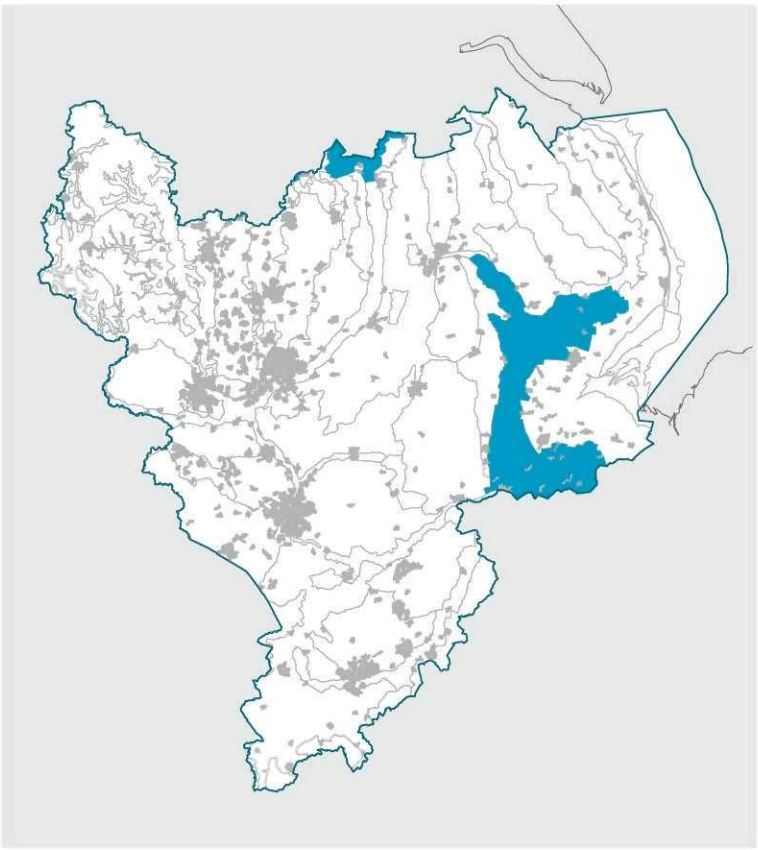
APPENDIX 5. LOCAL LANDSCAPE CHARACTER ASSESSMENT EXTRACTS

2B:

PLANNED AND DRAINED FENS AND CARRLANDS



Drainage channels divide the landscape (© J Watson)



KEY CHARACTERISTICS

- Consistently low lying terrain and simple palette of land uses and landscape features gives visual unity and strong sense of identity;
- Large scale open landscape of flat farmlands with extensive and uninterrupted vistas to distant horizons beneath vast skies;
- 18th and 19th century enclosure characterises historic landscape patterns underpinned by complex history of drainage and enclosure stretching as far back as the late Saxon period in some places;
- Significant areas at or below sea level, with modestly elevated areas acting as the focus of settlement;
- Hierarchy of canalised rivers, high level drains and ditches divide the landscape up into rigid geometric patterns, dictating the grain of the landscape and patterns of movement and settlement;
- Limited settlement pattern characterised by isolated farms and linear villages strung out along roads; majority of buildings in brick with tile roofs, further adding to uniform character of the landscape;
- Rich and varied arable land uses, root crops, bulbs, vegetables and horticultural glass houses give the landscape a highly productive character and seasonal variations in colour and texture; and
- Strong sense of remoteness in expansive and sparsely settled areas although periods of intense activity during harvest.

LANDSCAPE CHARACTER

The Planned and Drained Fens and Carrlands Landscape Character Type possesses a strong landscape character derived from a simple palette of landscape features. Low lying terrain, some of which lies below sea level, is the strongest unifying character, although the rigid geometry of field drainage ditches and roads, extensive arable farms and limited settlement all combine to add to the strong and instantly recognisable identity of the landscape.

The history of the various areas of fens and carrlands that combine to form this Regional Landscape Character Type is complex. Some areas were drained and settled relatively late, whereas others demonstrate ancient patterns of enclosure that stretch back as far as the late Saxon period. Despite this, the characteristic rigid geometry of parliamentary enclosures, roads and sparse settlement create visual unity in the landscape.

The land is highly productive and is particularly well suited to intensive modern arable agriculture. This has resulted in only very limited areas of biodiversity interest. Settlement is also thinly spread, maximising the area of agricultural land.

The landscape is one of vast skies, wide panoramas and distant horizons. Whilst periodically the landscape is busy with machines and gangs of agricultural labourers, it is typically quiet with a prevailing sense of remoteness and isolation.



Planned and drained Fens and Carrlands
(© Carol Paterson, Natural England)

PHYSICAL INFLUENCES

The underlying geology is largely Quaternary deposits of clay and silt, which give rise to naturally wet, loamy or friable peaty soils. Landform is generally flat and low lying with significant areas lying at or below sea level.

A multitude of rivers and streams once meandered through the landscape, that from at least the Neolithic period deposited clays and silts washed down from neighbouring uplands to cloak the underlying geology and create a rich matrix of wetland environments. The influence of the sea is also important to note in areas fringing The Wash in Lincolnshire. Here, rising sea levels in the late Roman period around the outer, seaward fringes of the fens resulted in vast areas of marine silt being deposited, which in turn stemmed the flow of the rivers draining the neighbouring uplands, behind which freshwater peat fens developed.

With the flat landscape and no geological exposures, there is very limited potential for the application of practices for the care, maintenance and management of features of geodiversity interest and the promotion of their educational and interpretational interest. However, the former river channels beneath the fenland deposits, which often produce raised ground, and the river terraces associated with the rivers draining the landscape, form excellent geomorphological features worthy of preservation.

Centuries of water management have canalised the main rivers, straightened streams and created a gridded network of drainage channels, allowing widespread use of the productive soils for farming. Land cover is dominated by arable production, notably cereals, legumes and brassicas. Bulb and flower cultivation is also notable, with vast acres providing seasonal colour and visual interest.

Tree cover is sparse except for geometric shelter belts and plantations along field boundaries and close to farmsteads. Intensive and widespread land improvement has significantly reduced the coverage of semi natural habitat, which at one time would have been a combination of fenland, wet woodland, carr and standing open water, highly valued by local communities for fishing and wildfowling.

Despite widespread intensive agriculture, some linear stretches of reed bed and grassland are noted for their biodiversity value along several major drains and rivers, such as the River Glen south east of Bourne, and remnant semi natural habitats continue to thrive on the River Idle in Nottinghamshire. However, it should be noted that surviving semi natural habitat is highly fragmented, with sites located in extensive areas of intensively managed agricultural land.

CULTURAL INFLUENCES

Superficially, the fens and carrs appear to have been drained and settled in a relatively short space of time between the late 18th and early 19th centuries. However, there is significant time depth and complexity within the seemingly modern geometric landscape. Whilst there are remnants of ancient drove roads preserved in modern boundaries and routes and evidence of late Saxon and medieval strip enclosure on the Lincolnshire fens, the dominant pattern of medium to large rectilinear fields, defined by shallow wet field dykes, is generally associated with drainage from the 17th century onwards. This is overlain with the rigid and unrelenting geometry of the later parliamentary enclosures of the late 18th and early 19th centuries.

The General Drainage Act of the late 16th century opened the way for extensive reclamation of the Lincolnshire fens which was largely driven and funded by private and aristocratic investors, known as 'Adventurers'.

Reclamation of the fens continued throughout the centuries. However, as the peaty soils shrank and oxidised as they dried out, artificial methods of land drainage were needed, first in the form of windmills and steam pumps, and later by diesel and electric alternatives. Initially the reclaimed land was unenclosed common grazing. From the late 18th and 19th centuries, however, population growth and food shortages prompted the common grazing to be enclosed and turned over to arable crops which thrived on the rich peaty soils.

A similar pattern can be seen in the carrlands of north Nottinghamshire. Here successive drainage schemes saw land reclaimed from common grazing from the 17th century onwards, later to be overlain by a grid of regular geometric parliamentary enclosures and roads and the installation of pumps to drain the farmland into the River Idle.

Therefore, within a framework of centuries old enclosure, the geometric pattern of parliamentary fields was created across the landscape. The construction of road infrastructure and settlement of the reclaimed lands would also have mostly occurred at the time of the parliamentary enclosures, which further contributes to the current perception that the fenland and carrland areas we see today are the result of just two centuries of endeavour.

In recent times boundary loss has been a feature of the landscape, with the drive towards increased yields and development of ever larger machines promoting the creation of prairie fields in many areas. Other changes have arisen from the industrialised nature of modern farming practices with large buildings for the storage, processing and distribution of agricultural produce now a common feature.

The relatively late agrarian exploitation of these areas is evidenced in the low density of settlement and prevalence of isolated brick farmsteads of the 18th and 19th centuries. These isolated farmsteads are often the only built elements in wide areas of arable farmland and as such contribute to the perceived remoteness of some areas. In the absence of stone or wood, brick is the ubiquitous building material of the landscape and whilst there are various building styles and type of brick used, its widespread use adds to the visual unity of the landscape.

AESTHETIC AND PERCEPTUAL QUALITIES

The consistent relief of level landform and widespread arable land uses gives a high level of visual unity to the landscape, as well as contributing to a strong sense of place and local identity. This is further enhanced by the ubiquitous use of brick as the principal building material and 18th and 19th settlement patterns within a regular pattern of geometric parliamentary enclosures and roads networks.

The flat, featureless topography creates large scale and expansive views across wide areas. Combined with the relative absence of settlement and activity this gives the landscape a remote, tranquil character, although this is significantly reduced at times of the year when large gangs of seasonal labourers are employed to harvest vegetables.

The agricultural landscape is carefully controlled, with only very limited areas of semi natural habitat in evidence, giving the landscape a productive and utilitarian character. Where present, areas of scrub, semi natural woodland and reedbed gain added significance and provide a tantalising glimpse of the appearance of the landscape prior to drainage and enclosure.



Planned and Drained Fens and Marshes
(© Carol Paterson, Natural England)

LANDSCAPE CHANGE AND MANAGEMENT

BUILT DEVELOPMENT

Forces for Change

Whilst there is generally little settlement, piecemeal development along arterial roads is reducing the sense of remoteness and creating visual intrusion. Light industrial uses in particular, such as garages and workshops, interrupt the landscape. Where development is particularly concentrated, this can enclose views and dilute the landscape's typically strong identity.

Shaping the Future Landscape

The aim should be to protect the distinctive character of the landscape. New residential, commercial and industrial development should generally be encouraged within and around existing settlements, limiting widespread incremental development. Where isolated development is unavoidable, innovative best practice architectural ideas and planning solutions that minimise impact on the landscape should be encouraged.

ENERGY PROVISION

Forces for Change

Wind energy schemes are a common feature of this landscape due to the strength of prevailing winds off the North Sea. Given the Government's commitment to increasing energy from renewable sources, this trend looks set to continue with increasing pressure for wind energy schemes. New wind energy schemes will create visual landmarks in this predominantly flat landscape and reduce the sense of remoteness and isolation.

Shaping the Future Landscape

The aim should be to protect the open character of the surrounding landscape by siting wind energy schemes away from visually prominent or sensitive locations. The impact on long distance views from the coast and areas inland should also be considered. There is potential for strategic regional and sub regional level guidance on commercial wind energy schemes, including cumulative impact, informed by the EMRLCA and other studies. In addition, planning guidance for the siting and design of wind energy schemes should be produced at the county and/or district level where necessary, establishing the most appropriate sites for development and setting out the criteria against which new applications will be assessed.

AGRICULTURE AND LAND MANAGEMENT

Forces for Change

There is marked evidence of agricultural intensification and farm amalgamation, accompanied by a move towards arable production. Due to the flat, featureless topography of the area, specifically the lack of hedgerows, the implications of agricultural intensification is generally expressed in 'improvements' to dykes and embankments.

Indeed, ditches are a key feature of the landscape, draining the fens to create productive agricultural land. This process has implications for the shrinkage of peat soils and reducing water quality caused by soil erosion and nutrient leaching. Soil erosion associated with the large and exposed open fields may also be exacerbated by further agricultural intensification and the effects of climate change.

There is also a proliferation of new large scale agricultural buildings, reflecting the loss of smallholdings and the general increase in farm size. The impact of new structures is to reduce the sense of remoteness and create visual intrusions.

In addition to wind energy schemes, energy crops are being cultivated to meet renewable energy targets, including Miscanthus and Short Rotation Coppice (SRC). These fast growing and tall crops can radically change the appearance of the landscape. There is also a requirement for storage and processing facilities, which along with other types of agricultural buildings, can result in the loss of landscape features and increase visual intrusion.

Shaping the Future Landscape

The aim should be to protect the distinctive open character of the landscape and consider the visual impact of any new structures. New large scale agricultural buildings should be carefully sited, away from visually prominent locations and amongst existing buildings where possible. Specific design guidance for farmsteads may be appropriate, establishing the criteria for new development. Although the introduction of energy crops will be more difficult to manage, grant applications to Natural England or the Forestry Commission may require an assessment of landscape and visual impacts.

In response to agricultural intensification, natural vegetation should be managed along dykes, drainage ditches and field margins, creating visual and biodiversity interest. The aim should also be to manage water quality and levels of dykes and ditches. Management plans should be encouraged which seek to identify and remediate against the sources of pollution and soil erosion, and could also incorporate phased enhancements to ditches and dykes to enhance biodiversity. Such proposals may be supported by Environmental Stewardship grants.

FORESTRY AND WOODLAND

Forces for Change

Woodland cover is generally sparse; however, there is evidence of more recent tree planting close to settlements or around individual farm buildings. Fast growing coniferous trees, such as *Cupressocyparis leylandii*, are particularly common, used as a screen to development or to provide shelterbelts. Unless carefully sited, new planting can introduce inappropriate and visually intrusive elements in this flat and open landscape.

Shaping the Future Landscape

The aim should be to protect the distinctive open character of the landscape by ensuring the type and location of new woodland and tree planting is appropriate. Tree planting should generally be discouraged in remote areas. However, very limited native tree planting may be appropriate to soften the impact of agricultural or industrial buildings in the landscape. Instead, priority should be given to managing more characteristic habitats and features, such as dykes and drainage ditches.

TOURISM AND LEISURE

Forces for Change

Although the landscape is not currently a major tourist destination, there are an increasing number of visitor centres, picnic spots, caravan/camp sites and holiday cottages. As with any new development this can cause visual intrusion and result in the loss of landscape features. The effect is particularly evident in locations with little or no settlement.

Shaping the Future Landscape

The aim should be to protect the distinctive open character of the landscape and consider the visual impact of any new tourist facilities. Planning guidance for the design and siting of new tourist facilities should be produced at the county and/or district level where necessary, establishing the most appropriate sites for development whilst ensuring facilities respond to projected demand. In addition, the diversification of farms to provide attractions and accommodation should be carefully managed to ensure a balance is struck between maintaining rural character and supporting the rural economy.

ENVIRONMENTAL PROCESSES AND CLIMATE CHANGE

Forces for Change

The effects of rising sea level as a consequence of climate change has the potential to progressively affect the lower lying area and inundation of some areas may occur in the future. There is also the potential for the water table to rise in the river terrace deposits, resulting in waterlogged ground conditions and flooding.

Shaping the Future Landscape

The aim should be to adapt agricultural land management practices to accommodate the projected effects of sea level rise and inundation and flooding in the locations where this is anticipated, and in association with a planned process of future sustainable management options for the adjacent Settled Fens and Marshes.



Planned and Drained Fens (© Carol Paterson, Natural England)

The Historic Landscape Characterisation Project for Lincolnshire



The Historic Character of The County of Lincolnshire

English Heritage Project No. 4661 Main

The Historic Landscape Character Zones

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Lincolnshire County Council

With contributions from

Adam Partington

September 2011

ENGLISH HERITAGE

Lincolnshire COUNTY COUNCIL

Character Zone FEN2

The Eastern Fens
within The Fens Character Area

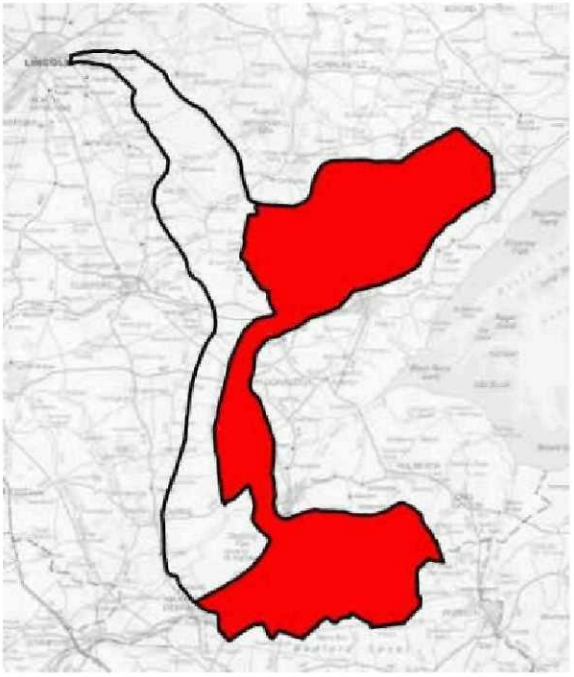
ARS sub-province: EWASHW

Natural England National Character Areas:
44 – Central Lincolnshire Vale
46 – The Fens

Total area: 661.8 km²

Percentage of Regional Character Area: 62.9%

Percentage of Overall Project Area: 9.5%



Description
There are some nucleated settlements scattered throughout the character zone, located on ridges of slightly higher ground. There are also some linear settlements, which are formed by the infilling of several dispersed settlement types within the character zone. All other settlements in the character zone comprise a combination of isolated farmsteads and ragged linear settlements along the main roads. It is generally possible to see several farmsteads or other houses in every direction from any position within the character zone. Although the overall settlement pattern is dispersed, the density of settlement is quite high by comparison to other areas of fen or marsh in the county as a whole.

Much of the planned enclosure landscape survives to this day, although this survival is probably due to the necessity of retaining field boundary drains to ensure the continued viability of the agricultural land. Certainly throughout the character zone there is a strong feeling of openness, with few hedges demarcating fields. Those areas of modern consolidated fields generally have more surviving elements of hedgerows within their field boundaries than those areas of surviving planned enclosure. There are some areas of surviving ancient enclosure which are focussed around the nucleated settlements in the north and south of the character zone and around the linear settlements in the centre of the character zone.

Historic Landscape Evolution
There is little evidence for occupation in this character zone during the Prehistoric, but extensive evidence that the land within it was utilised at this time. There have been many artefact finds made throughout the zone from the Prehistoric period. There is evidence of settlement on the ridge of higher ground around Stickney and Sibsey, and in the Pinchbeck area.

Generally, there was probably very little or no settlement within the character zone during the early medieval period, with possible exceptions of settlement in the Stickney/Sibsey area and around Crowland. Outside of the areas of possible settlement, any settlement was probably isolated and associated with seasonal use of the fen for grazing or salt production. It is not clear whether any of the Roman settlements continued into the early medieval period, although given the gradual inundation of the fens towards the end of the Roman period this seems unlikely. Crowland Abbey was established in the eighth century. In the

later medieval period some fen reclamation took place, although this was probably fairly limited in extent and mainly around the fen edge.

Reclamation of the fenland landscape began in earnest during the eighteenth and nineteenth centuries. During this time many new drainage channels were cut and pumping stations constructed to overcome the challenge of draining land that was below sea-level. These engines were initially wind-powered, but steam engines became common throughout the zone. Indeed, it is likely that the clean air and skies for which the zone is so valued today are largely a modern phenomenon. The reclaimed land was divided into a pattern of rectilinear fields, separated from one another by drains rather than hedges.

This pattern is still much in evidence today, as the consolidation of fields that occurred elsewhere in the county could not be undertaken here due to the necessity of retaining the boundary ditches for drainage purposes.

Legibility

The legibility of the Prehistoric and Roman landscape is relatively minimal, due in part to the inundations which have covered the landscape from this period.

Legibility of the medieval landscape is evident in the survival of the nucleated settlement pattern in the Stickney and Crowland areas. Elements of the ridge and furrow open field system of agriculture are visible in the survival of some field boundaries. The historic settlement cores still retain much of their historic character with most modern development being small scale. Across the rest of the character zone there is very little or no legibility of the medieval landscape, due in the main to the drainage of the fens in the eighteenth and nineteenth centuries.

The planned enclosure landscapes of the eighteenth and nineteenth centuries are the most readily identifiable historic landscapes in the character zone, due to their extensive survival.

Character Zone WSH6

Townlands
within The Wash Character Area

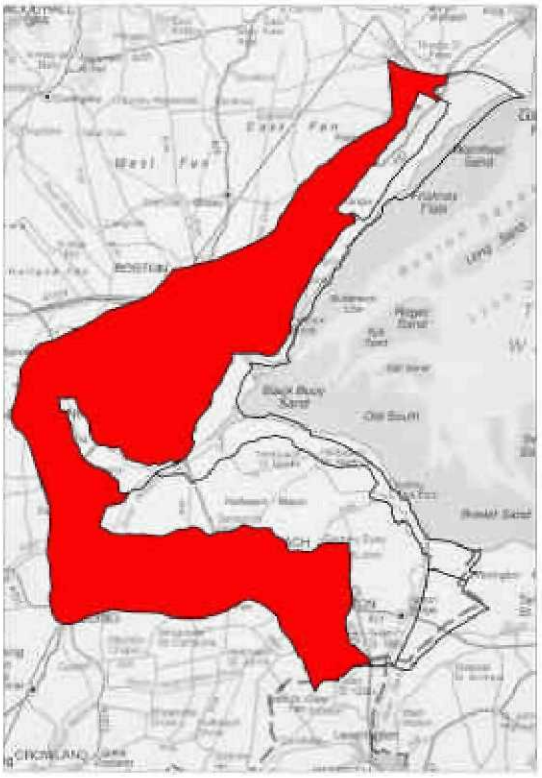
ARS sub-provinces:
EWASHW
CLNSC

Natural England National Character Areas:
46 The Fens

Total area: 379.7 km^2

Percentage of Regional Character Area: 57.5%

Percentage of Overall Project Area: 5.44%



Description
The greater part of this area is made up of arable fields, which are used to cultivate a variety of food and cash crops. There are some areas of pasture most of which is found in close proximity to historic settlements. Grazing animals are often allowed onto fields that have been harvested, where they devour the stubble and stalks.

Although predominantly agricultural, this character zone encompasses most of the nucleated settlements in the wider Wash region. The two largest settlements, Boston and Spalding, have markedly different roles within the local area. Boston, a medieval port, retains a strong maritime character, with working docks and associated infrastructure. Spalding, although possessing a roughly equivalent proportion of industrial types, is very much the hub of the food production industry in the region, with an assortment of processing plants, canneries and distribution centres. The smaller settlements in the area are primarily residential, although there are several examples of smaller industrial areas on the outskirts of these towns.

The zone is largely agricultural in character. Field morphology consists of a combination of irregular enclosures of early medieval origin, subdivided by straight field boundaries along the seaward edge of the zone. Most of the zone's seaward edges are defined by the 'Roman Bank', a medieval sea defence constructed in about 1300.

Field patterns in more inland parts of the zone comprise series of thin parallel strips within large irregular fields. Many of which have been amalgamated through extensive boundary removal in the mid to late twentieth century.

The pattern of settlement in the zone is distinct, with a string of nucleated medieval market towns and villages running roughly parallel to the coastline. Several small hamlets bridge, or lie adjacent, to the 'Roman Bank', some of which are satellite communities of the larger market towns. Settlements are of late Anglo-Saxon origin, with later medieval and subsequently twentieth-century expansion.

The main market towns and villages retain minor roads through their centres, however, peripheral road infrastructure has been upgraded to single carriageway 'A' roads which bypass the settlements. Remaining road infrastructure consists of an organic network of minor roads and trackways. Roads towards the inland parts of the zone are arranged more perpendicular to the coastline, and tend to form less of a network than those nearer the medieval sea-bank.

The zone is divided by large straight embanked river channels, mainly canalised during the nineteenth and twentieth centuries. Minor rivers and sewers are more sinuous in character, but nonetheless have been straightened and embanked from the at least the sixteenth century.

Large scale drainage infrastructure includes the early nineteenth-century Cowbridge and Hobhole Drains, north and east of Boston, and the modern relief channel of the river Welland. Standing water features in the zone are infrequent, and where apparent they are small ponds and embanked agricultural reservoirs. The latter are often associated with large glass houses. A number of small fishing lakes in the north-east of the zone have developed during the late twentieth century. Some small water features are associated with former brickwork sites, or moated houses.

Tree cover is the zone is sparse, comprising deciduous and non-deciduous, small scale, nineteenth- and twentieth-century plantations located in field edges and corners, around settlements and as shelter belts around farmsteads.

Historic Landscape Evolution

During the Prehistoric and Roman periods the zone was coastal in character, consisting of an areas of intertidal saltmarsh with localised areas of marginally higher ground. Early occupation would have been based around the manufacture of salt and hunting of wildfowl.

Falling sea levels from the mid Anglo-Saxon period allowed settlement on drier areas in the form of isolated ranches and salt manufacturing sites. By the late Anglo-Saxon period a landscape of small villages within an irregular field pattern was established on a long curve of higher silt land running from King's Lynn to Wainfleet. The linear pattern widened at Kirton, where a broader band of marginally higher silt land enabled the settlement pattern to be more dispersed. By 1086, the modern day settlement pattern of market towns had been established.

During the early medieval period, fields comprised a mixture of arable and meadow land. Common meadows, known as 'ings,' and open fields for grazing and arable were in use during the medieval period. Fields were irregular in nature, with many subdivided into selions, or strips, divided by thin dykes, allotted to individual land owners or tenants. The pattern of fields created by this method of allotment appears fossilised in the modern landscape and is more prevalent in, although not entirely restricted to, the inland areas of the zone bordering the freshwater fen.

Population expansion during the twelfth and thirteenth centuries occurred at the same time as reclamation of saltmarsh and freshwater fen on both sides of the established settlement zone. Land was protected from inundation by raising flood banks both in the fen and on the saltmarsh. Banks such as the Hurdletree Bank and 'Roman Bank' (that dates to about 1300). Droveways and trackways, which would later influence the modern day pattern of infrastructure, would have developed alongside this reclamation.

In the Middle Ages villages became more urbanised, developing into towns, many of which had both a market and fair licensed by the Crown. Burgage tenements were also laid out in port centres such as Boston and Wainfleet. Satellite villages developed along the flood

banks, allowing increased access to marsh and fen grazing lands and meadows. Flocks and herds from as far away as Ireland and Scotland came to graze on fen pastures, before moving onto London to be sold. Several of the settlements were small port towns, with access to The Wash via navigable creeks. During the late medieval period, many of the creeks serving the small ports warped up resulting in their abandonment or relocation further downstream.

Drainage was a continual preoccupation of all communities within this zone, as the onus on digging, embanking, and maintaining drains and watercourses rested on local inhabitants and landowners. During the Middle Ages the enclosure of marginal meadow and grazing land, which allowed marsh and silt fen to be ploughed, resulted in the laying out of thousands of miles of field drainage. Medieval works also included the embankment and canalisation of small watercourses, the creation of navigable drains and the diversion of river and sewer outfalls into major river estuaries such as the Welland and the Nene. Later post medieval and modern works consisted more massive engineering works, tackling the difficult tidal outfalls of major rivers and cutting large man-made drains from the peat fens through to the canalised river outfalls.

Throughout the post medieval period fields were amalgamated and re-enclosed through piecemeal agreements between individual landowners and tenants. The resulting sub-division and re-organisation of the land divided the organic pattern of fields and curvilinear arrangement of parallel strips with straight and geometric boundaries.

During the second half of the twentieth century, the zone has experienced considerable field boundary loss, resulting in an increased enclosure size that has dissipated the earlier field morphologies. Market towns within the zone have undergone large scale peri-urban residential and commercial expansion, coupled with the creation of new road infrastructures.

Legibility

The area is the oldest character zone within the reclaimed marsh and fen landscapes and, as such, displays the greatest range of time depth. Economic trends, climatic changes and ever more ambitious drainage engineering works since the late Anglo-Saxon period are visible within the fabric of the historic landscape.

The zone is distinct from other zones around The Wash due to the higher density of settlement, and more irregular field boundary morphology. The 'island-like' colonisation of the zone and its subsequent prosperity through the exploitation of surrounding marsh and fen is clearly manifested in the landscape, giving the area a national distinct historic character.