction, for instance at the Fen Drayton Lakes RSPB Reserve.

- Ouse Washes LP Boundary
- - - County Boundary
- - - - District Boundary
- A Road
- B Road
- +— Railway
- River
- Water bodies
- Ancient Woodland
- Fen
- Calcareous grassland
- Dry acid grassland
- Lowland meadows
- Wet woodland
- ▨ Reedbeds
- ▨ Purple moor grass



Map 7
Biodiversity

Contains Ordnance Survey data © Crown copyright and database right 2013
Data © Natural England copyright 2013

Ecological designations

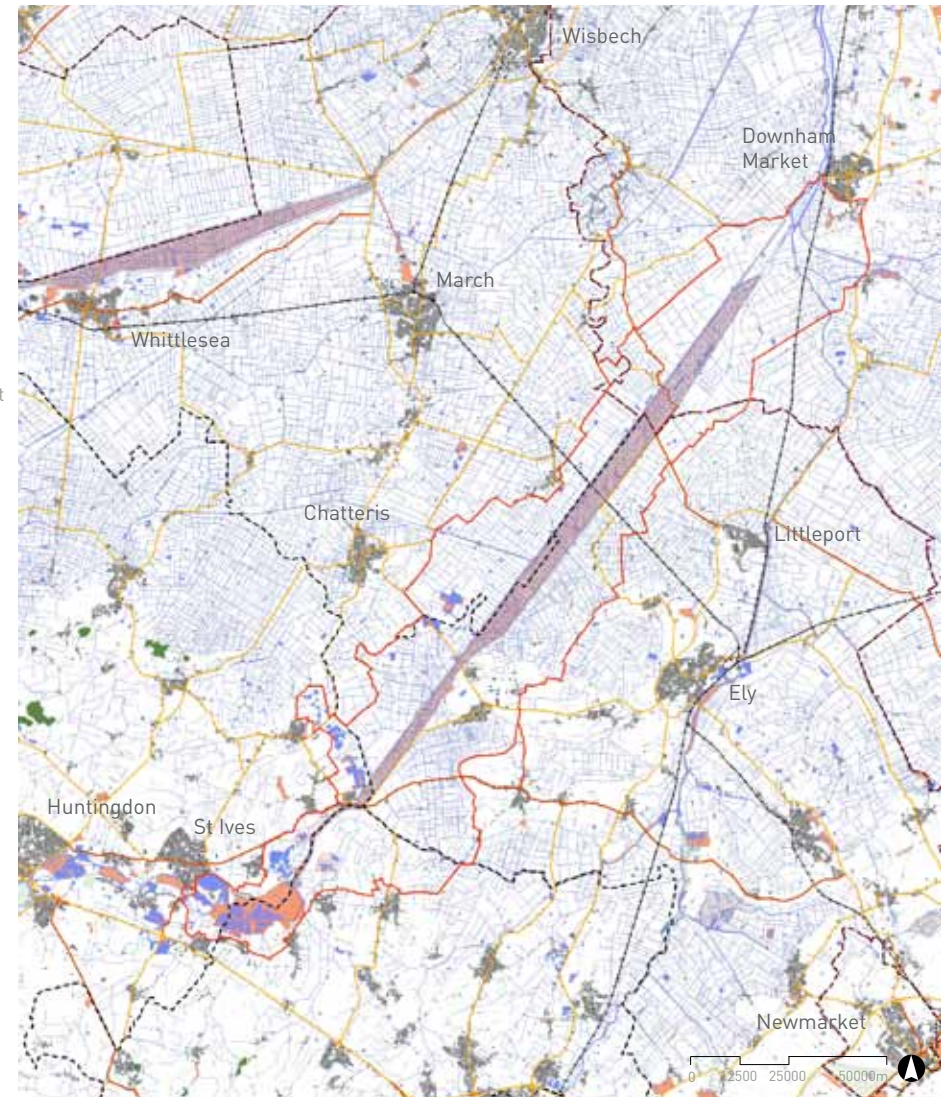
At the heart of the study area, the Ouse Washes are one of the most important areas of lowland wet grassland in Britain.

The majority of the land within the Washes is managed as a series of nature reserves managed by the RSPB, the Wildlife Trust and the Wildfowl and Wetlands Trust. The washlands cover 2,500ha of winter-flooded wet meadows. The winter floods encourage a wide range of wildfowl and waders, including wigeon, mallard, pintail, pochard, gadwall, shoveller, smew and goldeneye, as well as large gatherings of whooper and mute swans and Bewick's Swans. Waders include snipe, redshank, ruff and avocet.

The Washes have a rich wet meadow flora, with rushes, sedges, reed canary grass, wild celery, meadowsweet, purple loosestrife and flowering rush. The meadows support swathes of butterflies and moths, and in the dykes and pools there are dragonflies and damselflies. The area is a haven which gives an indication of just how rich the original mosaic of fenland habitats must once have been. The international importance of the Ouse Washes is recognised through its designation as a Special Protection Area, a Ramsar site and (in part) a Special Area of Conservation. Map 8 shows the concentration of ecological designations on the Ouse Washes, but also the relative importance of Fen Drayton Lakes, which is an extensive County Wildlife Site.

- Ouse Washes LP Boundary
- - - County Boundary
- - - - District Boundary
- A Road
- B Road
- + + + Railway
- River
- Water bodies

- ▨ Ramsar
- ▨ Special Protection Area
- Ancient Woodland
- ▨ Site of Special Scientific Interest
- National Nature Reserve
- County Wildlife Sites
- ▨ Local Nature Reserve
- ▨ RSPB Reserves
- ▨ Special Area of Conservation



Map 8
Ecological designations

Landscape change

How the Ouse Washes work

The Ouse Washes are a 17th century winter flood storage area on a massive scale - approximately 35km (22 miles) long and 0.8km (0.5 mile) wide. The system is designed to ease the problem of flooding in areas upstream of the tidal reaches of the River Great Ouse, where the tidal and fluvial waters meet.

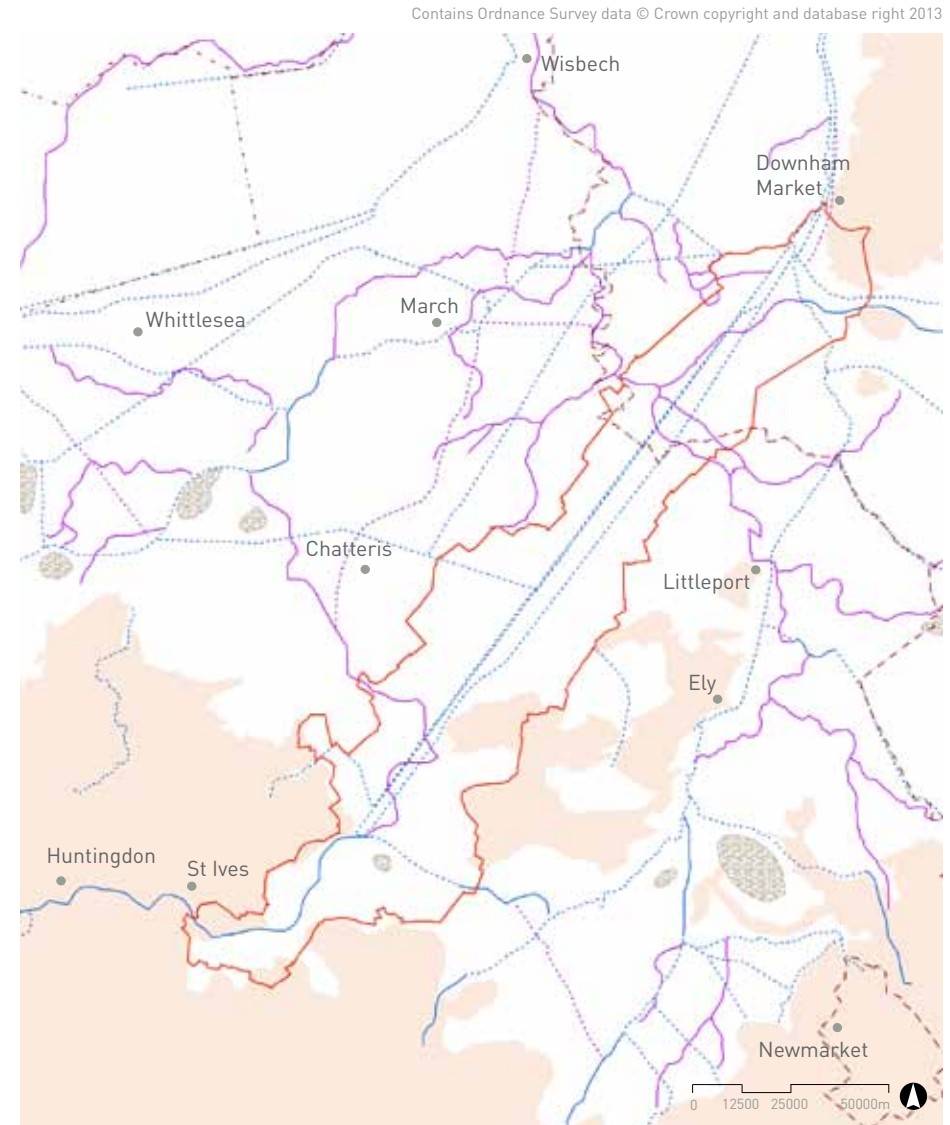
The two 'cuts' made as part of the Great Drainage Project provided a short-cut which took the waters of the River Ouse in a straight line across the fens from Earith to Salter's Lode, shortening the distance to the sea by 16km. The first cut, made in 1631, is called the Old Bedford River. It was followed 20 years later by a second waterway, cut parallel to the first, which was called the New Bedford or 'Hundred Foot' River. Ongoing shrinkage of the underlying peat means that both rivers are perched above the surrounding arable farmland.

As the cross-section on page 36 shows, the outer margins of the rivers are enclosed by steep embankments, with much lower banks along the inner edge. During periods of high rainfall, the floodwaters spill over the inner banks and onto the linear pastures of the washlands. The area between the two rivers becomes filled with water, protecting the surrounding farmland from floods.

- Ouse Washes LP Boundary
- - - County Boundary
- Principal settlements
- Natural waterways
- - - Artificial waterways
- Extinct natural waterways
- - - Extinct artificial waterways
- Extinct meres
- Land over 5m

Map 9
Fenland Waterways - Past and present

Based on a map prepared by Gordon Fowler in 1946, revised 1970. © Royal Geographical Society. Reproduced in H J Mason, *The Black Fens*, 1984.

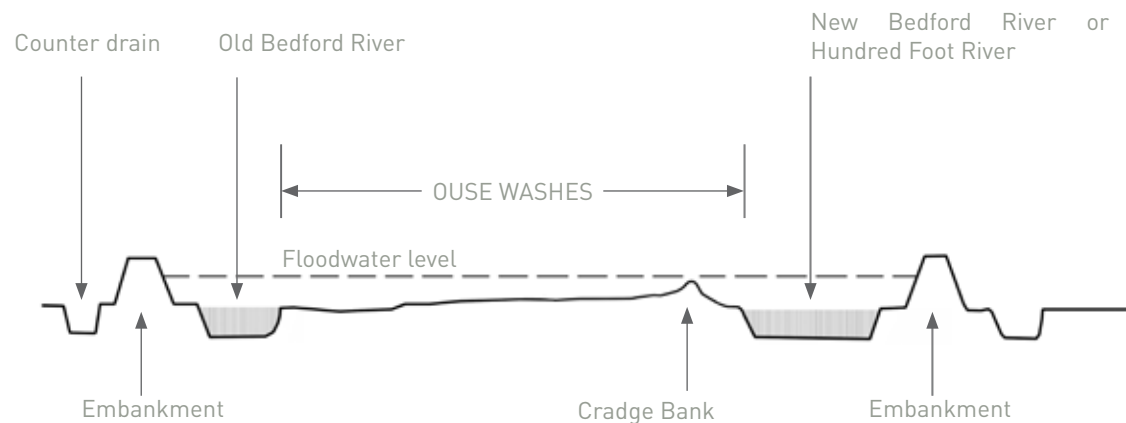


The Washes are typically pasture during summer and a floodwater reservoir during the winter or during periods of heavy rainfall. In a typical winter 70-80 million m³ of excess floodwater is diverted at Earith into the Washes. Over the centuries the Ouse Washes have become a valuable habitat for waterfowl during the winter and as a breeding site during summer.

Flood risk management today

The Ouse Washes are the most important flood storage area in the floodwater management system for the Great Ouse Catchment, used to manage flood risk and to provide protection to the surrounding farmland. A number of historic fenland flood events are embedded in local memories, including floods in 1947, 1953 and 2003.

Under normal conditions, water is pumped to maintain optimum levels across the fens. It is often pumped up 5-6m from the drains to the embanked high level rivers, such as the Ten Mile River. The levels in such rivers are controlled at Denver Sluice, which prevents tidal waters backing up into the South Level River System and allows the release of water (at low tide) into the Tidal Ouse. When there is a risk of flooding in the Bedford River Great Ouse system, excess flow is diverted into the Old Bedford River (and the Ouse Washes) via the Earith Sluice. This floodwater is released at low tide to the New Bedford River at



Cross section through the Ouse Washes, based on drawings in *Taming the Flood*, Jeremy Purseglove (1991) and *The Black Fen*, HJ Mason (1984)

the Welmore Lake Sluice, flowing into the Tidal River at Denver Sluice. The Great Ouse Flood Protection Scheme, constructed 50 years ago, ensures that high flows in the Ely Ouse and the Rivers Lark, Wissey and Little Ouse are collected and channelled along the eastern side of the catchment via the Cut-off Channel to the Wash via the Flood Relief Channel near Kings Lynn.

Why are the Ouse Washes flooded more often?

There has been a gradual rise in river bed levels in the Great Ouse Tidal River. The principal

reason for this is that the diversion of flows from the Ely Ouse, Lark, Wissey and Little Ouse into the Flood Relief Channel instead of Denver Sluice has reduced the degree to which the silts settling on the bed of the Great Ouse Tidal River are flushed out to sea. The resulting high tidal river bed levels are often too high to allow water to drain by gravity into the river, leading to an increase in the time it takes to drain the water from the Ouse Washes⁴.

⁴ The Great Ouse Tidal River Strategy. Draft for Consultation, September 2009, Environment Agency



Kite aerial photography by Bill Blake Heritage Documentation

The increased levels of flooding damage the biodiversity value of the site and its use as grazed pasture - problems that will be exacerbated by anticipated sea level rise.

The Great Ouse Tidal River Strategy sets out a range of actions to lower bed levels within the tidal river and improve drainage of the Ouse Washes, including changes to the way the Earith and Denver Sluices are operated (to maximise water flow and scouring potential down to the tidal river) and raising embankments.

Ambitious fen restoration projects

The Fens used to be England's largest wetland, but now less than 1% of the original wetland habitat remains⁵. Working at a large scale, and in accordance with the recommendations of national policy for enhancing the coherence and resilience of England's biodiversity⁶, the Fens for the Future Partnership aims to reverse the trend and to make the fens one of the main UK landscape-scale wetland complexes by 2020, within a matrix of sustainable agriculture⁷. The Fens for the Future Vision incorporates a range of ambitious fenland restoration projects.

Focusing on 3,000 ha of arable land between and surrounding the fenland nature reserves of Holme Fen and Woodwalton Fen, the Great Fen project aims to restore the intensive agricultural landscape to natural wetland and low intensity farming⁸. The restoration process

⁵ www.greatfen.org.uk

⁶ The Fens for the Future vision statement

⁷ Lawton report (to Defra), Making Space for Nature: a Review of England's Wildlife and Ecological Network, September 2010

⁸ Fens for the Future – A Strategic Plan for Fenland: A Proposal for an Enhanced Ecological Network, 2012

will involve careful management of water levels and the reestablishment of natural processes and pastoral farming methods. The new landscape will also be a recreational resource, with high quality access and opportunities for environmental education.

Similarly, at Wicken Fen, the National Trust's Wicken Fen Vision aims to extend the existing Wicken Fen reserve, acquiring land in an arc around the north east fringe of Cambridge which can be re-wetted and restored to fenland habitat. The Great Ouse Wetland Project, which focuses on the Ouse Washes and the mineral extraction sites nearby, complements the Fens for the Future strategy. A key driver for this project is the increased flooding on the Ouse Washes and the damage that this causes to the biodiversity of this internationally important wetland site.

Floods during the early summer months can literally drown the nests and newly hatched chicks of ground nesting waders such as lapwing, redshank and snipe. The flooding also makes management of the Ouse Washes impossible as ditches cannot be dug out and the grass is in poor condition because cattle cannot graze. Given the Ouse Washes' international importance for biodiversity, the UK Government is obliged (under EU Directives) to maintain wet grassland habitats for the birds that use the washlands. The flood defence function of the Ouse Washes is vitally important so there is an urgent need



Coveney Meadow - reversion from arable fields to wet grassland will provide more habitat for breeding waders alongside the Ouse Washes

to create new wet grassland habitats outside the Ouse Washes to provide alternative homes for these birds. This process is underway with the creation of replacement Ouse Washes wet grassland habitat near Coveney and Sutton.

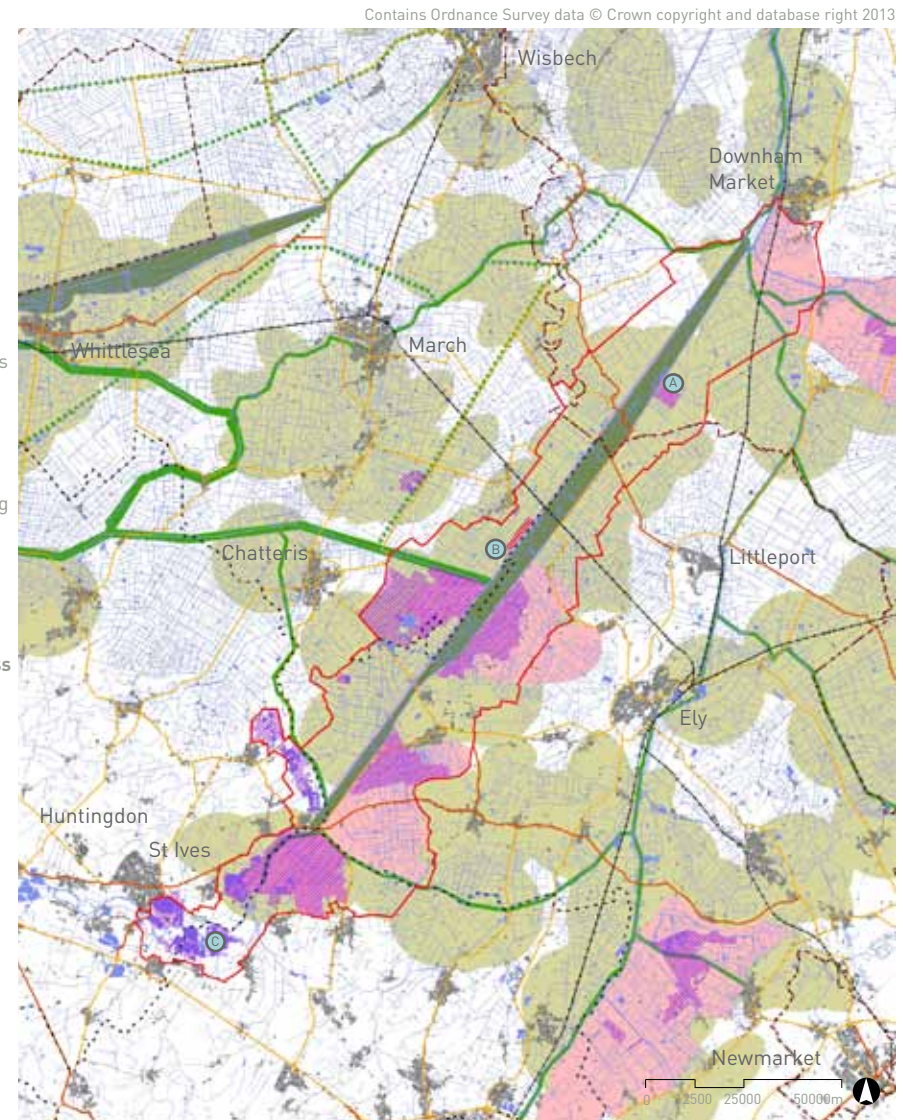
Working in partnership with mineral extraction companies, the Great Ouse Wetland Project is proactively recreating networks of new fenland habitat as part of the landscape restoration following sand and gravel extraction. The network includes the new RSPB nature reserves being developed at Fen Drayton Lakes, Ouse Fen and the Ouse Washes. Together with the existing restored wetlands in the lower Ouse Valley at Fen Drayton, these newly created areas of wetland contribute to a network of wetland sites that form one of the largest and most important wetlands in the UK⁹. The additional adjacent wetlands associated with the Great Ouse Wetland extend and diversify the range of inter-connected habitats as an outstanding example of landscape scale conservation.

Map 10 shows the key components of the strategic sites associated with the Fens for the Future and Great Ouse Wetland Projects and the proposals for an enhanced ecological network for Fenland, as set out by the Fens for the Future Project.

⁹ Mike Clarke, Chief Executive of the RSPB. Quoted within the RSPB's leaflet - The Great Ouse Wetland, Space for Nature, Land for Life

- Ouse Washes LP Boundary
- - - County Boundary
- District Boundary
- A Road
- B Road
- +— Railway
- River
- Water bodies
- Settlement Areas
- Fens for the Future Partnership**
- Proposed priority landscape corridors
- Proposed landscape corridors
- Proposed secondary corridors
- Core Areas
- Target areas for habitat restoration
- Sustainable, 'wildlife friendly', farming
- Fens for the Future Partnership & The Great Ouse Wetland Project**
- Fenland restoration initiatives
- Ouse Washes Pilot Project (RSPB)
- Wetland nature reserves with public access**
- Ⓐ Welney Wetlands Centre (WWT)
- Ⓑ RSPB Ouse Washes
- Ⓒ RSPB Fen Drayton Lakes

Map 10
Green Infrastructure Network



Guidance for managing landscape change

The principal forces for landscape change are set out below, along with notes on how the changes can be managed to conserve the distinctive landscape character of the Ouse Washes. The notes can be broadly subdivided into guidance for managing change relating to:

- built development (in terms of its relationship to landscape setting)
- infrastructure development (eg roads, embankments and farm reservoirs)
- development of leisure facilities (including car parks, caravan parks, signage etc)
- agricultural land management practices
- management of ditches and dykes.

Expansion of settlements

Most pressure for residential and mixed use development is on the fringes of existing settlements. Detailed analysis of the potential impacts of such growth is subject to site specific assessment and is beyond the scope of this report (covered by the District Councils' Local Plans which set out policy guiding development and land use change). However it is relevant to provide some generic guidance for minimising negative impacts of settlement expansion on the surrounding landscapes:

- Conserve existing groups of mature trees and hedgerows and use these existing networks as the basis for new green infrastructure connections
- Identify and conserve any existing remnant landscape features on the fringes of settlements, such as smaller pastures, orchards and green lanes. These should be incorporated within proposed green infrastructure networks
- Integrate new development or additions (together with associated infrastructure in the form of lighting, signage and fencing) with tree planting which relates to and is integrated with existing tree belts and hedgerows.
- Consider views to the backs of new housing development; houses, back gardens, outbuildings and fences are often seen in middle distance views across arable fields, particularly where there is a linear settlement pattern. Sporadic tree planting to the rear of new properties would help to integrate them in such views.



Top: Views to the backs of linear settlement are often an important consideration.

Below: Groups of mature trees provide a subtle and appropriate transition at one of the gateways to Pymoor.

- Consider the quality and character of village gateways. A low-key subtle transition from rural to village landscape is typical and appropriate in the Fens, but carefully sited tree and hedgerow planting may be beneficial to ensure that the transition has a rural character.

Conversion and expansion of farmsteads for agricultural, residential and/or commercial uses

Groups of farm buildings, often associated with clustered trees, are a focus in views across the open fens. Many have good potential for expansion and /or conversion to other uses, provided patterns of existing trees and woodlands are conserved and extended to provide a partial visual screen and integrate the new development. Guidance for integrating new farm development includes:

- Conserve the scale and proportion of the farmstead within the context of the surrounding large scale landscape. Farm buildings are typically seen in conjunction with groups of mature trees and are often perceived as tree clump 'islands' within an otherwise open arable landscape. In some areas farmsteads are associated with linear shelterbelts. New large-scale agricultural buildings should be carefully integrated within these existing landscape patterns and associated with tree planting which is designed to extend the existing pattern of tree groups and belts and to provide a backdrop to views from public roads and footpaths.
- Minimise visible changes to the surrounding agricultural landscape, as land use changes (including the introduction of garden boundaries, lighting and other suburban features) have the potential to be more visually intrusive than built development in this large scale landscape mosaic.
- Integrate new large-scale agricultural buildings in open countryside by careful choice of form, orientation and colour of buildings. Whenever possible, new agricultural buildings should relate to an existing cluster of buildings and to existing groups of mature trees which can provide a backdrop to views.

New infrastructure development

Abrupt steep embankments and large scale infrastructure are typical features in many parts of the LP area and in some locations the most appropriate treatment is to avoid attempts at integration, which may



Farm buildings, including some large structures, are seen against a backdrop of mature trees in views from roads and footpaths

only draw attention to the infrastructure. Note guidance for wind turbine and solar farm developments is specifically omitted from this LCA because this requires specialist landscape and visual assessment. Guidance to improve the integration of infrastructure developments includes:

- If existing tree clumps and belts are present, these existing patterns of vegetation should be extended with new planting that is carefully designed to screen the abrupt slopes and access roads that are associated with new infrastructure such as farm reservoirs and roads. Elsewhere, in open arable landscapes, it may be better to avoid screen planting.
- There may be opportunities to create valuable grassland habitats on road verges, bare ground and newly constructed embankments, particularly if locally sourced substrate with impoverished soils is used. Such habitats can provide valuable ecological corridors through an intensively farmed landscape.
- Integrate new road developments or altered alignments with existing landscape patterns. Often roads and driveways are dead straight with abrupt right-angled bends (particularly within the Fen Isles landscape type). Wherever possible, such sharp bends should be retained as they are distinctive landscape elements which contribute to local character and the way the landscape is experienced.
- Ensure new hedgerows are planted alongside new or altered roads in order to reduce the perceived scale of road developments and integrate with the existing network of rectilinear boundaries. Blocks of woodland should extend right up to the edge of roads in places, creating 'pinch-points' along the roads and adding variety to local views.

Development of leisure and recreational facilities

There are superb opportunities to develop improved facilities for access and recreation throughout the Fens. Footpaths, cycleways and interpretation signage should be sensitively designed, but can be accommodated in all the landscapes within the LP area; the key constraint is proximity to habitats of high biodiversity, where access may be restricted to avoid disturbance to birds and extreme care may be required. Guidance to improve the integration of leisure and recreational facilities includes:

- Large scale development of leisure facilities could be prominent in the long, open views that are typical of this landscape, particularly if it is associated with the bustle, colours and movement of cars and caravans. Large scale development should be associated with extensive tree planting



Road verges and embankments provide valuable ecological corridors threading through areas of intensively farmed land

which is designed to integrate the development within local landscape patterns and boundaries. Cars should be completely screened and the opportunity taken to create a range of inter-connected habitats which contribute to existing ecological networks.

- Seek opportunities to develop circular walks and viewpoints which reduce the perceived scale of the landscape and provide local destinations within the countryside close to where people live.
- Seek registration for droveways that are rights of way through use to preserve them from privatisation and development.
- Provide small car parks at known starting points for walks to encourage their use and avoid the erosion of verges as a result of casual car parking on narrow roads. Avoid car parks and leisure facilities within the washlands so that the special character of this distinctive and deeply tranquil landscape is conserved.
- Seek opportunities for permissive access, particularly in areas that are close to settlements, public rights of way, viewpoints or heritage features, including archaeological sites.

Fragmentation of ecological networks and changes in agri-environmental schemes and agricultural subsidies,

Such drivers for change in the agricultural sector have the potential to change the balance and quality of land uses and sensitive landscape elements within the Fen landscapes. Guidance for land management practices that will conserve and enhance distinctive landscape character includes:

- Enhance the biodiversity of arable habitats by managing arable field margins and buffering existing trackways and track verges in accordance with cultivated agri-environmental prescriptions which are likely to involve no fertiliser or herbicides.
- Conserve and enhance the character, quality and connectivity of wetland and wet grassland habitats developed as part of wider habitat replacement/creation initiatives.
- Identify opportunities to extend and connect ecological habitats – along embankments, ditches, roads and droveways, giving priority to corridors that link existing core habitats such as wet grasslands, ditches, reedbeds and lakes and sites that are on the fringes of the Ouse Washes.



The large scale fen landscapes surrounding the Ouse Washes are well suited for cycling

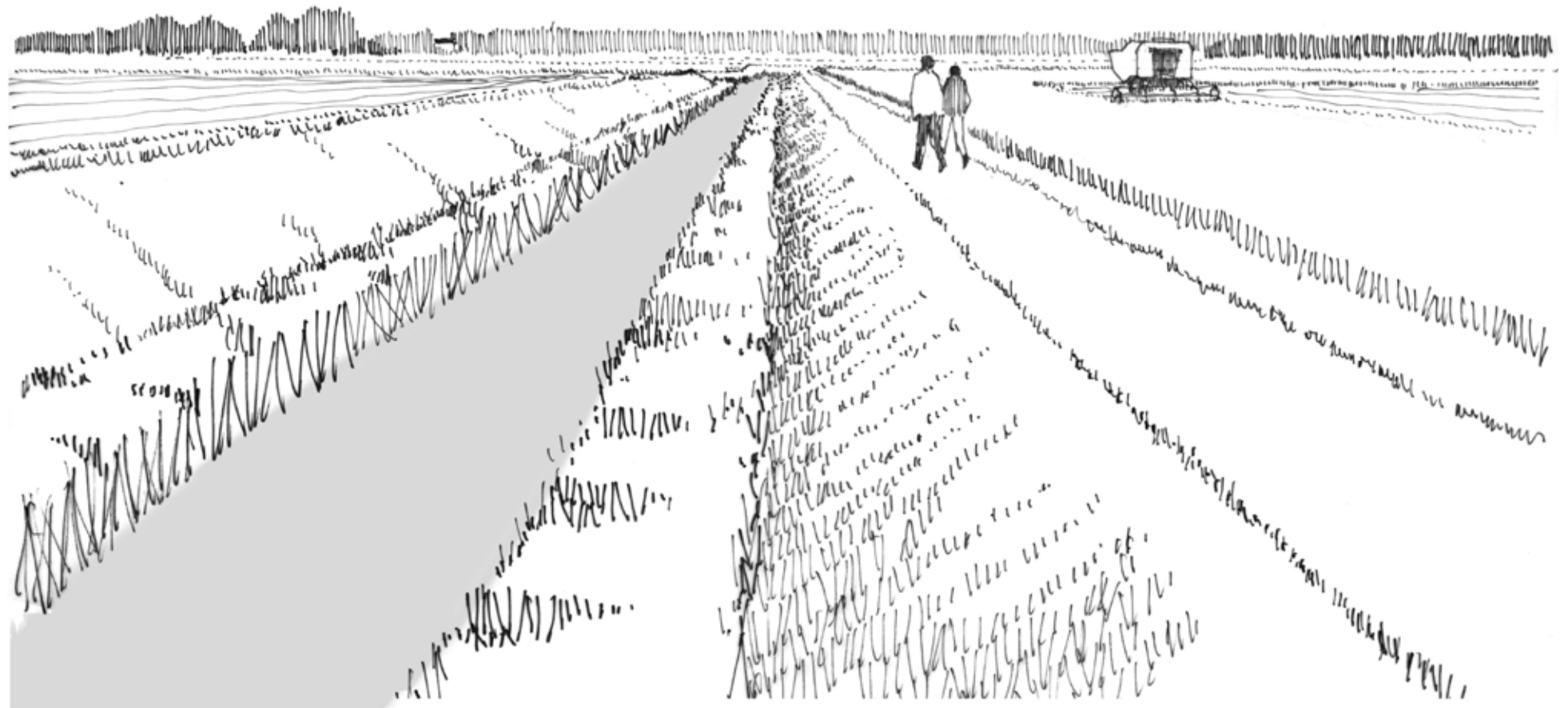
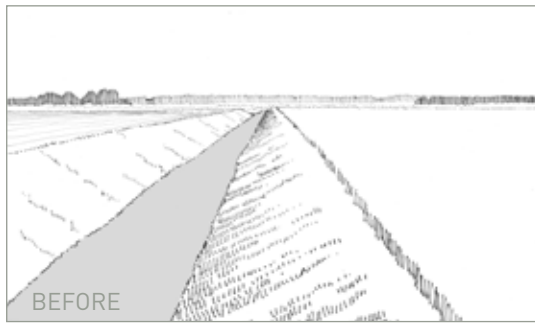
Neglect of characteristic ditch networks

The straight drainage ditches and curving catchwater drains of the fens are one of the landscape's most characteristic features which are also of high biodiversity value. Networks of ditches are vulnerable to changes in drainage and land use. Guidance for conserving these distinctive boundary features includes:

- Conserve and manage the network of ditches and dykes, aiming to increase their connectivity with the core wetland complexes.
- Increase grassland strips along field drains and water courses in areas of arable land to capture sediment and nutrients
- Conserve and enhance the riparian habitats associated with fenland dykes and ditches, timing dredging and reed cutting operations to avoid the nesting season of breeding birds.
- Give priority to the conservation of the historic curved catchwater drains, which follow the contours and mark the break in slope along the lower margins of the fen islands.
- Work in partnership with farmers to encourage the uptake of agri-environment options that harvest and conserve water, protect watercourses and prevent water quality deterioration by reducing diffuse pollution, ensuring compliance with regulations on nitrate vulnerable zones to manage fertiliser inputs.
- Manage agricultural practices that could result in damage to water quality, including fertiliser applications and create buffer areas between points of potential nutrient input and sensitive riparian habitats.



Drainage dykes provide valuable networks of wetland habitat, but are vulnerable to the impacts of pollution, which may arise as a result of the use of fertilisers on adjacent farmland



A field drainage ditch managed as an ecological corridor, with a footpath alongside, within an intensive farmland setting



BEFORE

A mineral extraction site restored to create a wetland landscape of open water, reedbeds, marshland and wetland scrapes, with public access for informal recreation

Landscape character assessment

Landscape character overview

The hierarchy of landscape character mapping

Method and structure of the landscape character assessment

Explanation of the landscape character assessment, as an introduction to the sections that follow



Landscape character overview

The Ouse Washes LCA promotes the unique landscape character of this part of the Fens, describing the different landscapes within the area. It provides a record of what is distinctive and special about the landscape and identifies landscape elements and features that are particularly vulnerable to change.

The Ouse Washes LCA fits within the hierarchy of landscape character units established at national, county and district level. It uses the existing LCAs for Kings Lynn and West Norfolk¹⁰, Cambridgeshire¹¹ and Huntingdonshire¹² as core references, but provides a more detailed description which explains variations in landscape character at a local level.

¹⁰ King's Lynn & West Norfolk Landscape Character Assessment, Land Use Consultants, May 2007 - <http://www.west-norfolk.gov.uk/Default.aspx?page=24625>

¹¹ Cambridgeshire Landscape Guidelines, Landscape Design Associates, 1991 - <http://www.cambridgeshire.gov.uk/environment/natureconservation/policy/guidelines.htm>

¹² Huntingdonshire Landscape and Townscape Assessment, 2007 - <http://www.huntingdonshire.gov.uk/Planning/Urban%20Design/Pages/2Huntingdonshire%20Landscape%20and%20Townscape%20Assessment.aspx>



The changing patterns and textures of the arable fields are characteristic of all the landscapes surrounding the Ouse Washes

Method and structure of the landscape character assessment

The methodology for the Ouse Washes LCA follows national guidance¹³. It identifies landscape character types, which have broadly similar patterns of geology, landform, vegetation and land use, and local landscape character areas, which are unique to a specific place.

The landscape character types for this part of the Fens are shown on Map 11. The higher land, which defines the margins of the fen basin, is characterised by heavy clay soils to the south (Clayland Fen Margins) and sandstones to the north east, near Downham Market (Sandstone Fen Margins). The broad valley of the River Ouse is defined as a separate landscape character types as it enters the fen basin just south of St Ives. The majority of the fen basin is peat fen, but the distinctive alignment of the historic Old Croft River between Littleport and The Wash can still be traced in the landscape as a result of contrasting silt-based soils and field/settlement patterns. This silt fen becomes the dominant landscape type in the northern part of the fen basin.

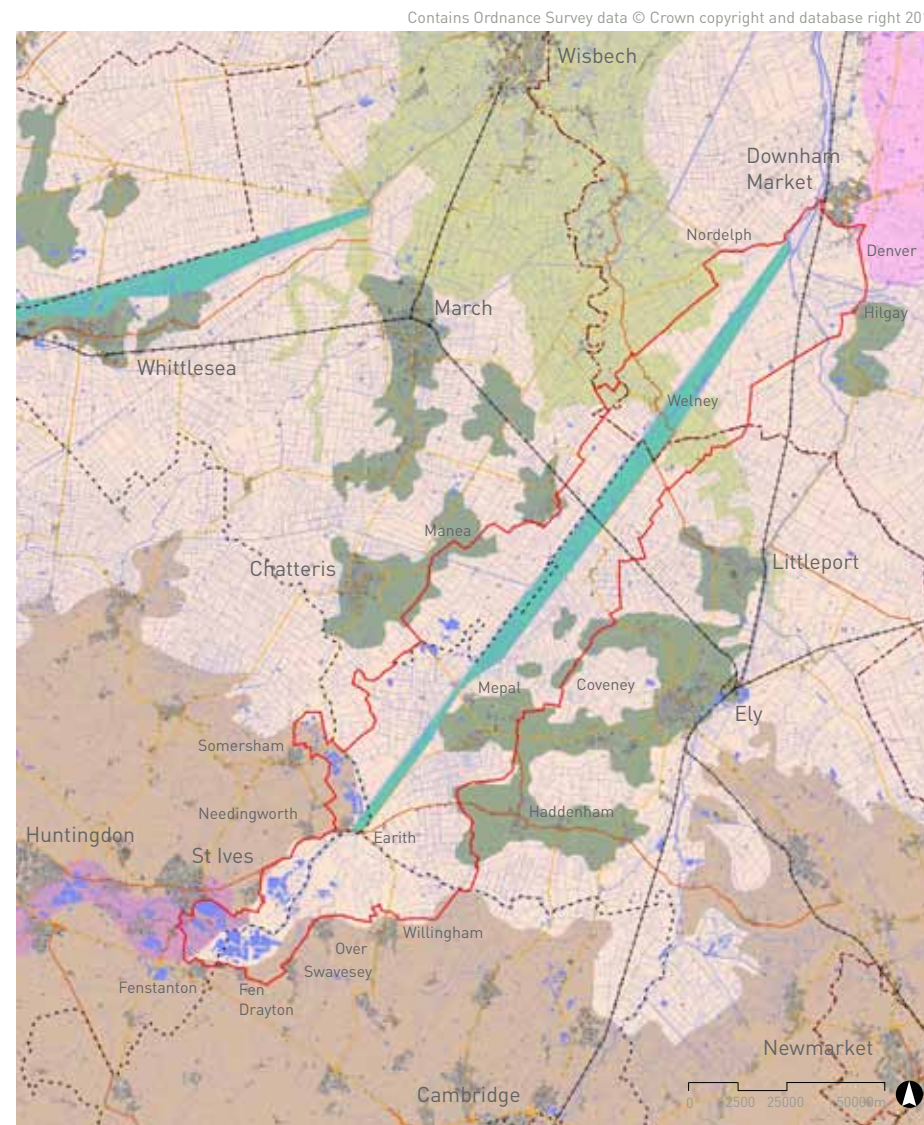
The Fen Isles landscape character type defines

¹³ Landscape Character Assessment Guidance for England and Scotland, Countryside Agency, 2002

- Ouse Washes LP Boundary
- - - County Boundary
- - - - District Boundary
- A Road
- B Road
- + + + Railway
- River
- Water bodies

- Clayland Fen Margins
- Sandstone Fen Margins
- Fen Isles
- Peat Fen
- River Ouse
- Silt Fen
- Washlands

Map 11
Landscape character types



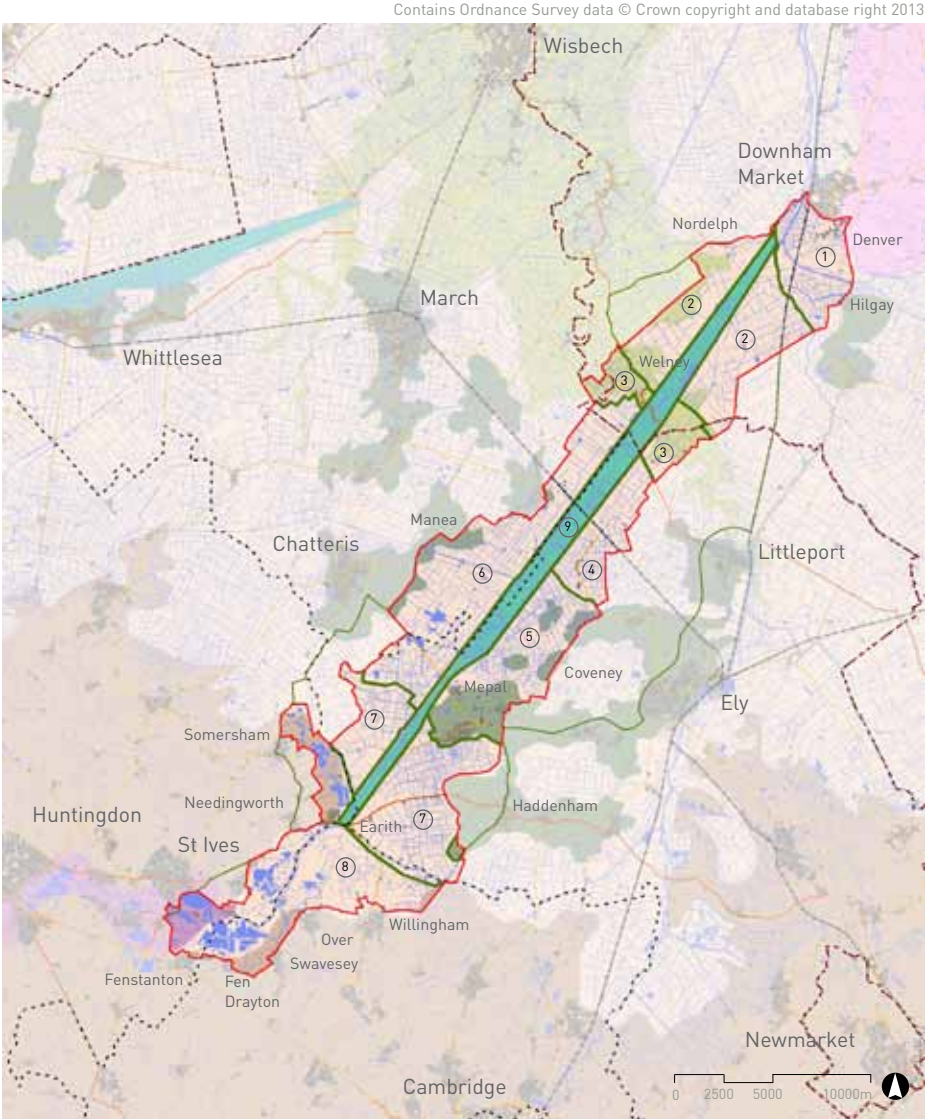
isolated areas of higher land within the peat fen which have long been a preferred site for settlement. The Washlands landscape character type defines the 17th C floodwater storage areas of the Ouse Washes and the Nene, which form striking embanked 'cuts' across the grain of the surrounding low lying fen landscapes.

The local landscape character areas shown on Map 12 describe the way the landscape is experienced 'on the ground'. Each has its own particular identity and sense of territory which is often associated with the hinterland of a town or group of villages.

This is an 'integrated LCA' which provides an integrated description of each landscape character area covering relevant aspects of physical, historic, land use, biodiversity, settlement and aesthetic character.

For each landscape character area, there is an analysis of what is important and why. This is an important part of the assessment which focuses on landscape sensitivity, significance and value. The two are closely inter-related as the most sensitive aspects of landscapes are typically those that are also important because they are unusual or special examples of their type.

- Ouse Washes LP Boundary
 - - - County Boundary
 - District Boundary
 - A Road
 - B Road
 - Railway
 - River
 - Water bodies
- Landscape Character Types**
- Clayland Fen Margins
 - Sandstone Fen Margins
 - Fen Isles
 - Peat Fen
 - River Ouse
 - Silt Fen
 - Washlands
- Landscape Character Areas**
- ① Denver
 - ② Nordelph to 10 Mile Bank
 - ③ Old Croft River
 - ④ Pymoor
 - ⑤ Fen Isles
 - ⑥ Manea Fen to Langwood Fen
 - ⑦ Meadland to Lower Delphs
 - ⑧ Ouse Valley Wetlands
 - ⑨ Ouse Washes



Map 12
Landscape character areas

The methodology is set out in the Topic Paper¹⁴ on techniques for judging landscape capacity and sensitivity prepared by the former Countryside Agency (now Natural England) which considers:

- landscape character sensitivity - the degree to which the landscape is robust and able to accommodate change without adverse impacts on its character - records the sensitivity of individual elements of the landscape, particularly those that are critical to distinctive landscape character, as well as the physical condition and its 'intactness';
- visual sensitivity - the general visibility of the landscape (influenced by the screening effects of landform and land cover), the number and type of people likely to perceive any changes that occur and the potential scope to mitigate the visual effects of landscape change that might take place; and
- landscape value - areas of land that are recognised for their biodiversity, heritage or possible literary or artistic importance by designations or other published material such as guides or promoted walks.

The nine landscape character areas

The sub-sections that follow provide an integrated assessment of the character, and sensitivity of the nine landscape character types identified within the Ouse Washes LCA:

1. Denver
2. Nordelph to 10 Mile Bank
3. Old Croft River
4. Pymoor
5. Fen Isles
6. Manea to Langwood Fen
7. Meadland to Lower Delph
8. Ouse Valley Wetlands
9. Ouse Washes

Traces of the past

Case studies explore remnants of landscape history in more detail at five locations within the Ouse Washes LP area. They show how archaeological excavation and historical research can help to bring the story of the landscape to life, explaining how and why familiar patterns of fields, roads and settlement have developed. The case studies are incorporated within the descriptions for the landscape character areas where they are found:

- The Fen Causeway near Nordelph (Nordelph to 10 Mile Bank)
- Roman saltworks on the siltlands (Old Croft River)
- Medieval waterways and the quay at Downham Hythe (Fen Isles)
- Buried Bronze Age landscape at Over (Ouse Valley Wetlands)
- Willingham Mere (Ouse Valley Wetlands)
- The Earith Bulwark - a Civil War fort (Ouse Washes).

¹⁴ Landscape Character Assessment Series: Topic Paper 6 - Techniques and Criteria for Judging Capacity and Sensitivity, The Countryside Agency and Scottish Natural Heritage, 2005

Landscape character areas

The nine landscape character areas in the Ouse Washes LP area

Distinctive landscape characteristics

Landscape character

What's important and why?

Traces of the past

The Fen Causeway near Nordelph

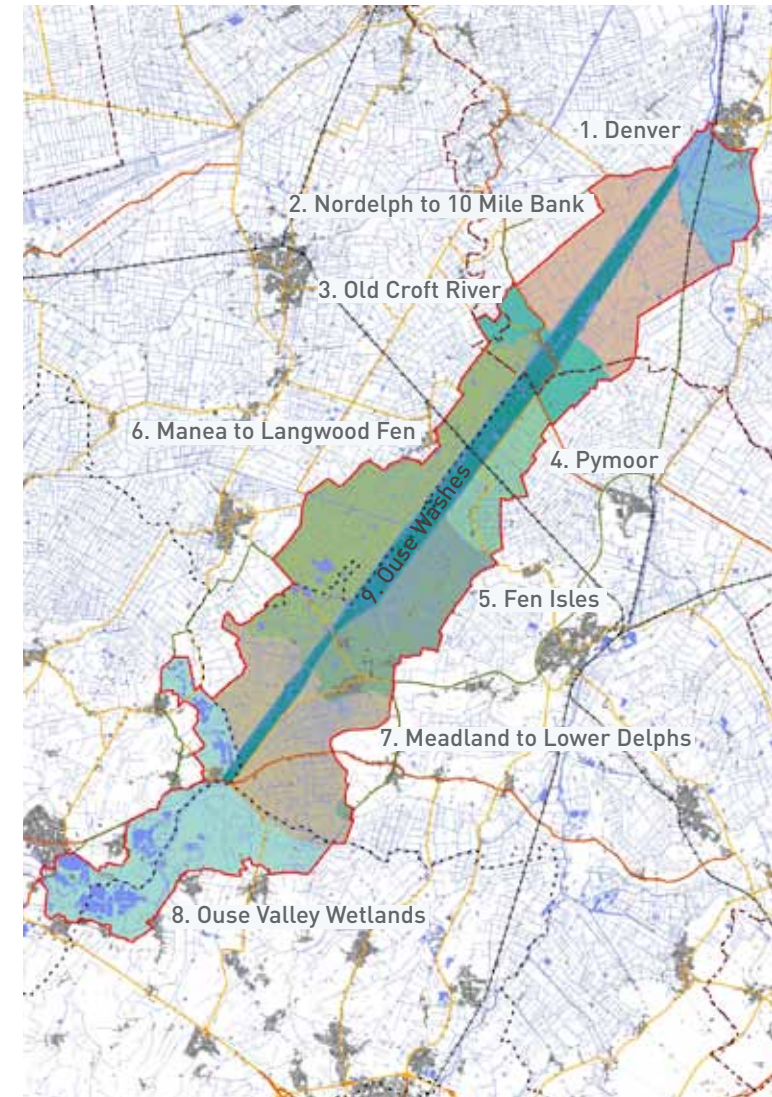
Roman saltworks on the siltlands of the Old Croft River

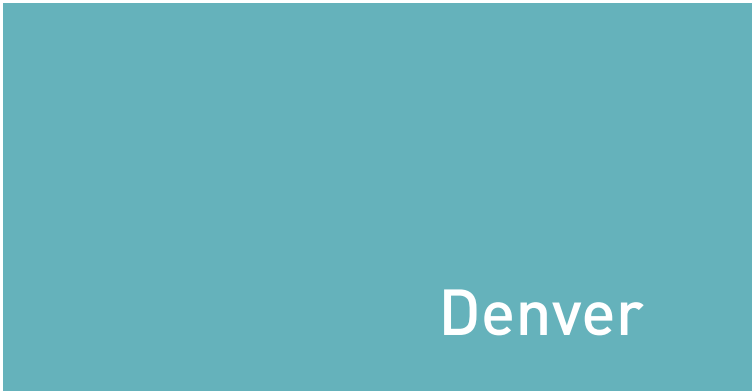
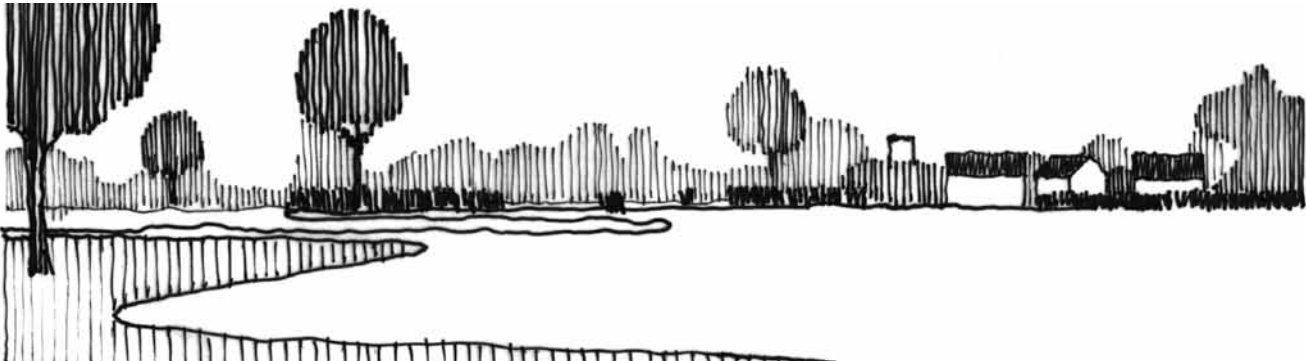
Medieval waterways and the quay at Downham Hythe

Buried Bronze Age landscape at Over

Willingam Mere

The Earith Bulwark - a Civil War fort





Denver

Denver

Distinctive landscape characteristics

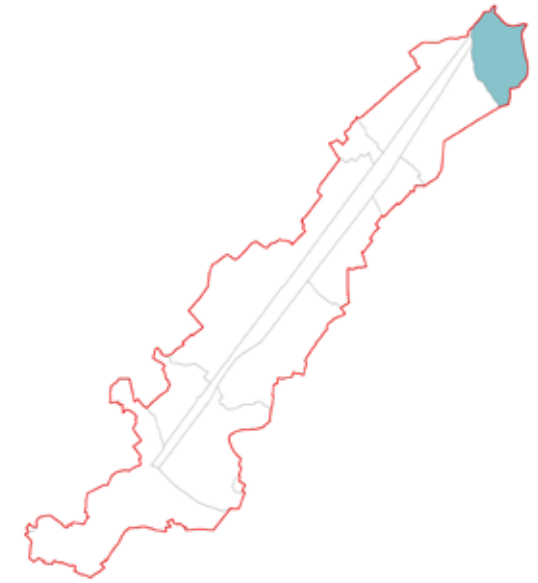
- Gently rolling farmland with villages on the edge of the fen basin
- Gingery carrstone as building stone reflects underlying sandstone
- Relatively small fields, paddocks, small commons and orchards in hinterland to villages
- Adjacent fen crossed by major waterways with confluence at Denver Sluice
- Fen-edge fields often enclosed by hedgerows; arable fields on fen have open boundaries but are interspersed with some blocks of woodland
- Network of tracks and droveways

Landscape character

The Denver LCA encompasses the hinterland of the village of Denver and the hamlet of Fordham, which are sited on gently rising land on the north-west rim of the fen basin and the flat low-lying arable fen between the fen-edge villages and the River Great Ouse. This part of the fen margin is underlain by sandstone and many traditional village buildings are constructed from carrstone, a gingery coloured local sandstone. In places the sandstone is covered with a layer of Boulder Clay.

This part of the fen is influenced by the large scale infrastructure - the Denver Sluice complex, the Cut-off Channel and the railway. These latter two infrastructure corridors slice across the landscape, enclosed by steep embankments. The meandering form of the Rivers Wissey and Great Ouse contrasts with the geometry of the surrounding fenland fields and drainage dykes. The rivers, their embankments and the blocks of woodland that are interspersed with the arable fields, all contribute to a relatively enclosed fenland character. The sense of enclosure increases towards the margins of the villages, where groups of hedgerow trees and village buildings form the horizon in local views.

The sandstone fen margins near Denver have a long continuity of settlement. Excavations have revealed evidence of Iron Age, Roman and Middle Saxon settlement near Crow Hall and the area was traversed



by the Fen Causeway, a Roman road across the fens. The Fen Causeway would have been a focus for Roman activity and there are known to be two Roman salt working sites, as well as a network of buildings, peat turbaries and field systems¹⁵.

This was an attractive site for settlement. The juxtaposition of well drained, settled farmland on the elevated fen margin and marshy fen and pastures within the Fen basin provided the resources for a self-sufficient local economy. The Domesday Book records Denver as having several fisheries and a relatively large amount of meadow¹⁵. The 15th century manor house of Denver Hall is one of several medieval manorial sites in the village of Denver, including the medieval moated sites of East Hall, West Hall and Manor Farmhouse.

The medieval village of Denver was surrounded by open fields and some areas of ridge and furrow survive today (to the north-east and south west of the present village). Two areas of common land, Whin Common and Sluice Common are remnant areas of common land that date from the medieval period. Stock was driven to the rich summer fen pastures along drove roads such as Cow Lane and Hogspond Lane. There was a smaller medieval settlement at Fordham and a silt ridge between Fordham and the River Wissey

¹⁵ Norfolk Heritage Explorer – Parish Summary for Denver <http://www.heritage.norfolk.gov.uk/record-details?TNFI99>



Many buildings in Denver are built from the local carrstone



Small fields, hedgerows and trees on the fringes of Denver



View to the east across the River Great Ouse to a relatively enclosed fenland landscape



Ponies on Sluice Common, A Local Wildlife Site, with Denver Mill in the background.



Denver Sluice - the lynchpin of the fenland drainage system

may have been an infilled medieval canal¹⁶.

There was piecemeal fen drainage in medieval times, but Vermuyden's strategic schemes for the drainage and reclamation of the fens were underway by the mid 17th century, including the construction of Downham (or St John's) Eau. The fens were drained by wind pumps throughout the 17th and 18th centuries. Vermuyden also built Denver Sluice in the 1650s. This critically important part of the network of Fen flood

defences has been several times rebuilt, most recently in 1834 and was enlarged in the 1920s. The Cut-off Channel, constructed in the 1950s, destroyed the former course of St John's Eau.

Denver windmill was built in 1835 on the site of a former post mill. Wind power was quickly supplemented by a steam engine which drove three pairs of millstones to grind local corn.

There is a strong relationship between the villages of Denver and Fordham and their surrounding field systems. The relatively compact form of the village, the network of tracks leading from

village to fields, the small areas of common land and greens and the hierarchy of field sizes, with smaller orchards and paddocks close to the village all contribute to a diverse, lively landscape character. The local carrstone is distinctive and the local landmarks of Denver Sluice and Denver Mill are well known destinations. The farmed hinterland of the villages is noticeably more enclosed than in other parts of the Ouse Washes study area, with blocks of woodland (such as Oval Plantation, Twelve Acre Covert and Harold Covert) interspersed with the flat arable fields.

¹⁶ Norfolk Heritage Explorer – Parish Summary for Denver <http://www.heritage.norfolk.gov.uk/record-details?TNF87>

What's important and why?

The diverse, distinctive character of the Denver LCA means that it is generally able to accommodate small scale landscape change without detriment to its character. New buildings can generally be integrated with tree and hedgerow planting, provided existing field and settlement patterns remain intact.

The most sensitive parts of the landscape are the fringes of the villages, the transition from small-scale fields and paddocks to larger arable fields, lanes and gateways to the villages of Fordham and Denver and the small tracks leading from the village centre to the surrounding fields. The settings of visible historic sites and buildings (medieval manorial sites, Denver Church, Fordham Church, the remnant small areas of ridge and furrow and Denver Mill) are highly sensitive and views to Denver Mill merit protection.

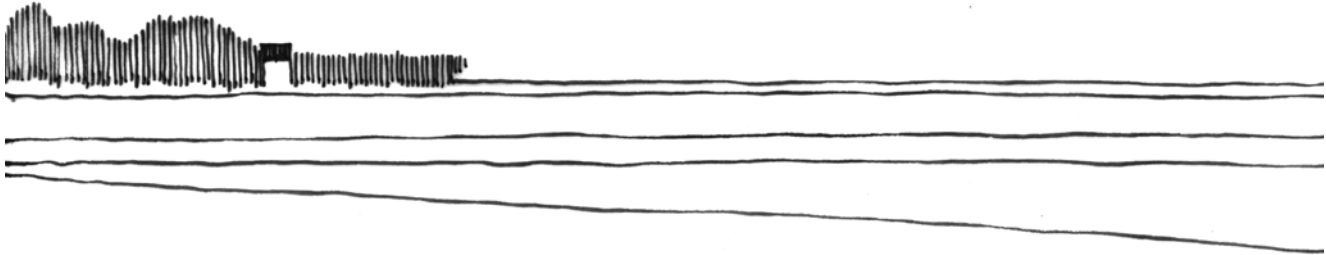
Sluice Common and Whin Common are valuable public open spaces which have been used as common land since medieval times. The mosaic of unimproved wet grassland, scrub and woodland on Sluice Common and Whin Common is of biodiversity value and within the surrounding farmland, the drainage ditches, blocks of woodland and partial network of hedgerows form valuable ecological corridors across the farmland. The riparian vegetation alongside the Cut-off Channel and the Rivers Wissey and Great Ouse is also important.

The condition of this landscape varies – there are areas of intensively managed farmland and areas of wetter, scrubby farmland. Overall the historic pattern of fields and settlement is strong. However, parts of the area surrounding Denver Sluice (which is a destination for visitors) is in poor condition, with poor quality car park, interpretation and visitor facilities.



An avenue of horse chestnut trees at the gateway to Fordham

Landscape character sensitivity	Visual sensitivity	Landscape value
<p>This landscape can accommodate change provided new development is carefully integrated within existing historic field and settlement patterns and partially screened by native tree and hedgerow planting.</p> <p>Locally distinctive and sensitive landscape features are:</p> <ul style="list-style-type: none"> • Small paddocks, orchards and fields on the fringes of villages • Historic tracks, green lanes and drove roads • Area of common land – Whin Common and Sluice Common and village greens • Blocks of wet woodland within the arable farmland 	<p>The relatively enclosed, diverse landscape character ensures that many village views are relatively enclosed. Views to Denver Mill are important and particularly sensitive within the context of the village.</p> <p>Further afield, the woodlands and belts of mature trees within the farmland provide a backdrop to local views.</p>	<p>The public open spaces and network of public rights of way surrounding the village of Denver is valued by local people and the wet grassland/woodland habitats of Whin Common and Sluice Common, together with an area of wet grassland to the north of Sluice Common are designated as County Wildlife Sites</p> <p>Areas of historic and archaeological importance are the setting of archaeological and historic sites, including the Scheduled Monument of Denver Hall and the remnant areas of ridge and furrow in the hinterland of the village of Denver.</p>



Nordelph to
Ten Mile Bank

Nordelph to Ten Mile Bank

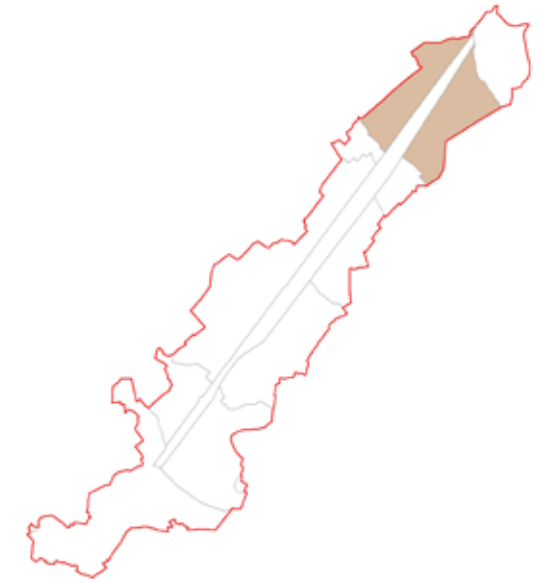
Distinctive landscape characteristics

- Flat, low-lying arable farmland with panoramic vistas and wide open skies
- Expansive open landscape, with a vast scale
- Intensive arable farming; vast field units subdivided by a regular network of large, straight ditches, often edged by reeds
- Strong geometric and linear landscape pattern which changes with seasonal cropping
- Largely unsettled landscape: a few linear villages alongside watercourses and roads, but otherwise settlement is confined to large farmsteads, surrounded by trees, which often appear as isolated 'islands' of trees and buildings within the open farmland
- Straight roads, which are often slightly embanked above the level of the surrounding land
- Simple, but strong skyline – farmsteads, occasional large farm buildings and lines of pylons are focal points

Landscape character

An absolutely flat, low-lying landscape that is almost completely devoted to arable farming stretching from the hamlet of Lot's End and the village of Nordelph in the west to Ten Mile Bank in the east and split down the centre by the Ouse Washes. Peat soils have generally been eroded and the land is underlain by seasonally wet deep clay, with pockets of loam. The winding roddons of extinct watercourses form slight ridges that are barely perceptible in local views, but which can sometimes be felt as broad bumps when driving along the roads.

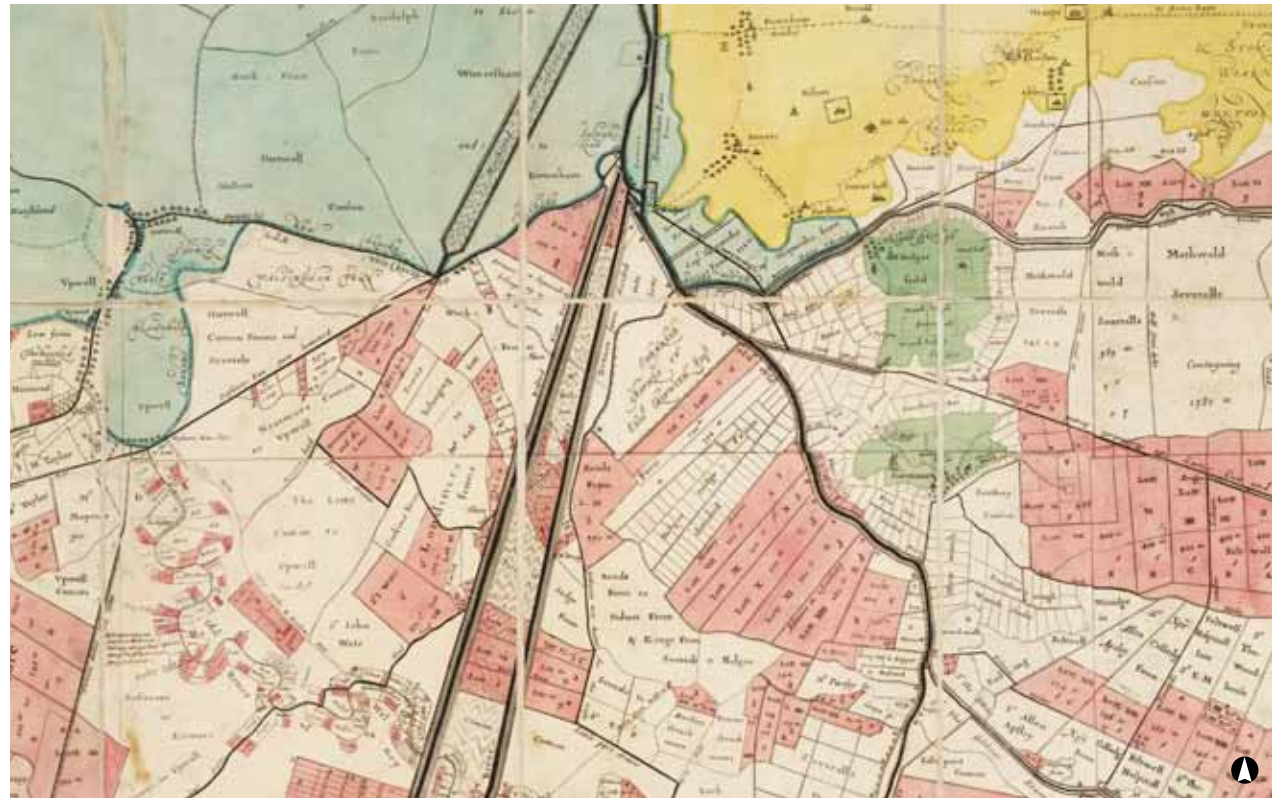
The roddons are remnants of the watercourses which meandered across the muddy marshlands that covered this low-lying land from post glacial times. While earlier occupation evidence became buried beneath the fen deposits (see page 11) across this landscape, the Romans built the Fen Causeway, a gravelled road which traversed the fens between Peterborough and Denver. Archaeological evidence¹⁷ suggests that the Fen Causeway began as a canal for carrying goods across the fen but this engineered



¹⁷ The Fenland Project No 4: the Wissey Embayment and the fen causeway, Norfolk, R.J. Silvester. East Anglian Archaeology Report No 52 1991 pages 97 - 109

project was abandoned after the canal repeatedly silted up. Eventually the silt filled canal formed a relatively straight roddon and the Romans subsequently made use of this relatively stable, straight silty clay based ridge to construct a road that cut across the surrounding peaty marsh. The present day 'Silt Road' follows part of the roddon used by the Fen Causeway. The alignment of the Fen Causeway can be seen on aerial photographs to the south of Nordelph. Intensive archaeological excavation and research has revealed a series of Roman settlements, field systems, saltworks and turbaries (areas used for peat cutting) on either side of the route (see page 66).

Following the Roman period, this LCA was unpopulated, unfarmed marshland until the early 17th century, when schemes for draining and managing the waters of this part of the fen were initiated. In 1605 London Lode was constructed by London merchants reclaiming 3,000 acres of land which was known as Londoner's Fen. Soon after Popham's Eau was cut from the Old River Nene to the Well Creek. The area was then part of the area drained as a result of Vermuyden's large scale drainage schemes and the 1700 map (opposite) shows that parts of the land were subdivided into farm units, with the larger scale parcels of farmland owned by the Adventurers who had a financial stake in Vermuyden's scheme (coloured pink on the map).



Extract from Christopher Browne's c.1700 edition of Jonas Moore's Plan of the Bedford Level (see page 28), which shows the scale of land taken by the 'Adventurers' who invested in Vermuyden's scheme. Moore made his detailed map c.1658; after the Restoration the plates, cleaned of references to those no longer in political favour, found their way to Browne, and then onwards to others, and the plan was much reprinted.



Clumps of trees surround isolated farmsteads



Drainage of the Fens caused the peat to dry out and land levels to fall. Windmills, locally financed, were constructed to pump water from the field dykes into the main drains. One still remains in Nordelph (Smock Mill) and the Historic Environment Record marks the sites of another 12 post medieval wind pumps.

Today the land is intensively used for arable farming or for functions supporting agriculture, such as drainage ditches, tracks and large farm buildings. The agricultural land is valuable and none of it is wasted - there are no hedgerows, woodlands or areas of unfarmed land. The straight drainage ditches that border the field units are large scale, deep dykes. Many are intensively managed, with minimal riparian vegetation, but in some the water channel is bordered by reeds.

The principal settlements are Nordelph, on the banks of Popham's Eau at the northern margins of the LP area, and Ten Mile Bank, on the River Great Ouse. Both are linear settlements which are strung out along local roads. Waterfront areas have a peaceful riverside character and residential areas away from the river frontage have a strongly agricultural character, with an abrupt transition to large scale arable farmland from the rear of their properties. Away from these principal settlements, this vast open arable landscape seems empty and peaceful. The wide open skies are part of the landscape



Ten Mile Bank - the road leading west, to the fens

experience.

Isolated farmsteads are typically surrounded by a cluster of mature trees and are the focal points in local views. Lines of pylons are also often prominent features that appear to 'march' across the open fields, interrupting the horizontal skyline. The few roads and farm access tracks are straight and emphasise the geometric pattern of the arable farm units and drainage ditches.

This is a vast, open landscape with an exceptionally expansive scale. It has a simple, yet dramatic character. Seasonal changes in crops mean that the strong geometric arable field patterns are in a constant state of flux, with changing colours and textures throughout the year. The weather is also a protagonist, contributing to the changing nuances of light and mood.

What's important and why?

The open, expansive character of the Nordelph to Ten Mile Bank LCA limits the extent to which landscape change can be accommodated without it being noticed. However, this landscape has plenty of space and farmsteads and farm buildings are typically surrounded by groups of mature trees so it would be relatively easy to use new tree planting as a means for integrating and partially screening new built development. Large scale infrastructure development would be less easy to accommodate and any development with tall, vertical structures would be prominent.

The most sensitive part of the landscape is the hinterland on the fringes of the villages of Nordelph and Ten Mile Bank, where local access roads and residential roads provide multiple opportunities for local views across the adjacent open arable fields. These areas have relatively high visual sensitivity and changes to local landscape character would be highly visible to local residents.

Within the open farmland, the drainage ditches are relatively sensitive to change and particularly to the risk of pollution from runoff containing fertiliser and/or pesticides. The drainage ditches and the verges of roads and tracks are often the only connected ecological networks across the intensively farmed landscape.

This landscape is intensively managed and in immaculate condition – for the purpose of agricultural use. There are occasional examples of poor quality roadside landscapes, where farm or building materials have been dumped for storage or where heavy lorries have eroded verges and tracks.

Landscape character sensitivity	Visual sensitivity	Landscape value
<p>This landscape can accommodate change provided new development is partially screened by new native tree planting as clustered 'islands' of trees and buildings are a characteristic of the landscape.</p> <p>Locally distinctive and sensitive landscape features are:</p> <ul style="list-style-type: none"> • The skyline • The hinterland of villages, where there may be some smaller paddocks and a relatively dense network of roads and driveways • Clumps of mature trees surrounding farm buildings • Networks of drainage ditches and the riparian habitats on the fringe of the larger rivers • Open grass verges of roads and farm tracks 	<p>Panoramic, open views are typical, but there are few roads and publicly accessible vantage points. Areas of relatively high visual sensitivity are the hinterland of the villages of Nordelph and Ten Mile Bank, where landscape change would be viewed by more people than elsewhere in the landscape.</p> <p>Tall structures would be particularly prominent as they would be seen against the skyline</p>	<p>This LCA is crossed by the Ouse Washes SPA and Ramsar site, which is of international importance for migratory birds. Within the area, the most valued parts of the landscape are the riverbanks (Popham's Eau/Well Creek and the River Great Ouse) and the network of drainage ditches, which provide a partially connected ecological network across the arable fields.</p> <p>Areas of historic and archaeological importance are the setting of the Fen Causeway and the Nordelph Conservation Area.</p>

The Fen Causeway near Nordelph

A detailed survey of the Fen Causeway, completed as part of The Fenland Project¹⁸, has shown the extent to which this Roman Road was associated with a concentration of settlement, farming and industrial activity.

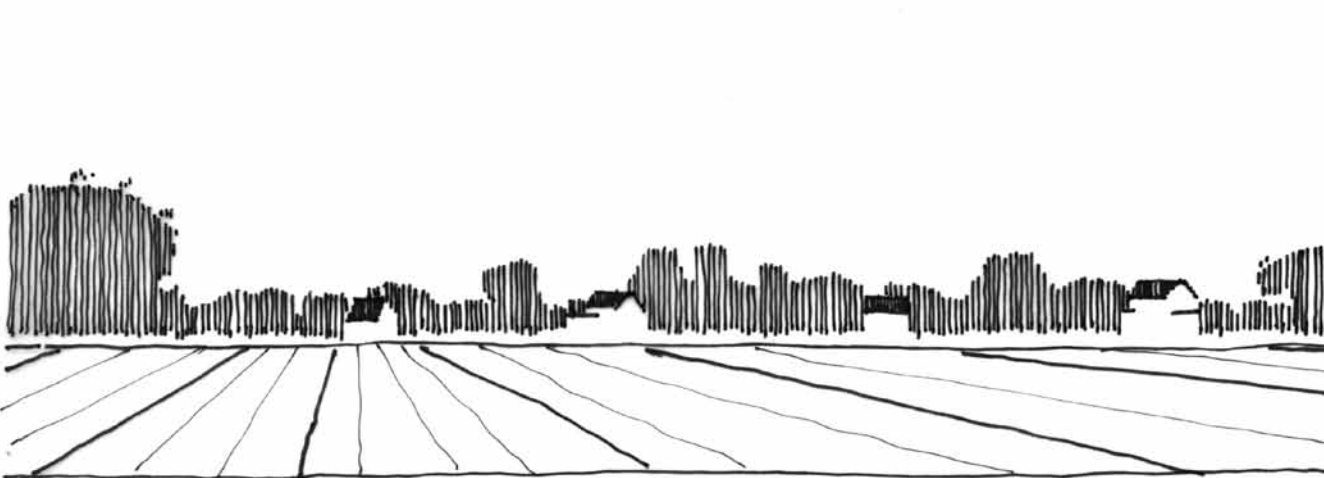
Archaeological evidence suggests that an early (northern) Roman road may have been the first road across the fen. A Roman canal built to the south of the early road was abandoned due to siltation as a result of flooding. Once it had silted up, the canal formed a relatively straight roddon (compared to the meandering natural prehistoric watercourses in the vicinity). A later Roman road makes use of the stable foundation provided by this band of silt across the extensive peat fen.

Aerial photographs show smaller ditched tracks at right angles to the main (later southern) road. Some of these may have accessed industrial sites such as saltworks and turbaries (peat cuttings) and settlements. Aerial photographs, such as the one opposite which shows the Romano-British field system at Straw Hill Farm (with the Ouse Washes in the background) show extensive enclosure systems. The location and orientation of the fields suggest that the focus of these systems was the Fen Causeway.

¹⁸ The Fenland Project Number 4: The Wissey Embayment and the Fen Causeway, Norfolk, Chapters 9, 10 and 11 by R.J. Silverster. East Anglian Archaeology. Report No 52, 1991



© Norfolk County Council. Aerial photograph by D. Edwards



Old Croft River

Old Croft River

Distinctive landscape characteristics

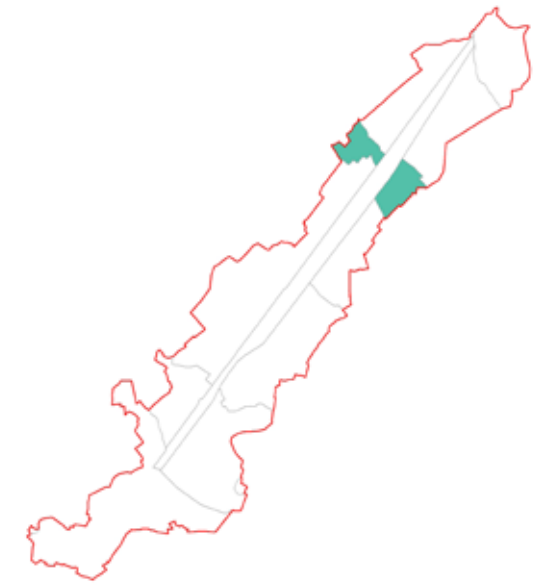
- Arable farmland on the flat marine silt deposits that mark the former course of the Great Ouse (known locally as the Old Croft River)
- Linear villages of Welney and Tipps End sited along the winding A1101, part of which is aligned along the roddon of the Old Croft River
- Winding pattern of medium-sized fields follows alignment of the Old Croft River roddon
- Belts of trees and partial hedgerows enclose fields within the villages of Welney and Tipps End; more open large scale arable landscape between Welney and Littleport
- Concentration of archaeological sites, including several Roman saltworks.

Landscape character

The Old Croft River LCA covers the broad floodplain of the former River Ouse, which once flowed north from Littleport to the Wash. Known locally as the 'Old Croft River,' the alignment of its broad, meandering water course can be traced by the deposits of marine silts and by and by the sinuous pattern of fields and dykes alongside. The silt of the Old Croft River roddon has provided a firm foundation for settlement; the villages of Tipps End and Welney are to the west of the Ouse Washes and there are groups of farmsteads and cottages along the path of the extinct watercourse to the east .

The low islands of Butchers Hill and Apes Hall (just east of the study area boundary) are barely perceptible in the landscape today, but the clusters of archaeological sites on these boulder clay and gravel terrace outcrops suggest that they have long been a focus for human occupation, with a plethora of prehistoric sites which include an extensive Iron Age settlement site at Butchers Hill.

Radiocarbon measurements indicate that saltwater conditions persisted until c.2300 BC. So in the late Neolithic period, the area was predominantly intertidal mudflats and marsh drained by a dendritic pattern of tidal creeks. Peat then encroached, but a later period of marine flooding deposited coarse





Arable fields and settlement on the Old Croft River siltlands at Tipps End (left).

Above views of the more open arable farmland in the Old Croft River LCA to the east of the Ouse Washes

silts along the Old Croft River, 'roddonising' it. By the Roman period these roddon silts were sufficiently dry to enable task sites and occupation along it¹⁹ and by this time the landscape would have been dominated by peat, but with actively flowing brackish watercourses. There was a Roman settlement at Welney and local landscape resources - brackish water in the Old Croft River and peat for fuel - were used to support an extensive salt making industry. Excavations have shown that there were saltern sites at regular intervals alongside the course of the river¹⁹.

The area was also the centre for some of the early fen reclamation schemes. There is a reference in 1277 in the Littleport Rolls (Ely Hundred: Littleport) to the 'newly enfeoffed' tenants at Littleport and after the description of some few small tenements held at money rents, comes another heading, '*Of the newly enfeoffed in Apesholt and elsewhere in the Marsh*'. This section describes numerous tenements of three, six, twelve, twenty and a hundred acres held at money rents of a penny an acre or thereabouts. It seems that a good deal of land had lately been reclaimed from the fen²⁰.

¹⁹ The Fenland Project, Number 10: Cambridgeshire Survey, The Isle of Ely and Wisbech. Chapter 3 - Littleport. David Hall, East Anglian Archaeology Report No 79, 1996

²⁰ H.C. Darby, *The Medieval Fenland*, 1940 (pp49-50)



Extract from the 1604 Hayward Map (see page 26), which shows the concentration of agricultural fields and settlement along the silts of the Old Croft River roddon within an otherwise open, marshy landscape ('West Moare')

North to right on this map.

The 1604 Hayward historic map clearly shows the course of the 'Welnye River', meandering between Littleport to Welney and westwards to Upwell, contrasting with the regular linearity of the surrounding fields and new rivers. There is a meandering system of fields along the river and an indication of settlement at Welney and a hamlet at Ape's Hall. What stands out is that the Old Croft River is a focus for settlement and activity in an otherwise unsettled expanse of 'West Moare,' the extensive area of fen that occupied the low-lying land between the fen islands. The name 'Old Croft River' probably refers to this concentration of enclosure and settlement.

By 11658, when Jonas Moore's map was first made, a strip field pattern follows the winding course of the river, distinctive in comparison to the blocky geometry of the large plots then recently laid as a result of the Adventurers' reclamation project. This sinuous pattern is still evident in the alignment of field boundaries and dykes today.

To the west of the Ouse Washes, the landscape around the villages of Welney and Tipps End has a diverse, irregular pattern, with fields, paddocks and copses intermingled with linear built development. The A1101 through the centre of Welney broadly follows the course of the Old Croft River roddon and the villages here are on or close to the sites of Roman and Bronze Age



Extract from Christopher Browne's c.1700 edition of Jonas Moore's Plan of the Bedford Level (see page 28), which illustrates the continuing contrast between the sinuous small-scale field pattern along the Old Croft River and the large scale geometry of fields associated with the new fen reclamation schemes.

settlements, all taking advantage of proximity to the historic river and the contrasting soil types alongside. Today most fields near the villages are enclosed by belts of trees and this part of the Old Croft River LCA has a relatively enclosed character.

To the east of the Ouse Washes, the landscape is open arable land, with clusters of trees surrounding isolated farmsteads and belts of trees alongside some roads and dykes. There are small groups of houses along local roads and droveways, but the landscape is relatively open and the course of the Old Croft River is no longer apparent in the wider landscape. It is only in aerial or plan view that the original meandering alignment of the river and the crofts alongside can still be traced.

Compared to the vast, open arable landscapes to the north (Nordelph to 10 Mile Bank LCA), the farmland and village landscape of the Old Croft River LCA has an enclosed character, with a strong sense of community.

This dried out field boundary ditch runs along the approximate alignment of the Old Croft River near Apes Hall.





What's important and why?

The enclosed, village character of the Old Croft River LCA to the west of the Ouse Washes relies on the intermingling of open fields and belts and groups of trees within and on the fringes of the villages of Welney and Tipps End. These open fields and paddocks maintain the balance between open farmland, trees and buildings that is characteristic of the area, but they are vulnerable to landscape change in the form of infilling of built development, or tree loss due to mechanical damage and lack of woodland management, all of which could lead to erosion of character. Parts of the open arable landscape to the east of the Ouse Washes already have a fairly denuded character and the remnant tree groups around farmsteads and larger dykes are important landscape features which hint at the importance of the area for settlement in the past.

There are no designated areas within the Old Croft River LCA, although the 'Welney Washes', the section of the Ouse Washes adjacent to Welney, is part of the Ouse Washes Ramsar and Special Protection Area, which is of international importance for rare and migratory birds and for the habitats that support them. The area's important concentration of archaeological sites is not visible to the layperson, but is of value as a historic record of settlement.

Landscape character sensitivity	Visual sensitivity	Landscape value
<p>The loose-knit pattern of settlement, with fields, paddocks and woodlands near the villages of Welney and Tipps End, is particularly vulnerable to landscape change.</p> <p>Locally distinctive and sensitive landscape features are:</p> <ul style="list-style-type: none"> • Fields and groups of trees within and on the outskirts of the villages of Welney and Tipps End • Groups of trees around farmsteads and along field boundaries • The remaining ditches and dykes which follow the distinctive historic meandering alignment of the historic old Croft River. 	<p>The village landscapes to the west of the Ouse Washes have a high visual sensitivity as they are accessible to many people and views to and from houses and roads in the Welney and Tipps End area and form part of the everyday landscape setting of these villages. While small-scale change can often be accommodated through tree planting, large-scale change is likely to be visually intrusive in these areas.</p> <p>To the east of the Ouse Washes, the farmsteads and groups of trees are a focal point in open views; change can be accommodated provided it is partially screened by tree planting and integrated with existing patterns of vegetation</p>	<p>LCA is adjacent to the Ouse Washes Special Protection Area and Ramsar site.</p> <p>Elsewhere, the most valuable ecological habitats are the network of dykes and ditches that subdivide the arable fields and the grassland/scrub habitats along road/droeway verges and embankments.</p> <p>The largely roddon-based archaeological sites are highly valued for their contribution to the archaeological record and are mentioned in the Regional Research Agenda²¹</p>

²¹ M Medlycott (ed), 2011. Research and Archaeology Revisited: a revised framework for the East of England, East Anglian Archaeology Occasional Paper No 24, 2011)

Roman saltworks on the siltlands - Old Croft River

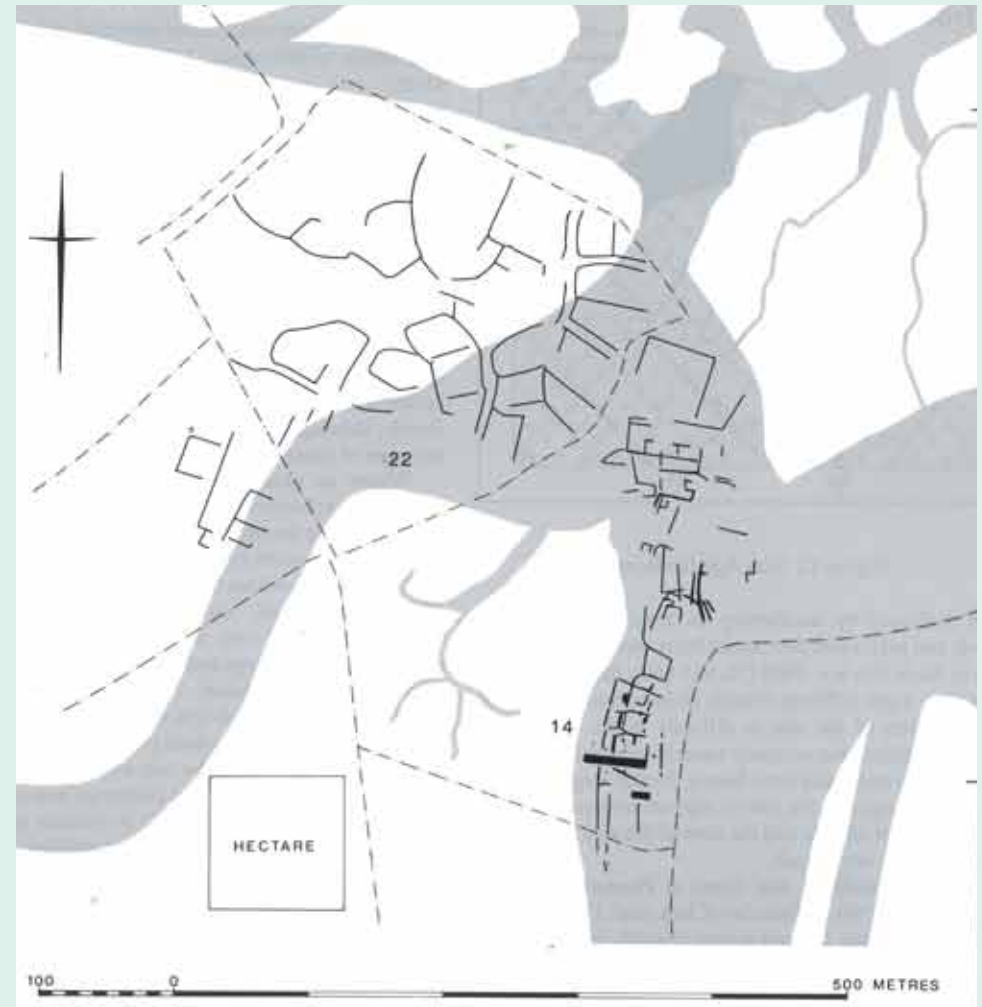
In Roman times, there was a concentration of salterns (salt making sites) along the Old Croft River²². Brackish (salty) water was diverted from the tidal river to the salterns using leats, sometimes directed to brine storage tanks cut into the clay. Salt was made by evaporating the brine in wide, shallow clay evaporation pans made of 'briquetage' - coarsely gritted, robust ceramic from which the pans, their pedestals and other vessels were made. Peat cut from 'turbaries' (linear peat-cuttings) fuelled smouldering fires to keep the water boiling in the shallow pans elevated on dumpy pedestals. The pans were periodically topped up with brine until a high concentration of salt crystals had formed. The water was then boiled dry and the crystals raked out and packed tightly into cylindrical vessels for further processing or for transportation.

Salt was a hugely important commodity in the Roman period, although the production of salt is known to have started in the Early Iron Age and continued through Saxon times into the Middle Ages in salt marsh areas of the northern silt fen. It was a crucial part of the fenland economy, along with grain and meat/dairy products.

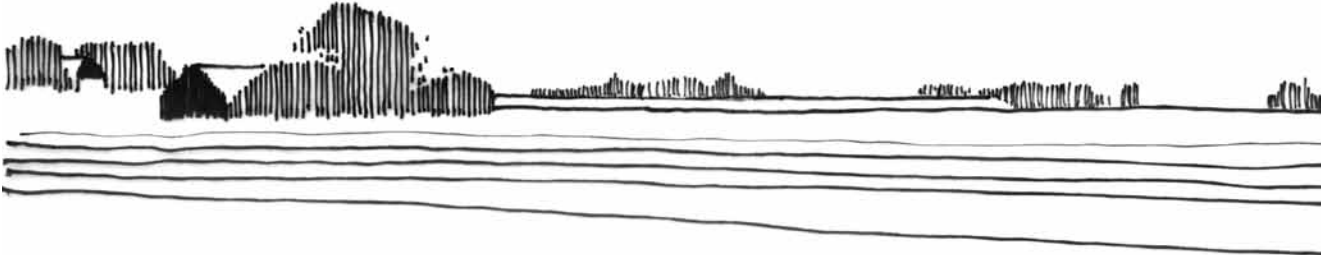
Archaeological excavation and survey along the course of the roddon indicates that salt making was the principal activity, but cropmarks on an 'island' of relatively elevated land (surrounded by marshy peat fen) at Apes Hall suggest that this small zone of dry land was used for pasture and stock rather than salt making.

Extract from East Anglian Archaeology Report No 79²² - Figure 14, page 26 which shows cropmark features at Apes Hall. The roddon is shown as a grey tone.

Site 14 forms a 'ladder' settlement, with a linear series of attached small paddocks stretching over 300m on a roddon; there are also blocks of 'grubenhäuser' [sunken floored buildings of the Saxon period] type features, as well as lengths of ditch at right angles to the river. Site 22 next to it has many large, curvilinear enclosures and no saltern briquetage.



²² The Fenland Project, Number 10: Cambridgeshire Survey, The Isle of Ely and Wisbech. Chapter 3 – Littleport. David Hall, East Anglian Archaeology Report No 79, 1996



Pymoor

Pymoor

Distinctive landscape characteristics

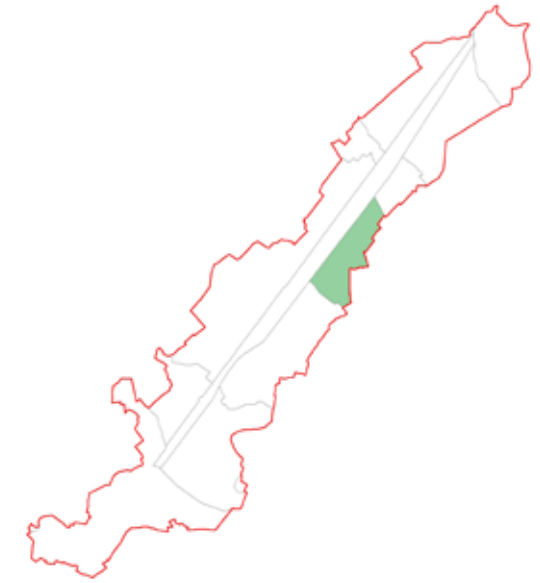
- Flat arable fields on extensive peat fen, subdivided by a 'herringbone' pattern of straight roads and droveways, all with wide verges
- Linear settlement of Pymoor, but many additional groups of farms, commercial buildings and cottages strung out along the roads
- Relatively small scale landownership pattern, with smallholdings as well as larger farms
- Scattered tree belts and groups of trees around farms and along droves provide a subtle 'layered' sense of enclosure in the wide open views.

Landscape character

The Pymoor LCA is an area of flat peat fen to the north of the Fen Isles, between Downham Hythe and the A1101. The principal settlement is the village of Pymoor and the area has a distinctive 'herringbone' pattern of straight roads and droveways, which subdivide the farmland.

Scatters of Mesolithic and Neolithic worked flints indicate that the area was settled in prehistoric times and there is evidence of Bronze Age and Roman settlement near Pymoor. The peat fen is known to have become progressively more waterlogged during the Saxon and medieval periods, so it is possible that the marsh and wet grasslands were used as common fen and as temporary summer grazing accessed by droveways from the Fen Isle villages of Little Downham and Downham Hythe to the south and east.

The process of draining the marshy, low-lying fen was first undertaken as part of Vermuyden's scheme, which soon needed to be supplemented by windmills. Numerous windmill sites in the area are evidence of this period, when the network of dykes would have been cut to drain the farmland. When the Hundred Foot Pumping Station was built in 1830, it replaced a windmill, one of 75 in the area²³. In later years a windmill in the village ground corn and was also the village bakery. The miller had horses and carts driving around outlying farmsteads and cottages delivering the freshly baked bread.²⁴



²³ Listed Building citation

East Cambridgeshire District Council

²⁴ <http://www.visitoruk.com/Ely/pymore-C592-V9422.html>

The linear village of Pymoor is the core settlement, but there are groups of farms and cottages along most of the roads and droveways and the area has a well settled, more domestic character than other parts of the study area. Tree and poplar belts along the droveways and clusters of trees around many of the farms give a 'layered' subtle sense of enclosure in the wide open views across the flat farmland.

The railway cuts across the farmland on a slight embankment from Manea to the west to Littleport. The rough grass slope of the low railway embankment contrasts with the surrounding geometry of the arable fields and is a subtle feature of the landscape.

The Pymoor LCA has a distinctive homely quality. The relatively small scale pattern of landownership and extensive network of roads and droves, together with the large number of smallholdings ensure that the open farmland around Pymoor seems more accessible and inhabited than the vast open arable lands to the north (west of the Ten Mile Bank). The area also has a distinctive mix of commercial and residential development strung out along the roads so there is a constant buzz of activity. The Pymoor landscape has a rather untidy, random character, with scattered patches of scrub and odd groups and belts of trees around buildings and along verges, dykes and embankments. Seen in longer views across the farmland, these rather random collections of vegetation give a layered sense of enclosure.





What's important and why?

The distinctive domestic character of the Pymoor LCA stems from its relatively small-scale pattern of landownership. The linear settlement pattern and scattered patches of vegetation contribute to the sense that the landscape is in a constant state of flux, but the overall character is a balanced mix of open farmland, wide drove roads and a variety of property types. It is the balance between these different landscape components that is sensitive to change.

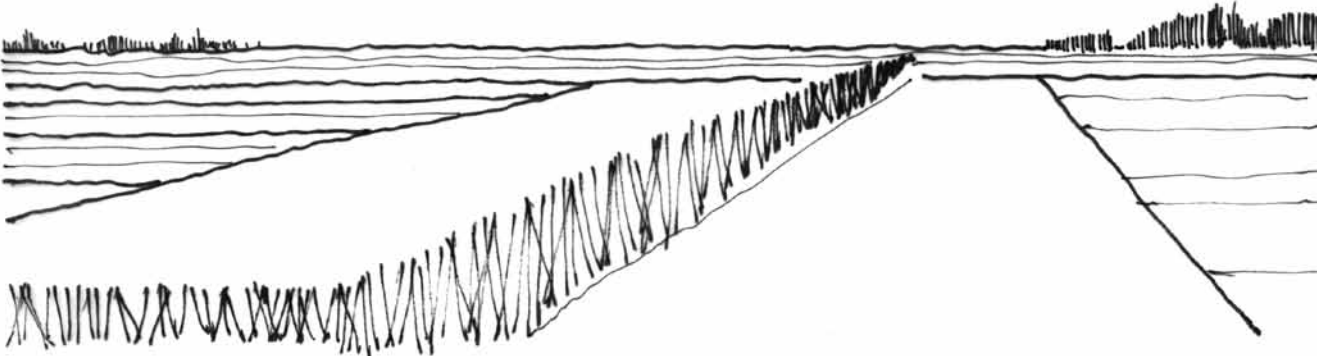
Landscape elements that are particularly vulnerable to change are the wide verges of the drove roads and the intermediate gaps between buildings on the fringes of Pymoor, where coalescence of built development could have a detrimental impact on the local small-scale character of this settlement.

Some parts of the area are in poor condition, particularly where there is extensive commercial activity and the verges of the drove roads are used for stockpiling materials and manoeuvring and/or parking large vehicles.

There are no designations within the area but the Pymoor LCA is adjacent to the Ouse Washes Special Protection Area which is of international importance for rare and migratory birds and for the habitats that support them.



Landscape character sensitivity	Visual sensitivity	Landscape value
<p>The relatively small-scale linear pattern of settlement can easily be overwhelmed by large scale landscape change and there are examples of areas that are in poor condition.</p> <p>Locally distinctive and sensitive landscape features are:</p> <ul style="list-style-type: none"> • Relatively small-scale field patterns, orchards and paddocks on the fringes of Pymoor • Remnant fields and open spaces that form gaps between buildings along the village roads and surrounding lanes • Droveaways, green lanes and tracks , which often have wide verges • Groups of mature trees around farmsteads and alongside historic tracks 	<p>The extensive network of roads and droveways ensures that the Pymoor LCA is relatively accessible compared to other parts of the study area. There are long views across the arable farmland from the backs of houses in Pymoor and along local roads.</p> <p>Landscape change can be accommodated provided it is partially screened by tree planting and integrated within the scattered, blocky pattern of existing vegetation. Note that large scale tree planting is inappropriate in this open landscape and that large buildings could seem out of scale, particularly if they are sited close to local villages and so appear in the foreground of locally accessible views.</p>	<p>The LCA is adjacent to the Ouse Washes Special Protection Area and Ramsar site.</p> <p>Elsewhere, the most valuable ecological habitats are the network of dykes and ditches that subdivide the arable fields and the grassland/scrub habitats along road/droveyway verges and embankments.</p>



Manea to
Langwood Fen

Manea to Langwood Fen

Distinctive landscape characteristics

- Expansive and extensive flat arable farmland
- Tranquil, remote character with few settlements
- Open arable fields to north of Manea, but hedgerows and belts of trees on Langwood Fen provide some enclosure and a backdrop to views
- Forty Foot Drain is a significant landscape feature, slicing across the fen
- Large scale sand and gravel extraction at Block Fen

Landscape character

The Manea to Langwood Fen LCA is in the centre of the Ouse Washes study area and to the west of the Ouse Washes. It includes the eastern fringes of the village of Manea and the hamlets of Purls Bridge and Welches Dam, as well as outlying farmsteads. The fenland town of Chatteris is to 1km to the west. The area is underlain by a mix of deep clays and seasonally wet peaty loam soils, with small areas of calcareous soil that is derived from river terrace drift. The landscape today is one of extensive, flat, arable farmland, but in prehistoric times, it would have been a diverse mosaic of marsh, meadow and woodland between the drylands of the Chatteris - Manea fen 'island' to the west and the braided river channel of the Ouse River to the east.

There are archaeological sites and finds scatters from the Neolithic period throughout the LCA, with concentrations at North Fen and Block Fen. Further evidence for settlement in the Neolithic period is provided by the site of a significant group of three Neolithic enclosures at Horsely Fen²⁵, just to the west of the LP boundary. Evidence for Bronze Age settlement is equally prolific, with many barrow sites and finds of Bronze Age weapons. An extensive Bronze Age barrow cemetery at Block Fen is (in part) a Scheduled Monument. The site is partially destroyed by ploughing, but there is evidence of eight barrows and possibly four ring ditches so this is likely to have been an extensive site²⁶.



²⁵ <http://list.english-heritage.org.uk/resultsingle.aspx?uid=1009993&searchtype=mapsearch>

²⁶ http://www.heritagegateway.org.uk/Gateway/Results_Single.aspx?uid=MCB7297&resourceID=1000

The important Roman settlement site at Stonea and evidence of a Roman settlement and field system near Honey Hill are both to the west of the study area, but there are further Roman settlements on the fringes of Langwood Fen and Block Fen and a concentration of Roman coins, fragments of domestic objects and pottery sherds, as well as evidence of building stone and tiles, suggests a Roman settlement of some form near Langwood Hill Drove²⁷. There is also evidence of a possible Iron Age settlement site nearby.

By the Mid Saxon period, the Fen Basin had become significantly wetter and settlement retreated to higher land. By medieval times, settlement was concentrated outside the study area at Chatteris and Manea. Droveways would have led from these settlements to the summer pastures on the common fen. The 1604 Hayward Map shows no evidence of settlement within the Manea to Langwood Fen LCA, although 'Manye' is shown as a dotted area at the junction of lodes leading to Downham Hythe to the east and Doddington to the west.

The construction of the Old and New Bedford Rivers (and the Ouse Washes) as part of the mid-seventeenth century strategic drainage schemes



Left - the open arable landscape to the east of Manea; Right - hedgerows and belts of trees form a backdrop to some views on Langwood Fen

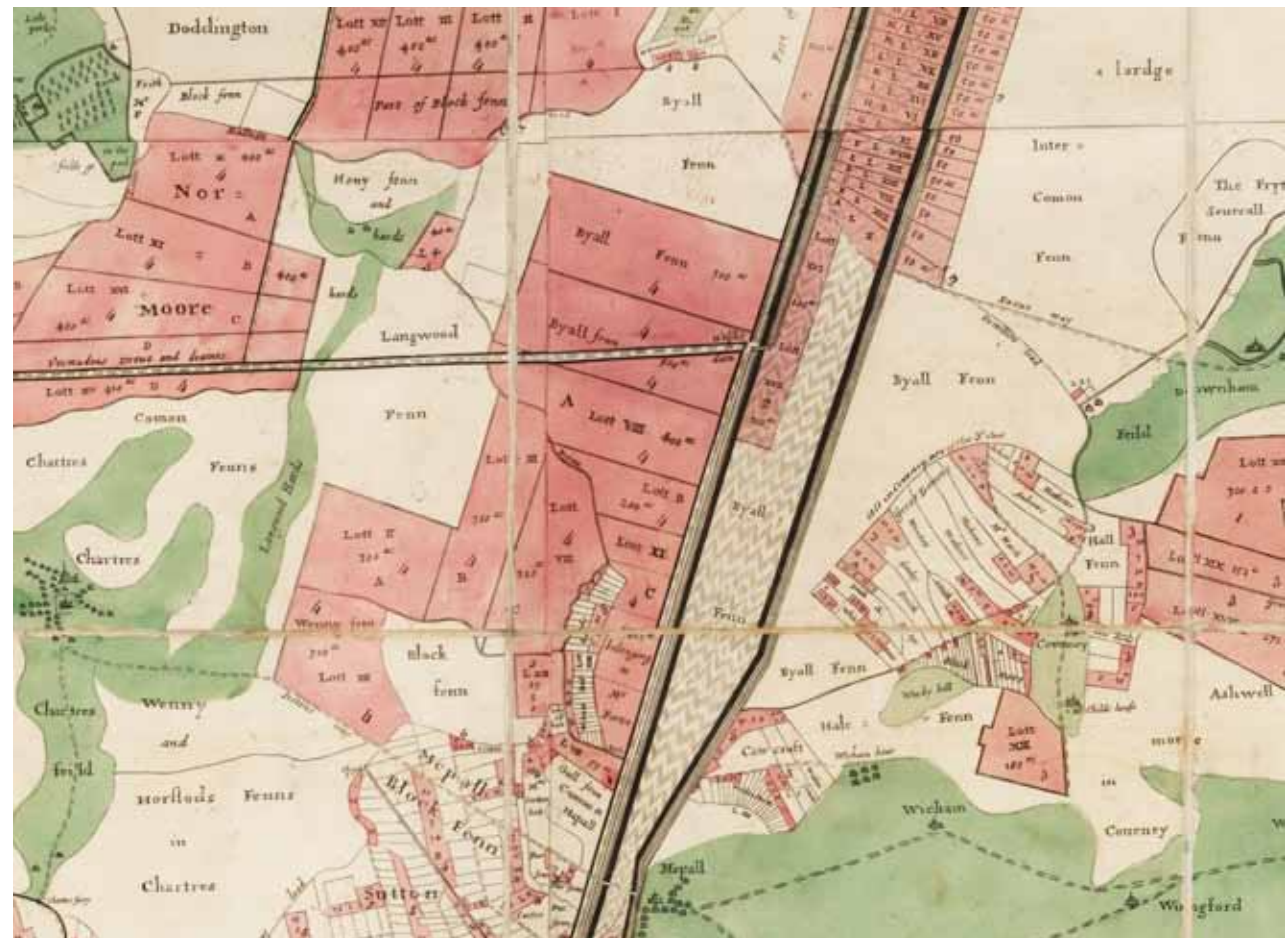
²⁷ http://www.heritagegateway.org.uk/Gateway/Results_Single.aspx?uid=MCB9609&resourceID=1000

would have changed the pattern of the landscape and the dynamics of its use. The small settlement of Manea was in the parish of Coveney, but this landscape unit was severed by the Ouse Washes in the 1650s. Purl's Bridge Drove would have connected with Adventurer's Drove on the east side of the Washes, connecting Manea with Little Downham.

The extract from the Moore Map published in 1700 shows that an area of small crofts along the meandering course of a minor river to the north west of Mepal was retained amidst the extensive large scale pattern of land units established by the Adventurers' investment. This watercourse is now reduced to a series of dykes across an area known as Witcham Meadlands - the county boundary between Cambridgeshire and Huntingdonshire still reflects this historic field pattern.

In 1638 King Charles 1st, declaring himself undertaker for the fen drainage scheme, proposed that a new town be built at Manea, as the capital of the newly drained middle level. The town was to be called Charlemont and would have been connected to the River Ouse by a canal, but the design never proceeded beyond the visioning stage!

Vermuyden's Forty Foot Drain (originally known as Vermuyden's Eau) and droveway cut right across the LCA and joined the Old Bedford River



Extract from Christopher Browne's c.1700 edition of Jonas Moore's Plan of the Bedford Level (see page 28), to show the extensive area of drained fenland established by the Adventurer's plots (coloured pink) and the small area of small crofts retained at Witcham Meadlands.



Purl Bridge Drove



Welches Dam



Sand and gravel extraction at Block Fen

at Welches Dam. The hamlets and inns that developed at Welches Dam and Purl's Bridge served the barge workers and those working on these major infrastructure projects. Welches Dam was unfortunately well known in 1849 because there were 11 fatal cases of cholera in a parish that had only 187 inhabitants. *Most of the fatalities were amongst the 81 occupiers of a group of 16 cottages huddled against the Old Bedford River bank*²⁸.

Economic recession, high unemployment and discontent amongst the poor in the early 19th century led to a surge of political activism. Against this background, Robert Owen's socialist vision of a communitarian society became a popular ideal which fuelled the establishment of a number of utopian communities. In 1838 one such colony was set up by a local businessman and former lay preacher on an area of fenland now known as the Manea Fifties. It was an ambitious project. *The colonists are said to have built cottages, a school, pavilion and windmill, worn a uniform of Lincoln green suits, and produced a newsletter, The Working Bee, which was widely distributed*²⁹. Unfortunately the project collapsed after just a few years as it proved to be unsustainable; the colonists failed

²⁸ <http://www.british-history.ac.uk/report.aspx?compid=21910>

²⁹ www.welney.org.uk/Manea_colony.htm

to find markets for the goods they produced and financial backing was withdrawn.

The flat arable landscape today has an expansive scale and a tranquil, remote character. To the north of Manea, the fields are exceptionally open, but there is more enclosure to the south and, on Langwood Fen, some fields and droveways are enclosed by hedgerows. Belts of trees along the Forty Foot Drain and the dyke to the north provide a strong backdrop to local views.

The RSPB Reserve at Welches Dam and the Mepal Outdoor Centre are a focus for visitors. Sand and gravel extraction at Block Fen has created a cluster of open lakes (used in part for water sports). Mineral extraction is to continue on a large scale, but the plans for land restoration following quarrying include a mix of areas of open water and wet grassland which will provide replacement habitat for ground nesting birds affected by unseasonal and prolonged flooding on the adjacent Ouse Washes. Visitor access for leisure walking and cycling will be promoted to parts of the area.

What's important and why?

The open, expansive arable farmland can accommodate change provided it is carefully integrated into existing landscape patterns by large scale linear belts of tree planting. The most sensitive parts of the landscape are the droveways and lanes and the smaller fields on the fringes of Manea (just outside the Ouse Washes study area). Archaeological sites, including the Scheduled Monuments at Block Fen Barrow Cemetery, are also inherently sensitive to change.

Within the open farmland, the drainage ditches are relatively sensitive to change and particularly to the risk of pollution from runoff containing fertiliser and/or pesticides. The drainage ditches and the verges of roads and tracks are often the only connected ecological networks across the intensively farmed landscape. The riparian corridor alongside the Forty Foot Drain is proposed as a 'Priority Landscape Corridor' in the Fens for the Future Vision³⁰ and has a potentially important role in the proposed strategic ecological network as it can improve the connectivity between the core fen habitats of the Ouse Washes, the Great Fen project and the Nene Washes by enabling species to move between them to feed, disperse, migrate or reproduce.

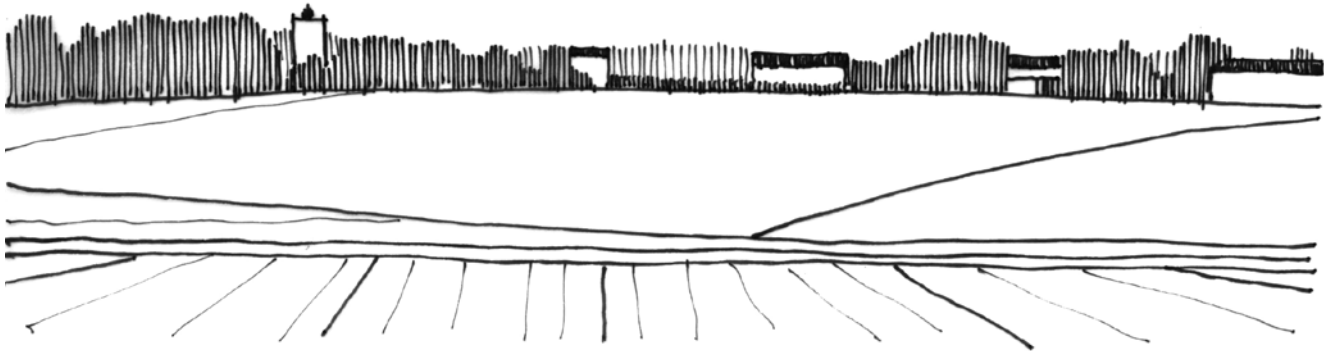
This landscape is intensively managed and in good condition – for the purpose of agricultural use. The corridor of the A142 has areas of low quality landscape; heavy traffic (associated with the Block Fen quarries) is disruptive and noisy and landscape character is eroded in this area.



Old Mill Drove

³⁰ Fens for the Future – A strategic plan for fenland. Proposal for an enhanced ecological network. Leaflet published 2012.

Landscape character sensitivity	Visual sensitivity	Landscape value
<p>This landscape can accommodate change provided new development is carefully integrated by linear belts of trees. The vast scale of the landscape means that most change (even if it breaks the skyline) will not dominate.</p> <p>Locally distinctive and sensitive landscape features are:</p> <ul style="list-style-type: none"> • Historic tracks, green lanes and drove roads • The landscape setting of archaeological sites • Smaller scale landscape pattern on the fringes of Manea and views to Manea across Cow Common 	<p>Panoramic, open views are typical, but there are few roads and publicly accessible vantage points.</p> <p>Tall structures would be particularly prominent as they would be seen against the skyline, but if viewed from a distance could be easily 'absorbed' by the vast scale of the landscape</p>	<p>Areas of historic and archaeological importance are the setting of archaeological and historic sites, including the Scheduled Monument - the Bronze Age Barrow Cemetery at Block Fen.</p> <p>Droeways that are public rights of way (eg Barnes Drove and Old Mill Drove) and droeways that are public rights of way through use, are also valued by local communities</p> <p>This LCA is crossed by the Ouse Washes SPA and Ramsar site, which is of international importance for migratory birds. Within the area, the most valued parts of the landscape are the river banks (River Great Ouse) and the network of drainage ditches, which provide a partially connected ecological network across the arable fields.</p>

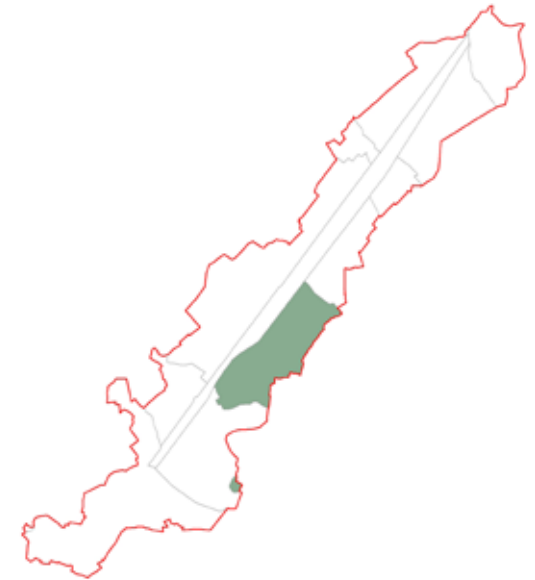


Fen Isles

Fen Isles

Distinctive landscape characteristics

- Gently sloping low clay hills with a rounded profile, which are elevated above the surrounding low-lying, flat peat fen
- Roads are aligned along the rounded 'spine' of the island ridges with villages on the summits
- Diverse pattern of fields - smaller paddocks, pastures and orchards surrounding villages contrast with the large scale flat arable fields on the surrounding fen
- Historic tracks and greenways, with straight drove roads leading from villages across the fen
- Embanked roads form 'causeways' across the flat fen between the Fen Isles
- Curving ditches often define the break of slope at the edge of the Fen Isle, following the contour.
- Hedgerows and groups of trees around villages and farmsteads on the Fen Isles; the surrounding flat fen has a subtle sense of enclosure
- The Fen Isles form a backdrop to views across the fens and there are dramatic long views out from the ridgetop roads.



Landscape character

The Fen Isles are remnant hills, which have remained free of peat and silt throughout the centuries of deposition that followed the Ice Age. The hills are capped with Boulder Clay and have heavier soils than the surrounding peat fen. The Fen Isles LCA includes the villages of Mepal, Sutton, Witcham, Wardy Hill, Coveney and Downham Hythe. It encompasses the island hills and their fen hinterland, acknowledging the inter-dependencies in the ways that communities have exploited these two contrasting landscape types. The drier clay soils were used for cultivation and permanent pasture and the marsh for fuel, building materials, wildfowl and fish.

The higher Fen Isles have been the preferred sites for settlement since the Mesolithic period – when this was part of a dry landscape. The heavy clay soils on the island crests were difficult for early Neolithic and Bronze Age communities to farm and their settlements were located on the lower ground close to rivers and meres, but by the Iron Age, stronger ploughs enabled cultivation of the islands, which

was necessitated by the infilling of the Fen Basin and the development of extensive marshes. The low-lying Iron Age forts had strategic locations in fen embayments or adjacent to once navigable rivers, long since infilled by marsh land deposits. The excavation of the small defended ringwork at Wardy Hill has revealed high ramparts surrounding at least four circular huts. There is evidence of Roman settlement at Witcham and near Wentworth.

The relationship between the Fen Isles and their fen hinterland shifted as the Fen Basin became increasingly waterlogged and clogged by silt and peat. By Saxon and medieval times, the Fen Isles would have been literally islands in the marsh, linked by timber or embanked causeways. The straight roads that connect the island of Coveney to the adjacent islands are still called 'Long Causeway' to the south and 'Short Causeway' to the west.

The pattern of settlement, roads, tracks and fields that we see today was established in medieval times. Villages and farmsteads were sited on the higher fen islands, connected by roads that followed the higher land (sometimes roddons) and kept the length of the crossings over the fen to a minimum. Curving dykes and tracks often define the break of slope along the lower edge of the fen islands, with straight droves leading directly onto the fen. The drove roads accessed the lush summer pastures of the



The village of Coveney is sited on the summit of one of the larger, steeper Fen Isles. The houses, farms, paddocks, orchards and arable fields on the hill slopes create a diverse landscape pattern.



Scattered trees define smaller fields



Historic droves - The Rushway



Subtle, but prominent fen island 'hills'



Villages on ridgeline roads

common fen which provided high quality grazing, enriched by winter flooding.

Parts of the medieval fen were drained by a network of ditches and dykes; canals cut between the rivers and larger dykes created navigable channels or 'lodes', such as the Oxenlode, which were used to transport goods across the fen, connecting the hithes (ports) of the Fen Isle villages with larger towns and the ports of Wisbech and King's Lynn. The upkeep of the principal causeways and lodes was a communal effort, under the instruction of the manorial lords - very often the fenland abbeyes. It would have been difficult to maintain these crucial lines of communication during periods of population decline caused by periods of Black death and plagues.

Archaeological evidence suggests that some of the present day Fen Isle villages were larger, or perhaps more dispersed - some may have shrunk in size or even been deserted in years of economic and population decline. There are examples of shrunken medieval villages at Witcham and Mepal and there is the site of a deserted medieval village on the small fen island of Way Head.

There was piecemeal drainage of the fens throughout the Middle Ages, but the landscape would have changed with the seasons, becoming increasingly waterlogged during the winter months. One of the largest early areas of fen reclamation was at Great Dams Fen, to the east of Coveney, where long narrow fields were

subdivided by linear dykes.

Years of intensive drainage have transformed the fen from marsh into top quality arable land, yet the imprint of the medieval landscape remains in the hill-top villages, ridgetop island roads and the embanked fen roads, which often have sharp right-angled bends. The Fen Isles are subtle hills, but they are prominent in the low-lying fen and form a backdrop to local views.

There are dramatic long views out across the fen from the ridgetop roads as they cross the summit of each fen island.

Compared to other parts of the fen, the Fen Isles LCA seems relatively enclosed. The diverse combination of field, road and settlement patterns is ordered in response to subtle variations in topography, giving the area an attractive 'settled' quality and an exceptional sense of historic continuity.

Clusters of trees and hedgerows associated with the villages and farmsteads on the 'islands' are prominent and the numerous historic tracks and drove roads are often bordered by clumps and lines of trees. The areas of open arable fen are relatively small in scale and all have evocative names – 'Coveney Sedge Fen', 'The Corkeretts' 'Home Dams Fen' – which hint at their historic use and territorial links.



Long views out from the ridgetop roads of the Fen Isles. Above - view eastwards to Ely from Coveney and right, view to the south across North Fen from Sutton.

What's important and why?

The diverse, historic pattern of small fields, orchards and paddocks that surrounds many of the Fen Isle villages is vulnerable to development and forms of agricultural intensification that would erode its small-scale character. These paddocks, and the network of tracks and lanes that link the village to its agricultural hinterland, form a transition to the larger arable fields on the lower slopes, contributing to the distinctive identity of the Fen Isles and their villages. Together with the traditional buildings in the Fen Isle villages, these village landscapes are prominent and form a backdrop to local views.

The historic curving tracks and drains that trace the break of slope around each fen island define the subtle contours of the Fen Isles landscape. They are sensitive to change, along with the narrow, often sharply angled fen roads which contrast with the large scale of the surrounding fen and which form a gateway to local villages.

The condition of this landscape is variable. The sensitive remnant historic orchards, fields and tracks are typically not well maintained and there is a risk that the relatively diverse Fen Isle landscapes immediately surrounding the island villages will become increasingly homogeneous as these landscape elements are eroded.

There are few designations, but an extensive area of fen adjacent to the Ouse Washes (Coveney Byall Fen, Byall Fen and The Corkeretts) is part of an 'area of search' for new replacement wet meadows outside the core Ouse Washes habitat. These new wet grasslands will support the breeding waders (black-tailed godwit, snipe and ruff) which are increasingly unable to nest on the wet grasslands of the Ouse Washes because these habitats are repeatedly waterlogged by excessive late spring floods. This area incorporates a 200 ha site near Wardy Hill, where restoration from arable to wet grassland is already underway.



Catchwater Drain near Downham Hythe

Landscape character sensitivity	Visual sensitivity	Landscape value
<p>The relatively small-scale landscape pattern immediately on the fringes of the Fen Isle villages is often in poor condition and is particularly vulnerable to change.</p> <p>Locally distinctive and sensitive landscape features are:</p> <ul style="list-style-type: none"> • Historic field patterns, orchards and paddocks on the fringes of the Fen Isle villages • Droveaways, green lanes and tracks • Groups of mature trees around farmsteads and alongside historic tracks • Narrow, sharply bending embanked fen roads • Historic curved catchwater drains that mark the break in slope along the lower margins of the Fen Isles • Vernacular farm and village buildings, which may be prominent in local views 	<p>Long open views from the Fen Isle ridgetop roads are characteristic of the LCA. The skyline of the fen islands is particularly sensitive to change. The impact of small scale development could potentially be mitigated by tree planting, but it is unlikely that large scale development could be screened. The hinterland of the views out from the Fen Isle ridgetop roads is also sensitive to the visual impact of new development and such oblique aerial views cannot easily be screened.</p> <p>Elsewhere the gateway views to the Fen Isle villages from the fen causeway roads are particularly vulnerable to change.</p>	<p>The conservation areas of Sutton and Witcham are designated for their historic interest, but all the Fen Isle villages have a strong sense of place and are valued by local communities.</p> <p>The LCA is adjacent to the Ouse Washes Special Protection Area and Ramsar site and parts of the area are identified as suitable potential habitat for breeding waders. It is therefore part of an area of search for replacement habitat to support the Ouse Washes core area.</p> <p>Elsewhere, the most valuable ecological habitats are the newly restored wet grasslands near Wardy Hill and the existing County Wildlife Sites at River Close Parkland, Mepal, The Bury Meadow (Witcham) and the Hundred Foot Bank Swamp and Ditch near Sutton.</p>

Medieval waterways - Downham Hythe

A 'hithe' was a river landing place or small port. During the Middle Ages, Downham Hythe was the port that served the village of Little Downham (dominated by the Bishop of Ely's Palace and park) 2km to the east. Water-borne transport arrived via the navigable Oxlode between Manea and Downham Hythe which connected to the larger fenland waterways to the west. Lodes were used for trade and transport and this relatively cheap form of transportation would have helped to support the fenland economy. The relationship between Downham Hythe and Little Downham was typical of fen-edge villages in that the hythe was separated from the manorial village centre by a significant distance (here 2km) so it seems that water borne transportation was not the most significant influence on patterns of settlement growth³¹.

The Bishop of Ely was the Lord of the Manor and detailed records from the manorial courts³² show that the system of lodes and dykes was a community asset, subject to strict laws:

Six 'dyke reeves' were appointed in the manorial Downham Court (5 December 1328) to police the New Ditch 'which the lord had drained. No one is to fish in it or place a fish-trap or nets [in it] or to cross it with planks or in any other way.' Similarly, three dyke reeves were appointed on 5 July 1376 as supervisors of the lode from Downham Hythe to Manea.



Extract from Payler-Smith's copy of William Hayward's 1604 Plan of the Great Level of the Fens (see page 26), which shows the system of navigable waterways (lodes) connecting the principal Fen Isle villages (left). The diagram on the right highlights the location of the lodes (in purple) and the hythes (orange circles).

³¹ Cambridgeshire and the peat fen. Medieval rural settlement and commerce c. AD 900 - 1300, Dr. Susan Oosthuizen. Ch 13, 2011

³² Downham-in-the-Isle - A Study of an Ecclesiastical manor in the 13th and 14th Centuries, M Clare Coleman, 1984.

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The Fen Isles - **Downham Hythe**

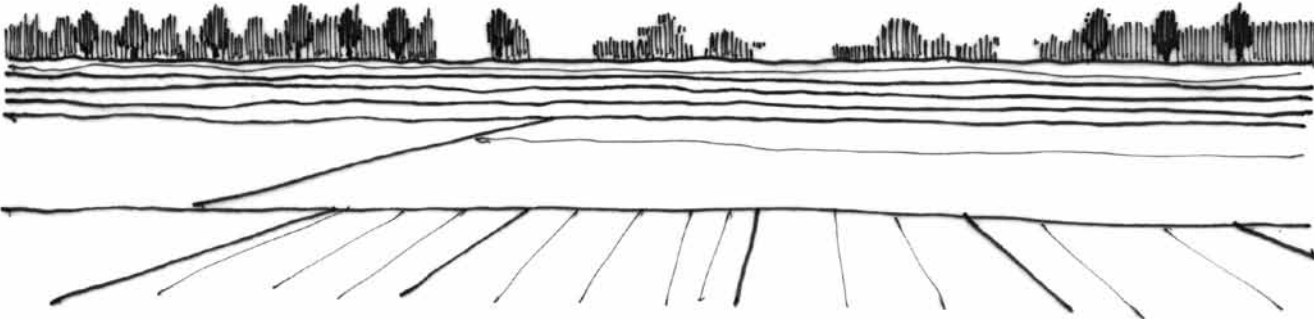
The alignment of the medieval Oxlode may be traced within parts of existing dykes. The sharp kink in the road along Downham Hythe Drove is thought to be the site of the medieval quay of Downham Hythe and excavations revealed the buried timbers of a landing stage³³.

Later excavations along the north side of the dyke that is thought to have been the lode did not reveal any features relating to the medieval hythe³⁴, although some fourteenth-fifteenth century pottery was recovered, which could represent the remains of cargo delivered by boat to the hythe.



³³ DN Hall ref DOW S5, RN 130, Dbase II RN 434. Dry and ploughed (DNH 1991)

³⁴ http://www.heritagegateway.org.uk/Gateway/Results_Single.aspx?uid=MCB7734&resourceID=1000



Meadland to
Lower Delphs

Meadland to Lower Delphs

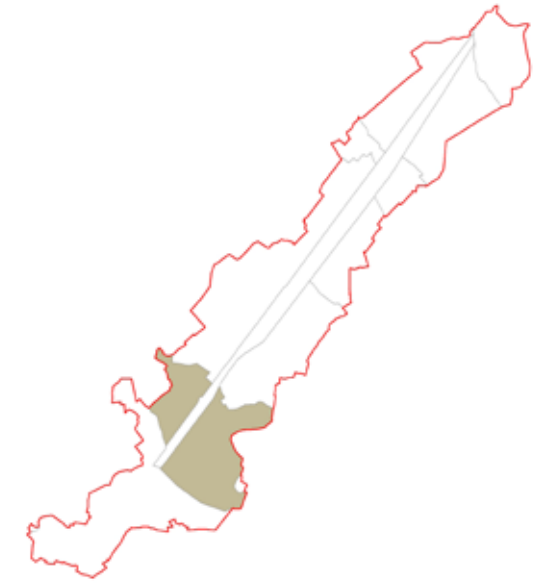
Distinctive landscape characteristics

- Arable farmland with an expansive, open scale
- Large fields are subdivided by a rectilinear network of drainage ditches
- No settlements; isolated farmsteads surrounded by clusters of trees are occasional focal points
- Belts of trees sometimes form the horizon in open views across the fen
- Few roads, straight tracks and droveways are bounded by deep drainage ditches
- Panoramic views and vast open skiescapes.
- Tranquil and remote.

Landscape character

Today the Meadland to Lower Delphs LCA is an open, arable landscape with no significant settlements, other than farmsteads, but 10,000 years ago it was very different. At this time the River Ouse flowed across a marshy, delta-like landscape within a braided channel (see page 22) on its way to The Wash. This prehistoric landscape would have been a diverse mosaic of marsh, wet meadows and woodland, with areas of pasture and (by the Bronze Age) arable plots on slightly elevated islands of river terrace gravels on the edge of the floodplain. Scattered archaeological evidence suggests that the area was occupied during the Mesolithic period, but excavations have revealed an important complex of Neolithic and Bronze Age features which suggest the gravel islands along the former course of the River Great Ouse, where it met the fen edge, were a focal point for prehistoric activity³⁵.

A large causewayed enclosure on the Upper Delphs terrace dates from the Neolithic period. The perimeter of the enclosure, a communal monument enclosing 8.75 hectares, is defined by a ditch, with a palisade and, inside the entrance, a burial mound containing fragments of human skulls and a polished axe³⁶. To the north (Foulmire Fen) there is another complex of Neolithic barrows, including the scheduled site of a Neolithic long barrow with an preserved internal wooden mortuary structure. To the west (near Stocking Drove Farm, Chatteris) there is evidence for a later Neolithic occupation site³⁷. The importance of the area for ceremonial funerary monuments continued in the Bronze Age. Three clusters



³⁵ <http://list.english-heritage.org.uk/resultssingle.aspx?uid=1019982&searchtype=mapsearch>

³⁶ http://www.heritagegateway.org.uk/Gateway/Results_Single.aspx?uid=MCB7036&resourceID=1000

³⁷ Hall, D.N.. 1992. The Fenland Project, Number 6: The South-Western Cambridgeshire Fenlands. CHA S37



Sutton Holwoods from Meadlands Main Drove

of bowl barrows on a former gravel island near Earith are Scheduled Monuments and, together with the Bronze Age barrows found near Over, the whole complex would have been a prominent and significant ceremonial landscape which persisted for thousands of years.

Archaeological evidence of Roman activity is concentrated along the south west borders of the LCA, near the Roman Car Dyke transport canal and the Roman settlement and inland port at Colne Fen and to the east of Somersham (See Ouse Valley Wetlands LCA), but a late Iron Age - Roman shrine, placed on a Bronze Age barrow suggests that the Upper Delphs terrace continued to be used as a site for ritual activity³⁸.

The lack of Saxon and medieval settlement suggests that people retreated to the higher land of the nearby Fen Isles (to the villages of



Lower Delphs from Hill Row Causeway

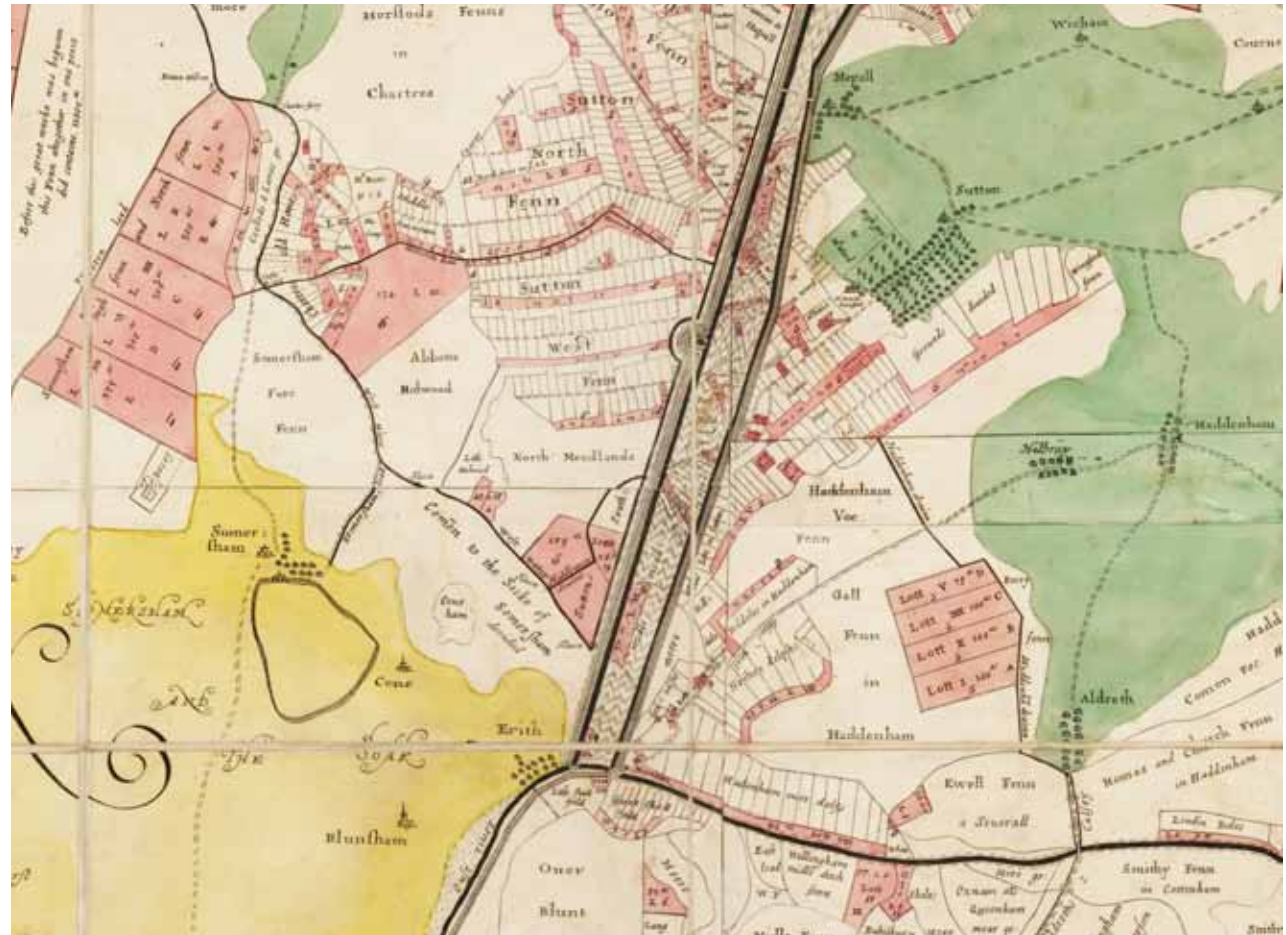
³⁸ http://www.heritagegateway.org.uk/Gateway/Results_Single.aspx?uid=MCB7167&resourceID=1000

Haddenham and Sutton) as the peat deposits grew and the low-lying fen became progressively waterlogged. The wet ground was traversed by two important causewayed roads, which connected the Isle of Ely to the fen edge – the Aldreth Causeway (now a byway) to the south and Hill Row Causeway (now the A1123), part of which follows the alignment of a roddon between Earith and Haddenham. There was a timber bridge over the River Ouse at Earith in 1172 associated with a hermitage and it is thought that the hermits provided a ferry service before the bridge was constructed³⁹.

There was piecemeal drainage of the low-lying fen throughout the Middle Ages, but the dynamics of the local drainage systems were transformed with the construction of the Ouse Washes in 1653. Moore's map of c.1658 (reprinted by Browne in 1700, opposite) shows that the alluvial banks of the Upper Delphs, along the River Great Ouse, were subdivided into small pastures, while the waterlogged peat soils remained as common fen ('Gall Fen')⁴⁰. The parcels of land taken (from the common fen) by investors in the Ouse Washes drainage scheme are coloured pink on the map

³⁹ http://www.heritagegateway.org.uk/Gateway/Results_Single.aspx?uid=MCB11804&resourceID=1000

⁴⁰ Christopher Evans & Ian Hodder, *Marshland communities and cultural landscapes from the Bronze Age to the present day*. Chapter 9 *The Landscape of 'Improvement'*; *Post-Medieval Times*. 2006



Extract from Christopher Browne's c.1700 edition of Jonas Moore's *Plan of the Bedford Level* (see page 28), to show the contrasting patterns of drainage that developed between subdivisions developed during the Middle Ages and the Adventurer's plots (coloured pink).

and are still known as Adventurer's Fen and Adventurer's Head.

In 1663 the Bedford Level Corporation was established to regulate and consolidate the land drained in the Fens. The Corporation had the authority to make private awards of fen and most parcels of fen land outside the Adventurer's plots were subdivided in this way. However the strategic drainage schemes proved unsuccessful and in the early 18th century, the records of the Corporation suggest that the Haddenham Fens were too wet for use as farmland⁴¹. A new Act of Parliament led to the creation of the Haddenham Level Commission which raised levies for cutting drains and establishing wind pumps. Over the following years, the efforts of the Commission were broadly successful, although the vicious cycle of drainage leading to desiccation and wastage of the peat was an ongoing problem.

Strategic cuts made to the lower sections of the River Great Ouse (by the Bedford Level Corporation) in the 1820s relieved pressure on the Haddenham Levels and, in combination with the arrival of steam driven pumps, increased the effectiveness of fen drainage schemes. The 1833 Bedford Level map shows the intensity of land use and that the plots on the Upper Delphs had been enlarged. Agricultural intensification was encouraged during the war and soon afterwards



Long Drove, Haddenham - the concrete roads were laid out during the drive for intensive food productions from the land during World War II

⁴¹ Evans and Hodder, 2006. Op cit.

the process was accelerated when steam driven pumps were replaced by diesel pumps.

Today the Sutton Meadlands and Haddenham Levels are an expansive and tranquil arable landscape which seems vast and 'empty'. There are few roads and virtually no settlement. Much of the area is inaccessible to the public and the only movement is from farm vehicles.

The farmland landscape has a strongly geometric pattern, with straight tracks and a network of rectilinear drainage ditches. The only curving alignments are those of historic routes and dykes, including the Hill Row Causeway, the catchwater drains and that define the margins of the higher land (of the Fen Isles) to the east and the Cranbrook Drain (marking the historic alignment of the Roman Car Dyke) to the south-west.

What's important and why?

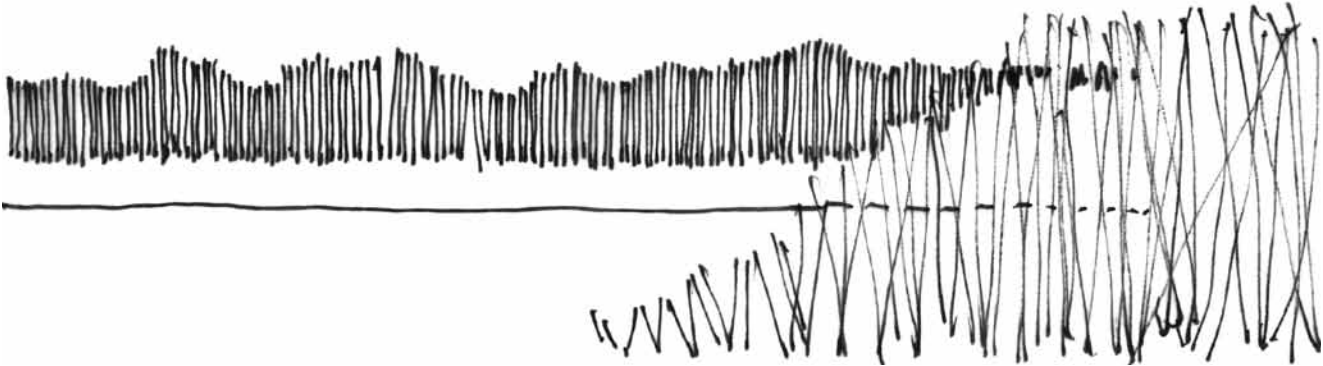
This vast open and expansive arable landscape can accommodate some managed landscape change provided it is associated with large scale planting which fits within the geometric pattern of the fields, tracks and drainage ditches and takes account of the preservation qualities of archaeological sites at the fen edges. Upstanding elements cannot be screened and will break the open skyline, but are unlikely to detract from the inherent scale and drama of the arable fen landscape, particularly if viewed from a distance. An exception is linear development along Hill Row Causeway, which could be detrimental to local landscape character as this road is slightly elevated (on a roddon) and forms the skyline in local views. The road provides the principal axis of access and views within the landscape and the long open views out across the fen could be compromised by linear development along the road. Existing field boundaries sometimes preserve the alignment of historic ways linking villages to the fen and new development and planting schemes should be sited to respect historic lines of this kind.

The most sensitive parts of the landscape are the complexes of Neolithic and Bronze Age funerary monuments, which are Scheduled Monuments of national importance, though subject to annual plough damage. The historic catchwater drains that define the boundary between the Haddenham Level and the Fen Isles are also sensitive for their riparian habitat and because they are also publicly accessible byways that form part of circular walks in the hinterland of the villages of Aldreth and Haddenham. The route of the Aldreth Causeway and the pathways along the River Great Ouse are also valuable and historically sensitive routes.

Within the open farmland, the drainage ditches are relatively sensitive to change and particularly to the risk of pollution from runoff containing fertiliser and/or pesticides. The drainage ditches and the verges of roads and tracks are often the only connected ecological networks across the intensively farmed landscape.

This landscape is intensively managed and in immaculate condition – for the purpose of agricultural use. There are occasional examples of poor quality roadside landscapes, where farm or building materials have been dumped for storage or where heavy lorries have eroded verges and tracks.

Landscape character sensitivity	Visual sensitivity	Landscape value
<p>This landscape can accommodate some well managed change provided new development is carefully integrated by linear belts of trees. The vast scale of the landscape means that most change (even if it breaks the skyline) will not dominate.</p> <p>Locally distinctive and sensitive landscape features are:</p> <ul style="list-style-type: none"> • Historic causeway routes (including the A1123 and the Aldreth Causeway). Linear development along the A1123 would be detrimental to landscape character • Historic tracks, green lanes and drove roads, particularly on the edge of the Fen Isles • The landscape setting of archaeological sites 	<p>Panoramic, open views are typical, but there are few roads and publicly accessible vantage points. An area of relatively high visual sensitivity is the A1123 (Hill Row Causeway), where landscape change would be viewed by more people than elsewhere in the landscape.</p> <p>Tall structures would be particularly prominent as they would be seen against the skyline, but if viewed from a distance could be easily 'absorbed' by the vast scale of the landscape</p>	<p>Areas of historic and archaeological importance are the setting of archaeological and historic sites, including the Scheduled Monuments - the clusters of Bronze Age bowl barrows (at Upper Delphs) and Neolithic oval, round and long barrows (at Foulmire).</p> <p>Droeways that are public rights of way are also valued by local communities</p> <p>This LCA is crossed by the Ouse Washes SPA and Ramsar site, which is of international importance for migratory birds. Within the area, the most valued parts of the landscape are the river banks (River Great Ouse) and the network of drainage ditches, which provide a partially connected ecological network across the arable fields.</p>



Ouse Valley
Wetlands

Ouse Valley Wetlands

Distinctive landscape characteristics

- Broad flat floodplain of the River Great Ouse and its surrounding clay margins
- String of villages, with a diverse, 'busy' hinterland of paddocks, orchards and farmsteads defines the higher land on the margins of the fen
- Strong sense of place and of territory - historic droveways and lodes connect the villages to their historic areas of common fen
- Extensive gravel pit lakes and wetlands have transformed the floodplain of the River Great Ouse and some areas remain in transition
- Fen-edge fields often enclosed by hedgerows; arable fields on fen have open boundaries but views across the floodplain are typically enclosed by the woodlands and belts of trees surrounding the restored wetlands
- Highly accessible landscape with a concentration of villages and distinctive landmarks.

Landscape character

The fen edge villages of Somersham, Colne, Earith, Bluntisham, Needingworth, Holywell, Fenstanton, Fen Drayton, Swavesey, Over and Willingham are sited on or just above the 5m contour which defines the broad floodplain of the River Great Ouse at the point where it (historically) flowed into the Fen Basin. The Great Ouse is now channelled between embankments and gravel extraction on its floodplain has transformed the former waterlogged fen into a cluster of lakes, but the local landscape pattern still reflects the historic relationship between settlement on higher land and the low-lying fen. The Ouse Washes study area skirts around the margins of the fen edge villages and includes the fields and droveways that led from the villages onto the fen.

The majority of the Ouse Valley Wetlands LCA is underlain by deep alluviated clay soils, with patches of river terrace gravels and river alluvium on the broad floodplain of the River Great Ouse. The area is exceptionally rich in archaeological evidence, in part because large scale mineral extraction and infrastructure development (including a guided busway) have provided opportunities for archaeological



investigation, but also as the ploughsoils are thinner over the ancient settlements located on the rising landfall of the fen edge and across the river terraces bringing them into contact with the plough.

Reported finds dating from the Paleolithic and Neolithic periods suggest that the banks of the Great Ouse have long been a focus for human occupation and settlement. Neolithic pits have been recorded (before quarrying) at Low Fen, Fen Drayton and numerous sites on the edge of the study area at Somersham, Colne, Earith, Bluntisham, Over and Fenstanton include Neolithic finds and features. At Barleycroft Farm, Bluntisham, a multi-phase occupation site incorporates a henge that dates from the Neolithic period, as well as evidence for enclosures, pits and a trackway from the Bronze Age.

The area is exceptionally rich in Bronze Age finds, with clusters of round barrows on the edge of the river corridor near Over, Holywell and Bluntisham, which were interspersed within a once extensive dry landscape of settlement, farming and ceremonial sites focused around the prehistoric braided Great Ouse river system. The Fen Basin was becoming increasingly waterlogged during the later Bronze Age and such barrow sites would have been on the edge of a delta-like landscape of winding water courses and backwater channels encircling

islands of gravelly soils; excavations of the major Late Bronze Age and Early Iron Age sites at Flag Fen, Peterborough and Must Farm, Whittesley indicate that ritual offerings were made in the encroaching fen water. Similar ritual deposits have been found in the palaeochannels at Needingworth Quarry (Over).

The Iron Age fort at Belsar's Hill, Willingham is to the south of the Ouse Washes study area, but this is thought to have been a regional centre and there is evidence of Iron Age settlement to the north of Belsar's Hill, at Queenhome, at Over, Low Fen near Fen Drayton, on the fen edge between Earith and Colne, and at Bluntisham. Some of these settlement sites are associated with enclosures and trackways and most evidence is from multi period sites, where occupation continued into the Roman period. The Aldreth Causeway, a historic route which crosses the fen between Belsar's Hill and the Fen Isles at Aldreth, may possibly date from the Bronze Age.

The area was a focus for activity throughout Roman times, when the Car Dyke (a constructed canal linking a sequence of natural waterways) would have been an important transport route. There is evidence of Roman settlement at fen edge sites throughout the Ouse Valley Wetlands LCA, including at Earith, Bluntisham, Colne Fen, Fenstanton, Fen Drayton, Swavesey and Over. A large settlement alongside the Roman Car Dyke near Somersham, excavated in advance of gravel



Back Drove, a historic trackway between Earith and Colne which may have been in use since Bronze Age times when this area was well settled.



Small wood pastures at Over



Historic village centre - Fen Drayton



Orchards on the outskirts of Earith



A richly diverse mosaic of wetland habitats at the RSPB Fen Drayton Lakes

quarrying at Colne Fen⁴², was an important inland port. The extensive evidence from the Roman period suggests that the pattern of fen edge settlement we see today was established during this time, with evidence for Roman settlement, field systems, enclosures, droeways and buildings in or near to the present day villages.

It is likely that many Roman settlements were taken over and augmented in the Early Saxon period but, as the Fen Basin became wetter and conditions deteriorated, settlements would have become concentrated on higher, drier land.

By the Late Saxon - medieval period, the fen edge villages were surrounded by open fields, with straight droeways leading to common pastures on the fen. Many would have been associated with watermills and lodes, which carried river traffic (from the Great Ouse) to local village quays. There are remnant areas of ridge and furrow and medieval field systems within paddocks and farmland on the fenland margins of some villages, including Over (along Back Lane), Swavesey (near Mill Way) and off Parkhall Road, Somersham. The small town of Swavesey was a significant centre, with the scheduled site of a Benedictine priory and estate and, to the south of the priory, a motte and bailey castle on the edge of the fen within the Ouse Washes study



Small arable fields and market gardening on the edge of Earith



Transition to large pastures and arable fields, but with some enclosure, on the edge of the fen



Quarry plant forms the horizon



Restoration underway



New fishing lakes and wetland scrapes

⁴² http://www.heritagegateway.org.uk/Gateway/Results_Single.aspx?uid=MCB15456&resourceID=1000

area. At Somersham, the extensive scheduled site of the Bishop of Ely's Palace is on higher land to the south of the study area.

Evidence for fluctuating water levels and early piecemeal drainage of the fens is provided by recent archaeological excavations at Willingham Mere⁴³, an extensive fenland lake which developed when the small valley of a tributary to the River Great Ouse became increasingly waterlogged during the Early Bronze Age. The extensive reed swamp gradually became a mere and, by medieval times, there were two adjacent meres – Willingham Mere to the west and Oxe Mere to the east. During the winter months the two waterbodies joined. This area, in common with the fen hinterland of most of the villages in the LCA, was seasonally flooded.

During the 17th century, Willingham Lode, and a number of local drainage channels, flowed into the meres, which were embanked to prevent the flooding of the Aldreth Causeway and land drained, provoking local opposition, in the early 17th century⁴⁴. However, the construction of Earith Sluice (by the Bedford Level Corporation) diverted the flow of the River Great Ouse into the New Bedford River, enabling the drainage



Extract from the 1604 Hayward Map (see page 26), which illustrates the historic relationship between fen edge settlements and their common fen. Willingham Mere and the lodes connecting the villages with the River Ouse are also shown.

⁴³ <http://www-cau.arch.cam.ac.uk/1024%20Willingham%20Mere.pdf>

⁴⁴ <http://www.british-history.ac.uk/report.aspx?compid=15509>



RSPB: Fen Drayton Lakes

of the fen throughout this area. By the mid 18th century, Willingham Mere had been drained and the former wetlands had become farmland, pumped by windmills (eg Crane's Fen Mill) which lifted water from the main drainage ditches into the river. In the mid 19th century, following the formation of local drainage commissions, the windmills were replaced by steam driven pumps. This pattern of drainage was typical of the low lying fen throughout the area.

The 1604 Hayward Map illustrates the medieval landscape of the Ouse Valley Wetlands LCA. Fen edge villages (with churches) are depicted on the margins of the higher land, overlooking areas

of common fen which were apportioned to each settlement. Willingham Mere is shown, along with the principal navigable lodes and dykes that connected the villages to the River Great Ouse. Extensive mineral extraction during the 1950s transformed the landscape of the broad river floodplain. The resulting flooded gravel pits are now managed by the RSPB as a nature reserve, with a mosaic of lakes, meadows and reedbeds known as the Fen Drayton Lakes.

This is the most densely populated part of the Ouse Washes study area, yet the meadows and lakes on the edge of the fen and alongside the River Great Ouse seem tranquil. The hinterland

of the villages is a diverse, relatively small scale, enclosed landscape of orchards, paddocks and small fields, with a network of hedged tracks and lanes. There is a transition to a more open, large scale landscape on the margins of the fens, but the historic droveways and lanes are enclosed by hedgerows and the open landscape towards the river is typically viewed through a 'frame' of trees and hedges. There is a strong sense of place: the historic sense of territory is partially intact, and parts of the fenland margins still seem to 'belong' to specific adjacent villages. Views across the Fen Drayton Lakes are enclosed by the surrounding woodlands and this part of the area seems separate and relatively isolated from its village and farmland context.

The open arable fields of the fen are often interrupted by extensive sand and gravel extraction sites. These are a temporary feature of the landscape as the gravel pits are subsequently restored as wetland landscapes with a mosaic of reeds and open water. The landscape of the Ouse Valley Wetlands LCA is in transition and is gradually becoming more diverse as the geometry of the open arable fields is broken up and changed to a natural, organic wetland mosaic.

What's important and why?

The relatively enclosed and diverse character of the Great Ouse Wetlands LCA can accommodate landscape change, provided it can be integrated within existing landscape patterns and enclosed and/or partially screened by native hedgerows and woodland planting. The most sensitive parts of the landscape are the historic droveways that connect the villages with the adjacent low lying fen, the small scale pastures, paddocks and orchards on the fringes of villages, historic landscape features, such as the medieval lodes and remnant areas of ridge and furrow, and the landscape setting of scheduled monuments, such as the sites of Swavesey Priory, the Castle Hill earthworks in Swavesey, the clusters of Bronze Age bowl barrows to the north west of Over, and listed buildings including parish churches, moated manor houses and windmills. The embankments 'containing' the Ouse Washes represent a major civil engineering feat and are themselves historic features of considerable importance.

This is a highly accessible landscape; views from the roads that connect the villages and surround the fen and views from the guided busway are important considerations. Specific sensitive views to historic landmarks include the towers and spires of parish churches and Hale Windmill.

The complexes of lakes, reedbeds and meadows at Fen Drayton and Earith/Colne and the riverside meadows to the south of St Ives (Hemingford Meadow) and the riparian corridor of the River Great Ouse are designated as County Wildlife Sites for their biodiversity value. The interconnected mosaic of marsh, wet grassland, wet woodland, reedbed and open water habitats is particularly important for invertebrate species and the wet ditches and hedgerows that connect this core wetland habitat to the surrounding farmland are also an important and sensitive component of the ecological network. The Fen Drayton Lakes and the newly restored wetlands on former mineral extraction sites near Over and Bluntisham are also RSPB Reserves.

The condition of this landscape is generally good within the Ouse Washes study area, although there are areas of poor quality urban edge landscape on the fringes of the area, particularly near car parks and major roads.



Footpath across the meadows at Holywell

Landscape character sensitivity	Visual sensitivity	Landscape value
<p>This landscape can accommodate change provided new development is not extensive, is carefully integrated within existing historic field and settlement patterns and is partially screened by native tree and hedgerow planting.</p> <p>Locally distinctive and sensitive landscape features are:</p> <ul style="list-style-type: none"> • Small paddocks, orchards and fields on the fringes of villages • Historic tracks, green lanes and drove roads • Historic landscape features – lodes, ridge and furrow and the landscape setting of historic and archaeological sites 	<p>Views are typically enclosed by the belts of woodland that surround the restored gravel pits and by the network of hedgerows and buildings in and on the fringes of villages.</p> <p>This is a highly accessible landscape; views from the roads that connect the villages and surround the fen and views from the guided busway are important considerations. Specific sensitive views to historic landmarks include the towers and spires of parish churches and Hale Windmill.</p>	<p>The network of public rights of way surrounding the fen edge villages is valued by local people and by visitors to the area.</p> <p>The Fen Drayton Lakes are highly valued, as a nature reserve of regional importance for wildlife (designated CWS) and also as an accessible natural greenspace for bird watching, walking and fishing). Other important (CWS designated) habitats include the wet meadows beside the river and on the floodplain and the wet ditches that connect the core wetlands to adjacent farmland. The new lakes constructed at the Needingworth Quarry sites in Bluntisham, Over and due for Willingham are also valued as wetland habitats and for their recreational value,</p> <p>Areas of historic and archaeological importance are the settings of archaeological and historic sites, including the Scheduled Monuments of Swavesey Priory, Castle Hill (Swavesey), the two clusters of Bronze Age bowl barrows to the north west of Over and the single barrow in the centre of Fen Drayton Lakes. Conservation Areas at Earith and Holywell also fall within the Ouse Washes study area.</p>

Buried Bronze Age landscape at Over

As the map opposite from Cambridgeshire’s Historic Environment Record (CHER) shows, the Ouse Valley Wetlands LCA has a relatively dense concentration of archaeological sites and finds from the Paleolithic through to post-medieval times.

The map shows that finds dating from the Iron Age period and beyond are generally on the edge of the present day fen, close to the existing settlements that are clustered around the margins of the Ouse Valley. However, finds from the Bronze Age and earlier periods are sited close to the Great Ouse. The terraces of the (then) heavily braided channel of the River Great Ouse have an exceptionally rich concentration of prehistoric finds, including a Neolithic causewayed enclosure and a major prehistoric barrow cemetery with groups of round barrows.

The importance of the area as a source of sand and gravel has led to extensive quarrying, which has provided the opportunity to excavate and record the prehistoric landscape. The aerial view (overleaf) of the archaeological evaluation trenches associated with part of the Needingworth Quarry shows the scale of the opportunity and photographs from the excavation provide a fascinating insight into the rituals associated with the barrow cemetery site, which was part of a major ceremonial landscape, extending right across the floor of the Great Ouse valley.

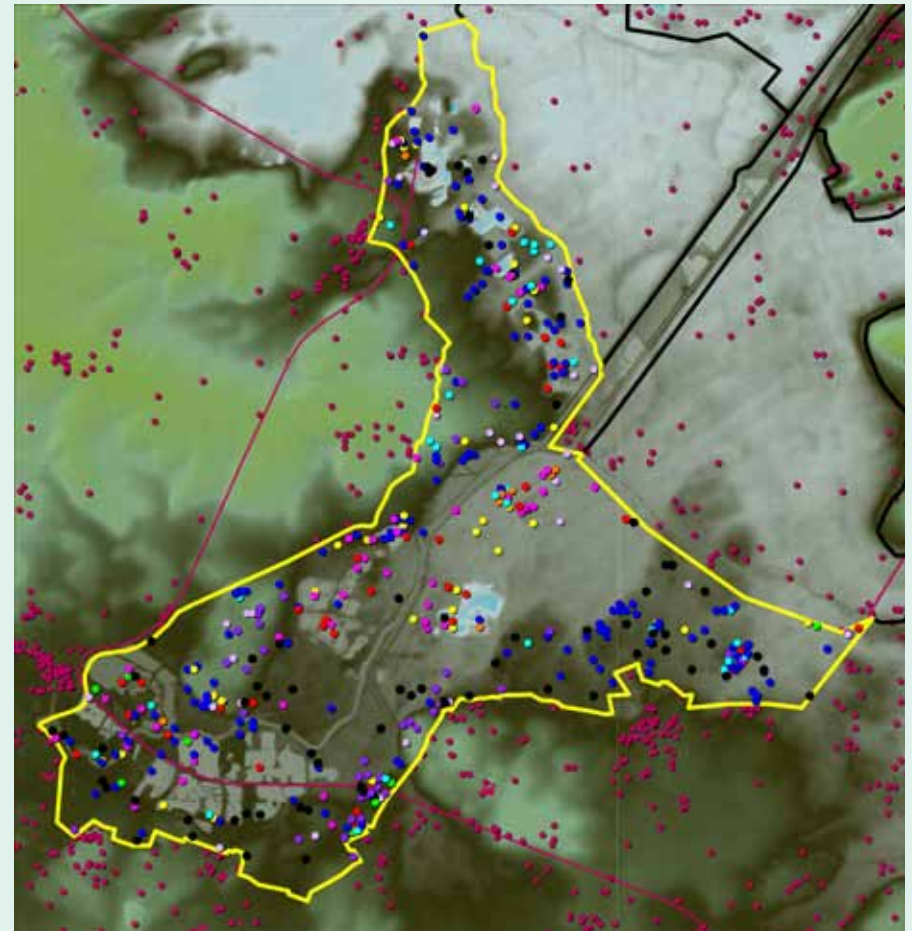
CHER monuments outside study area



CHER monument data by period

- Palaeolithic (500000 BC to 10001 BC)
- Prehistoric (500000 BC to 42 AD)
- Mesolithic (10000 BC to 4001 BC)
- Neolithic (4000 BC to 2201 BC)
- Bronze Age (2500 BC to 701 BC)
- Iron Age (800 BC to 42 AD)
- Roman (43 AD to 409 AD)
- Anglo Saxon (410 AD to 1065 AD)
- Medieval (1066 AD to 1539 AD)
- Post Medieval (1540 AD to 1900 AD)
- Unknown date

Terrain Map © Cambridgeshire County Council



Buried Bronze Age landscape at Over



© Ben Robinson English Heritage

Aerial view of archaeological evaluation trenches at the north end of Hanson's Needingworth Quarry (Over parish) to the south of the Ouse Washes



© K. Gdaniec Cambridgeshire County Council

One of the Early Bronze Age disc barrows in Hanson's Needingworth Quarry under excavation. The later fen deposits sealed the earthwork that had been constructed on a low lying terrace of the prehistoric Great Ouse river system



© D. Webb, Cambridge Archaeological Unit



© D. Webb, Cambridge Archaeological Unit

Remains of the wooden coffin of a beaker period (c. 200-1800 BC) primary burial from one of the barrows and a beaker pottery vessel associated with another

Willingham Mere

Two freshwater meres occupied the northern part of Willingham parish, the largest of which was Willingham Mere covering a maximum flood extent of around 154 hectares with permanent open water in an 80 ha zone⁴⁵. The smaller Aux or Oxe Mere lay to the east (32ha). These lakes offered rich resources of fish, eels, mussels, reeds and birds to local communities living above the fen edge, with valuable fishing and commoning rights being closely controlled during the Medieval period.

Willingham Mere, shown here, is visible in the fields and on air photographs today by its pale calcareous marl deposits contrasting against the drained peaty ploughsoils. Located partly within the area of a large mineral quarry, the mere is the subject of on-going research to define the character of occupation and the environment in the period before its natural formation, along with the development stages of the lakes that subsequently formed from the Bronze Age period onward. Research results indicate that the mere formed in the low valley of a northward flowing tributary of the River Great Ouse⁴⁶ and that an original smaller lake had almost dried up during the Iron Age period⁴⁷. It gradually reformed in the Roman period, gaining its largest size around the 13th century.

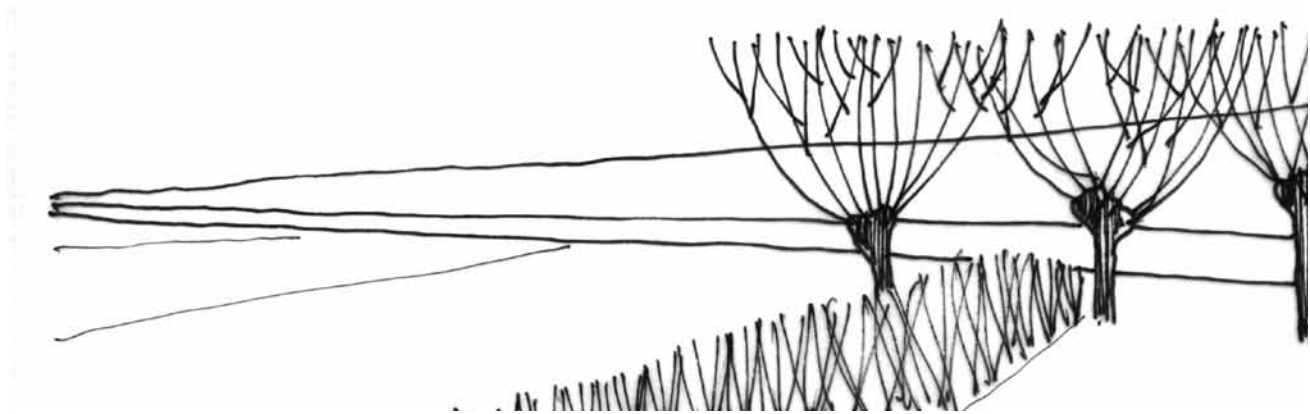
Attempts to manage drainage in the area around the mere and use it as flood storage occurred in the later part of the Medieval period, but following 17th century drainage schemes the mere was fully reclaimed as cultivation land by 1800.

⁴⁵ Lewis, C.P. 1989. 'Willingham: Introduction', in Wright, A.P.M and C. P. Lewis (eds) *A History of the County of Cambridge and the Isle of Ely: Chesterton, Northstowe, and Papworth Hundreds*. Victoria County History, Vol. 9 (398-402).

⁴⁶ Waller, M. 1994. *The Fenland Project, No. 9: Flandrian Environmental Change in Fenland*. East Anglian Archaeology Report No. 70.

⁴⁷ Boreham, S. Evans, C., S. Boreham, H. Roberts. R. Standing and J. Tabor Willingham Mere, 'Digging Environment' Project. CAU Report 1024: Cambridge Archaeological Unit.





Ouse Washes

Ouse Washes

Distinctive landscape characteristics

- A corridor of seasonally wet pastures retained between the Old and New Bedford Rivers, used to store flood waters in winter months and as pasture in summer
- Enclosed landscape of meandering water courses, ditches, lush meadows and hedgerows that contrasts with the surrounding arable fen
- Dramatic seasonal changes between summer pasture and winter floods
- Richly textured mosaic of wet meadow, reedbed, open water and wet woodland of international biodiversity value for migratory birds and waders
- Large scale infrastructure, including sluices at Denver, Welches Dam and Earith
- Managed for nature conservation – two nature reserves are a mecca for bird watchers
- 'Secret landscape', hidden from wider view by embankments and relatively inaccessible, except at the road crossings at Earith, Sutton Gault, Mepal and Welney
- Peaceful, still and close to nature

Landscape character

The Ouse Washes LCA is the unique corridor of washland which cuts diagonally across the LP area between Earith in the south and Denver in the north. Created by Vermuyden's strategic drainage scheme of 1649 - 1653, the washlands are a remnant corridor of fen pasture retained between the embankments that were constructed alongside the Old and New Bedford Rivers. To the south of Mepal, the washland soils are river alluvium over peat; to the north of Mepal, the Ouse Washes are underlain by amorphous peat soils. An exception is the historic course of the Old Croft River, which is underlain by marine silts and alluvium as it crosses the Ouse Washes near Welney.

For hundreds of years before Vermuyden's scheme, this area would have been part of the low-lying common fen between the parishes of the Fen Isles to the east and the Chatteris - Manea Isle to the west. The Historic Environment Record shows relatively few archaeological finds and sites within the Ouse Washes, perhaps a reflection of the marshy pre-drainage character of the area and the lack of





development (which has meant few opportunities for investigation). However, there are some mounds and enclosures that may prove to be significant.

The drainage scheme was undertaken in two stages. First a cut (the Old Bedford River) was constructed to take the waters of the River Ouse in a straight line across the fen from Earith to Salter's Lode. This proved to be unsuccessful as it failed to accommodate winter floods and gradually reduced the flow of water in the natural rivers, making them more prone to siltation at their outfalls to the sea. Twenty years later, Vermuyden's second scheme involved the construction of a second cut, the New Bedford River, with banks on the outer sides of both the Old and the New Bedford Rivers. This created a 30km long strip of washland which functioned as a flood storage reservoir to retain winter floodwaters and prevent flooding of the newly drained farmland on the surrounding fen. This ambitious flood protection scheme remains functional today and is critically important to the management of water levels across the eastern part of the Fen Basin.

The scale of the 17th century drainage scheme was immense. The excavation work was undertaken by hand and the labour force was augmented by Scottish and Dutch prisoners of war. In some areas local fenmen refused to take part and indeed tried to sabotage the work as



WWT footbridge spanning the embankment of the New Bedford River



The richly textured mosaic of wetland habitats visible from the hides within the WWT reserve

they were concerned that the drainage scheme would result in the loss of the common fen that the poor relied on to support their meagre living.

By the outbreak of the English Civil Wars in 1642, the Old Bedford River had been completed but Vermuyden's improvements, the second stage of the scheme (construction of the New Bedford River and the Ouse Washes) had not begun. In general terms, the south east of England sided with Parliament while the Royalists held the area to the north. Many fenmen had a strong hatred for the Royalists because they felt that drainage projects backed by the king had been imposed, damaging their livelihoods. A combined force of Parliamentary militias (in which Oliver Cromwell served) was responsible for defending the frontier and, when Royalists occupied Peterborough in 1643, Cromwell ordered the fortification of a number of crossing points of the River Ouse to form a barrier to stop the enemy advance. The Earith Bulwark Fort was probably constructed at this time to protect the bridge where the Ely road crosses the river⁴⁸.

Today the Ouse Washes are managed for nature conservation. The seasonal wetlands and wet pastures are designated as SPA and Ramsar site in recognition of their international importance

⁴⁸ <http://www.fortified-places.com/earith/>



for migratory birds (eg Bewick's Swan, Shoveler and Wigeon) and breeding waders (eg Spotted Crake and Black-tailed Godwit) and over three quarters of the Ouse Washes are owned by the RSPB, the Wildfowl and Wetlands Trust and the Wildlife Trust, with the flood management operated by the Environment Agency. A strip of land along the western side of the Ouse Washes is also designated as a Special Area of Conservation because of the presence of spined loach populations within the Counter Drain and Old Bedford River.

The richly textured landscape of the Ouse Washes contrasts with the surrounding arable fen. Much of the wet grassland is closely cropped by cattle and the landscape pattern has an expansive scale, but the area's natural mosaic of meadow, reeds, marsh and wetland creates an attractive, rather mysterious place which seems secretive and hidden from outside view.

What's important and why?

The Ouse Washes are a unique landscape with an exceptionally strong sense of place. The whole area is a remnant piece of the historic fen, which provides a sense of what this area must have been like before the mid 17th century fen was drained and intensive agriculture became increasingly dominant. The landscape is highly sensitive to change and cannot accommodate built development of any form, without risking damage to its strong sense of place and the important biodiverse habitats within the banks. Changes to the landscape in the form of land management or drainage projects can be accommodated, provided the land is carefully restored to enhance its landscape and biodiversity value.

Landscape components and areas that are particularly sensitive to change include the gateways to the Washes at the four road crossing points where people have an opportunity to experience the character of the washlands, the footpaths and bridleways alongside or across the area, historic tracks and droveways and archaeological and historic sites, including the Scheduled Monument at Earith Bulwark.

The Ouse Washes are an internationally important wetland habitat (designated as SPA, Ramsar and, in part, SAC) and the mosaic of wetlands, including open water, reedbeds, fen, wet woodland, wet grassland and unimproved grassland has exceptionally high biodiversity value. The whole LCA is designated as SPA and Ramsar and the wetland habitats within the nature reserves that are carefully managed to support and enhance this nature conservation value are particularly valuable

From a nature conservation perspective, the condition of the Ouse Washes landscape has decreased as a result of climate change which has caused an increase in the intensity and erratic nature of winter flooding events. The habitat has often been too wet for ground nesting waders to breed successfully and large scale replacement wet grassland restoration projects in areas close to the Ouse Washes are underway as part of the Great Ouse Wetland and Fens for the Future projects.

Landscape character sensitivity	Visual sensitivity	Landscape value
<p>The Ouse Washes' distinctive and strong sense of place landscape is highly sensitive to change and cannot accommodate new built development without detriment to landscape character.</p> <p>Locally distinctive and sensitive landscape features are:</p> <ul style="list-style-type: none"> • The diverse mosaic of wetland habitats on the Ouse Washes • Historic tracks, green lanes and drove roads • Historic field patterns • The landscape setting of archaeological sites • Gateways to the washlands at Earith, Mepal, Sutton Gault and Welney, where people have an opportunity to experience the landscape from local roads 	<p>Much of the Ouse Washes is hidden from view behind the embankments of the Old and New Bedford Rivers. Footpaths along these embankments provide superb views across the washlands and the gateways to the Washes at road crossing points have particularly high visual sensitivity as many people can experience the Ouse Washes landscape at these points.</p>	<p>The Ouse Washes SPA and Ramsar site is of international importance for migratory birds and breeding waders. Within the area, the most valued parts of the landscape is the inter-connected mosaic of wetland habitats, including areas of open water, marsh, reedbed, wet woodland and wet grassland.</p> <p>Areas of historic and archaeological importance are the setting of archaeological and historic sites, including the Scheduled Monument at Earith Bulwark.</p> <p>The public rights of way along the embankments of the Old Bedford River and the new Bedford River are highly valued for recreation.</p>

The Earith Bulwark - a Civil War fort

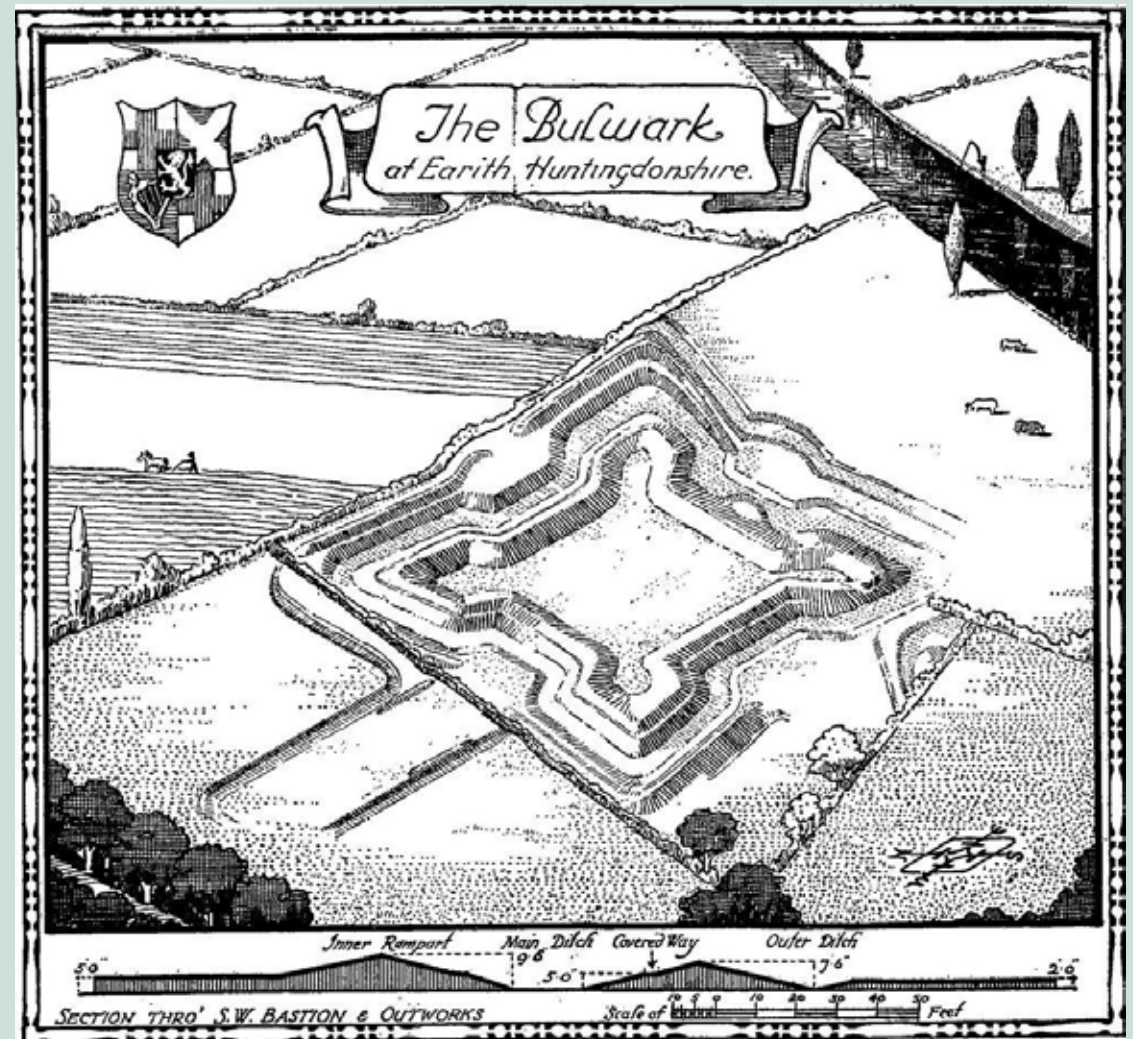
The fort was a square enclosure with diagonal bastions at the corners. It was surrounded by a rampart about 3 ft. wide at the top. On the outside the bank dropped down into a moat, which was surrounded by an outer bank that follows the line of the inner rampart. There are indications in places that it was formed as a kind of terrace or platform with a parapet on its outer edge. There is some indication that outside this outer bank there was another small shallow moat, little more than a ditch, parts of which still remain at the north-west and south-west corners⁴⁹.

Given the wet, marshy character of the land on which the fort is sited, it is likely that the moats surrounding the defences would have been flooded.

The shape of the Earith Bulwark fort suggests strong Dutch influences and there is speculation that it was designed by an officer who had served in the Netherlands or by a Dutch engineer who was serving with the Parliamentary militia⁵⁰

⁴⁹ Bluntisham cum Earith', An Inventory of the Historical Monuments in Huntingdonshire (1926), pp. 17-23. URL: <http://www.british-history.ac.uk/report.aspx?compid=123746>

⁵⁰ <http://www.fortified-places.com/earith/>





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