The South Humber Coastal Lowlands – a Landscape Interpretation.

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The relatively level coastal lowland area across the three parishes of Barton on Humber, Barrow on Humber and Goxhill forms the northern extent of the Lincolnshire 'Marsh'. In its natural post-glacial, prehistoric state this area would have been a gently shelving, inter-tidal environment crossed by tidal creeks fed by streams flowing from the spring-line of the Lincolnshire Wolds. Before the inter-glacial Humber Estuary was formed the area had a very different identity. During the last complete inter-glacial warm period (the Ipswichian inter-glacial, 130000-110000 years ago) the lower part of the east-west Wold highlands formed the coastline of a shallow sea, as did the north-south southern area of the Yorkshire Wolds. Therefore the south Humber coastal lowland area would then have been a shallow coastal sea-bed, this subsequently revealed as sea levels fell during the last Ice Age (Devensian) and in turn overlain with boulder clay by the retreating ice sheets some 12,000 to 9,000 B.C. In the case of the coastal lowlands the boulder clay was further overlain by estuarine silts deposited by ebb tides.

Across historic time this area was modified by human activity but remained for two millennia distinct from the rising land of the Wolds to the south. Only in the wake of Parliamentary Enclosure in the late 18th century was the area given over to a similar form of agriculture to that of the Wolds backdrop, although conversion to arable farming was more pronounced in the parishes of Barrow and Goxhill than in Barton.[1]

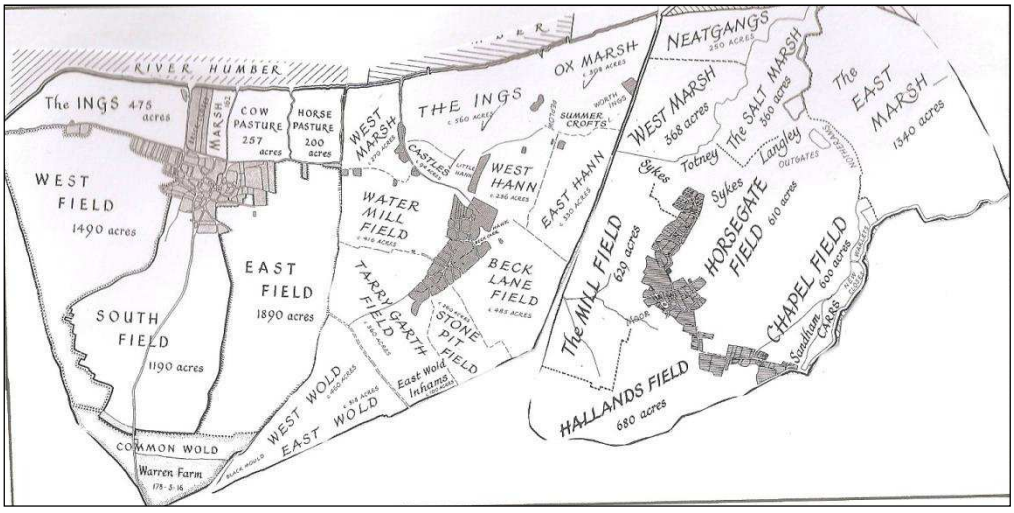

Fig. 1 See above.

[1]The impact of Parliamentary Enclosure has been thoroughly covered by the researches and publications of the late Rex Russell. Publications include Russell, R. and E. *Landscape Changes in South Humberside* (Humberside Leisure Services, 1982), Russell, R. *The Enclosure of Barton-upon-Humber 1793-'96* (Barton W.E.A.. 1968), Russell, R. *Parliamentary Enclosures and New Lincolnshire Landscapes* (Lincolnshire Recreational Services, 1987) and Russell, R. *Great Changes in Barton, 1793-1900* (Barton W.E.A., 2002).

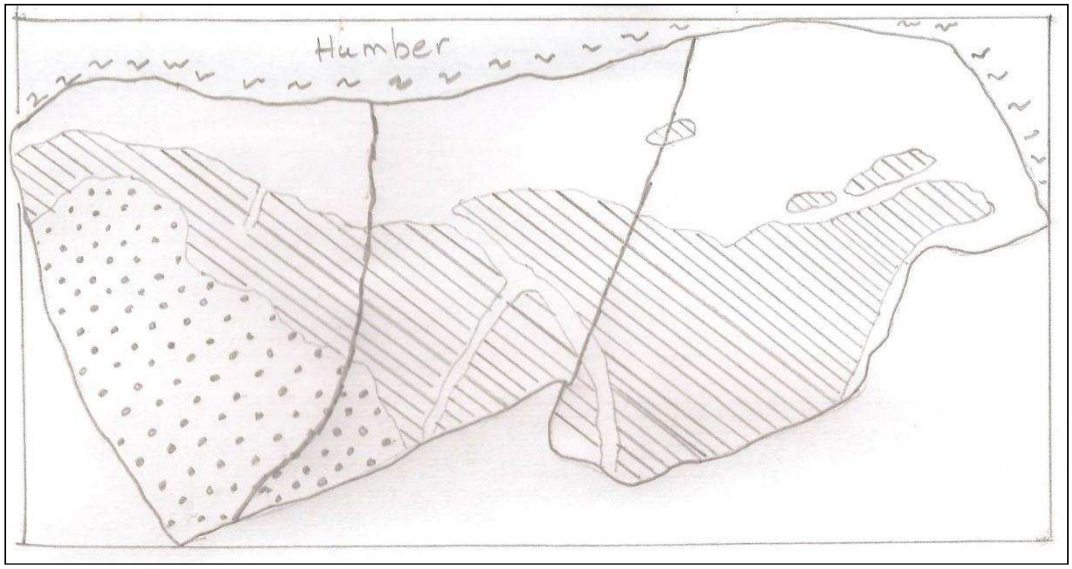

Fig. 2 The three parishes left to right Barton, Barrow and Goxhill with solid lines showing the parish boundaries. Diagonal shading shows the area of glacially-deposited boulder clay, the dotted area chalky soils that were above the Devensian ice sheet. The blank areas are the coastal lowlands and inlet valleys where boulder clay has been covered by estuarine alluvium. Information taken from the British Geological Survey map, Sheet 80, Kingston upon Hull.

Between 1992 and 2000 the academics involved in the Humber Wetlands Project were engaged in research 'to investigate the buried archaeological resource and to place it in its context of environmental change' (Van de Noort, 2004, 1). It has been estimated that in c 1600, before large-scale reclamation projects were begun, the Humber Wetlands regions covered 85000 square miles and that nationally 25% of the country's land mass was wetland. The Humber Wetlands are defined as; the south-east section of the Vale of York (including Wallingfen), The R. Hull valley, Holderness (especially the south coastal lowlands), the Humberhead Levels (the R. Trent floodplain and Thorne and Hatfield Moors), the Vale of Ancholme and the Lincolnshire coastal 'Marsh'.

By using a range of study techniques such as; soil core analysis, pollen analysis, plant macrofossil analysis, radio carbon dating, field walking, small-scale excavations and geophysical surveys information was amassed and written-up in six monographs. The last of these to be published, Ellis, Fenwick, Lillie and Van de Noort (eds), 2001, is the most relevant to the parishes of Goxhill, Barrow and Barton.

At the end of the last Ice Age (Devensian) the sea level was over 20 meters lower than today, the bed of the North Sea was then the north German plain and the coastal lowlands of Goxhill, Barrow and Barton were then well inland of the Estuary-side. By 13000BC this land was a tundra environment, hostile

to plants, paleolithic man and most animals. By 9000BC with a rapidly warming climate the area would have been dense woodland of birch, willow and pine. By c 8000BC plant species such as hazel, elm and oak had migrated north to beyond the Humber Estuary while a rising sea level would have brought the coast nearer to the chalk escarpment of the Lincolnshire Wolds. By 4000BC the sea level was only seven meters below that of today although wetter conditions had resulted in the heavy, waterlogged boulder clay soils of the Lincolnshire 'Marsh' supporting mostly alder woodland rather than the earlier diverse deciduous woodland.

By 2000BC the sea level was only four meters below that of today and, if clay-banks are taken out of the equation and given that present day daily tidal ranges can be up to seven meters, the coastal lowlands of the parishes of Goxhill, Barrow and Barton may not have been much wider than today. Fragmentary forest clearance in Neolithic times and a continued rise in sea level resulted in the layer of peat created by post-glacial woodland migration being overlain by estuarine alluvium deposited by flood tides.

In their natural post-glacial state the south Humber coastal lowlands would have been a patchwork of salt-marsh, reed-bed and fen, lowland wet grasslands, tidal creeks and low islands of post-glacial deposition,[2] especially in what was to become the parish of Goxhill. Coastal lowland habitats generally became valuable as sources for reeds, fish, wildfowl and, in places, summer grazing but they were not easily accessible. Early transport networks centred on track-ways on higher land, on open water or on inlets that penetrated the coastal lowlands. Pre-Roman settlements at North and South Ferriby and at the Celtic predecessor to Roman Petuaria (Brough) accessed open water to control transport along and across the Humber, whereas early medieval communities at Barrow and Barton established trading links beside inlets that crossed the coastal marsh.[3] A study of the British Geological Survey 1:50000 map Series, Drift Edition Sheet 80 (Kingston upon Hull) shows clearly how, before the impact of Man, three tidal inlets existed which deposited strips of estuarine alluvium over the glacial boulder clay and which, presumably, would have been navigable to tiny craft (see Fig. 1).

In the Barton area it was the lower dry valley[4] leading to the Beck Hill area which fed fresh water to a tidal inlet that penetrated the till overlay (see Fig. 2). It is interesting that the later Haven was not preceded by a tidal inlet that

[2]The first three of these five categories are ecology terms taken from Sutherland W.J. and Hill D.A. *Managing Habitats for Conservation* (C.U.P. 1995).

[3]In the case of Barton this interpretation is questioned by some.

[4]Dry valleys were formed in immediate post-glacial conditions when either the porous chalk bedrock was saturated or when the porous bed-rock was frozen, this resulting in the creation of surface drainage features. Two dry valleys fed into the Humber in the Barton area, the lower course of one is followed by Whitecross Street while the other fed into the Marsh Lane area. The lower reaches of these dry valleys was almost certainly deliberately chosen as a convenient location for an Anglo-Saxon settlement.

impacted on the boulder clay deposits. In the area that was to become Barrow parish the upper tributaries of what became Barrow Haven (see Fig.2) carried tidal waters inland to the spring-line of the Burnham chalk [5] escarpment's dip slope. In the Goxhill area East Halton Beck inlet deposited alluvium over boulder clay as far inland as today's South End (see Fig. 2).

The British Geological Survey map (see above) shows an almost exact correlation between the area of the south Humber estuarine alluvium and the area utilised as medieval common land across the three parishes.[6] However, apart from the estuarine inlets, another intrusion into the estuarine alluvium was two 'islands' of till (see Figs. 2 and 3), the larger of the two being a low, linear drumlin [7] still visible in the landscape between Ferry Road and Horsegate Field Road, Goxhill. Prior to the impact of Man these would have literally been islands surrounded by brackish marsh. The second 'island' of till now makes no impact on the level landscape between West Marsh Lane (Goxhill) and New Holland (see Figs 2 and 4), this probably a result of having been 'ploughed down' by decades of arable farming.[8]

Fig. 3 The 'island' in the 'Marsh' in the Langley area of Goxhill parish (see Figs. 1 and 2.

[5]Although the might seem uniform to the untrained eye geologists divide it into sub-strata, the upper (most recent) sub-strata is called Burnham Chalk, laid down in the upper Cretaceous geological era, while the narrower, earlier sub-strata are called Welton Chalk and Ferriby Chalk, the last being revealed at the base of the scarp slope.

[6] The Ings, Marsh, Cow Pasture and Horse Pasture in Barton parish, West Marsh, The Ings, Ox Marsh and Summer Crofts in Barrow parish and Neatgangs, West Marsh, Salt Marsh and East Marsh in Goxhill parish. See Fig. 1.

[7]Drumlin being a slight hill in the landscape formed as a result of uneven post-glacial deposition.

[8]As often happened to man-made prehistoric mounds such as barrows.

Fig. 4 View east across Goxhill 'Marsh' from the area between West Marsh lane, Goxhill and New Holland. Modern clay-tile works centre left.

Clearly throughout the middle ages, and possibly before, sections of discontinuous clay bank ramparts were constructed to hold back high tide waters from sections of the coastal marsh. Thereby Man could begin to adapt the estuarine lowland landward of the coastal defence. Such constructions, although presumably modest in size compared with those of the 20th century, must have then required considerable manpower and collective resources.

Although the present sea defence across the three parishes was much straightened and heightened after the 1953 east coast floods it had been established before Parliamentary Enclosure. The Enclosure Award maps appear to show the clay banks in their present positions and, although not all three parishes were enclosed at the same time (Barton – 1793-'96, Barrow – 1797-1803 and Goxhill – 1773-'75), some form of inter-parish agreement must have existed to result in a continuous sea defence. Arthur Young's *General View of Agriculture of the County of Lincoln,* 1799, records that of the £13000 Enclosure costs for Barton parish £2000 was to fund an improved Humber bank and 'four jetties'.[9]The new clay bank was to be 25 feet wide at its base, five feet high and three feet wide across its top. In Barrow parish, with a coastline only slightly shorter than that of Barton (remembering that New Holland was then part of Barrow parish), the 'making of the Humber bank cost £494, along with two jetties costing a colossal £2268.

[9]It is not clear where these jetties were sited or what was their purpose. One may have anticipated the soon to be developed Barton Cliff chalk quarry, financed by Marmaduke Graburn, Barton's then largest landholder. If so it seems unclear as to why the 'public purse' should help fund a private venture. Two others may have been improvements to the long established cross-Humber ferry jetties near the mouth of the Haven, one from which boats sailed to Hessle Haven, the other from which boats sailed to Blackfriargate Staithe near the mouth of the River Hull.

The wording of the Enclosure Awards makes it clear that earlier clay banks did exist but no detailed comparisons between these and the new banks is possible. Further evidence for the existence of pre-Enclosure clay banks comes from surviving evidence of early modern parish by-laws. For Barrow parish these were transcribed and edited by the famous historical geographer Maurice Barley (see *Lincolnshire Architectural and Archaeological Society Reports and Papers, Vol. 2, Pt. 1* (1938). The Barton 'Town Book' of 1676 is currently being catalogued and transcribed.

With the development of the parish system in late Saxon–early Norman times the coastal lowlands would have become a continuous belt of wetland common land, although presumably the parish boundaries would have been defined in some way. However, although the estuarine lowlands were a homogenous area local variations of natural vegetation and conditions would have offered varying opportunities for exploitation. For example, in its natural state much of this coastal lowland would have been saltmarsh. Here halophytic grasses and dwarf brushwood would have trapped alluvial sediments carried by the ebb and flow of the tide as well as absorbing the force of storm tides and preventing coastal erosion. Saltmarsh usually comprised a network of micro-gullies between clumps of vegetation, this making it a difficult environment for humans and animals to cross. Once effectively drained and tilled, usually after enclosure, saltmarsh became level, fertile arable land, the fields between North End, Goxhill and New Holland being one-such example.

In its natural state saltmarsh provided a feeding area for estuarine birds and a roosting area for gulls, terns, waders and wildfowl. Natural saltmarsh could have been lightly grazed in summer by an average of two-three sheep/acre or by one cow for every two acres without destroying the natural vegetation and without imperilling wintering wildfowl populations. Established saltmarsh could have been mown for low-value winter feed. Most of the natural saltmarsh of the estuarine lowlands has been lost to modern reclamation, so-much-so that by the late 20th century surviving linear beds along the littoral of the three parishes is given a high level of legal protection.[10]

Another local habitat associated with estuarine lowlands is 'reed-beds and fen' (see Sutherland and Hill, Ch. 7). To distinguish one from the other 'Fen' is defined as a local environment where less than 75% of the vegetation is reed-bed. Reed-beds colonised areas of tidal brackish water, freshwater channels and waterlogged depressions. When not cut, or not flushed by a strong flow of water, the build-up of dead reed vegetation lead to drying out and the eventual colonisation by scrub woodland. Thus by the winter cutting of reeds

[10]'Managed retreat' and the Humber Management Scheme.

and sedge medieval villagers not only supplied their thatching and floor-covering material but also effectively managed future supply. If mown for hay in early summer fen grassland could be winter grazed as 'Lammas lands' (grazed from mid August to mid February). However, summer grazing only would have reduced the damage to stock from excessive damp and to the environment by excessive trampling. In terms of surviving the following winter it was important to get a good crop of hay before the grassland was fully grazed. As across medieval England, so in north Lincolnshire there was then vastly more reed-bed and fen than today and its associated wildlife such as bittern, marsh harrier, bearded tit and water vole must have then been commonplace.

'Fen woodland', defined as areas where willow, birch and alder dominate (Sutherland and Hill, 152), would have been an element in the estuarine lowland environment where the land was relatively dry or where reed-bed management had ceased for whatever reason. Coppiced willow beds would have provided medieval villagers with the raw material for basket making and for the construction of 'mud and stud' walling in cottage building.[11] The later basket making industry in Barrow may have had ancient origins and certainly used locally grown willow saplings.[12] Although willow could have grown on the estuarine lowland they were later cultivated in the Hann area of Barrow parish where more land rose above the floodplain, although still associated with the banks of Barrow Haven Beck. Interestingly, today fields of willow are grown in Goxhill parish, mainly in the East Marsh area, and cut periodically to fuel the biomass power station at Drax. The displays at Baysgarth Museum, Barton include one on the history of the local basket making industry.

'Lowland wet grasslands' (see Sutherland and Hill, 200) on the estuarine lowlands would have been areas where moisture-tolerant grass species could withstand periodic flooding. Here the grassland could be very soggy although in dryer conditions the silt soils would dry quickly. Summer grazing by sheep would have kept the sward low, although if the land remained saturated for long the animals would be vulnerable to liver fluke and foot rot. However, the grazing of cattle, goats or oxen (see Fig.1, Barton parish) could damage the sward by trampling.

Irregular areas of shallow standing water (water meadows) would have benefitted breeding wildfowl and waders, these usually nesting within 20 metres of open water. Opportunities for wildfowling or domestication of water fowl would have existed for medieval parishioners.

[11]The type of ‘mud-and-stud walling particular to Lincolnshire involved the nailing of vertical laths only to the main timber framework, this before the’ puddled’ mud was applied.

[12]In East Yorkshire and north Lincolnshire coppiced willow woods were often known as 'osier garths'.

Islands, resulting from uneven deposition by melting ice sheets, in the common-land of the estuarine lowlands may have been given over to coney warrens to provide a supplementary food source. This would have resulted in a patchwork of closely grazed sward up to 30 metres from the burrow networks.

In each of the three parishes the southern edge of the common-land of the estuarine lowlands was presumably defined by a hedge or ditch, or both and from this point southwards the rising ground was divided into open fields. However, in all three parishes there seems to have been 'zones of transition'. In Barton the term 'Acridge' was applied to the land immediately above the coastal lowlands and, although there seems no agreed origin for this term they were identified as 'old enclosures' on the Enclosure map (see Russell 1982, 62). In Barrow parish East and West Hann have a similar location but here corresponded to two of the village's 11 open fields. Following the completion of Parliamentary Enclosure in 1803 post-enclosure roads marked the edges of the two traditional areas (see Russell 1982, 56). K. Cameron in his *Place Names of Lincolnshire, Vol. 2* records evidence of the name Hann in Barrow parish from the 17th century onwards but gives no origin for the word. In Goxhill parish a similar area was known as 'Sykes' and 'Totney' and can be evidenced in the undulating section of the post-enclosure Ferry Road just north of North End. Again the origin of the name seems obscure.

Clearly then medieval estuarine lowland areas had a diverse ecology where different areas of the natural environment could be exploited for different purposes and where careless exploitation could significantly damage that natural asset. It then seems likely that early medieval parishioners adapted to this diverse lowland area. However one man-made intervention, the building of early clay-banks to hold back at least neap tides, was destined to change the ecology of the estuarine lowlands. Very little evidence survives as to when, and exactly how, these early medieval coastal manipulations were built although there is some evidence for the existence of patchy north-Humber bank clay-banks by the 13th century.[13] It seems likely that the building of clay-banks would be the result of collective action by either the parish or the manor. Also patchy sections of clay-bank would be compromised by the ingress of tidal water around their ends. A basic clay-bank would presumably be created by a conscripted labour force digging a trench and mound alongside, this done across the period of low tide. The ridge and trench would be more effective if the ridge was landward of the trench.

Digging early clay-banks with basic hand tools would have been back-

[13] Various references appear in the Meaux Abbey Chronicle, compiled by ex-abbot Burton in the early 15th century and transcribed in the 19th century. It seems that the workforce usually comprised lay-brothers and labourers hired and paid daily.

breaking and soul-destroying work requiring much physical effort just to move about in the deep, claggy estuarine mud. Furthermore the bank would initially be unconsolidated and easily undermined by the lapping flow tide, especially when a spring or storm-tide occurred. If the bank lasted long enough for vegetation to take hold, or if turves were set in the surface soon after building, then it would have become more effective. Clearly medieval clay banks must have been precarious structures and if seriously damaged by storms it must have required a leap of faith, or a commercial incentive, to start the building process again.

Evidence for the building of a clay bank along the northern fringe of the parishes of Barton, Barrow and Goxhill also comes from the era of parliamentary enclosure when the specific dimensions of the required clay-bank were often stated in the Award (see before).[14] However, it seems almost certain that previous clay-banks did exist along the three parishes as the pre-enclosure maps produced in Rex Russell's studies show the estuarine lowlands divided into specific areas according to usage (see Fig. 1) rather than the more diverse areas that might be expected if the lowlands remained in their natural state. Certainly any block to the daily ingress of brackish water would, over time, lead to the decline of the saltmarsh.

The processes and timescale whereby medieval parishioners adapted the natural ecological sites of the coastal lowlands to their purposes is a matter of speculation. However, by the 18th century the pre-enclosure lowland common land had been divided into differentiated areas, as identified on the open-field village maps. Some names related, in part at least, to their purpose in the parish stinting regime eg Ox Marsh (Barrow) and Horse Pasture and Cow Pasture (Barton). Other areas were named according to their physical or ecological identity eg West Marsh (in both Barrow and Goxhill) and the Ings (Barton and Barrow). The name 'Neatgangs' (Goxhill) seems to have been a term meaning 'pasturage for cattle' in Old English (early Anglo-Saxon), a term which survived through the centuries. 'Neatherd' was a term used for a herdsman.

The borders between these pre-enclosure areas of common land on the estuarine lowlands seem to have been closely defined, although these chosen boundaries were often natural features, suggesting the area was extended to fit the feature rather than vice-versa. In Barton parish the Haven divided the Ings from the Marsh (Brick Closes), while the Marsh was divided from Cow Pasture by a stream that drained the Beck to the Estuary (part of which was subsequently culverted to Butts Road). Cow Pasture was divided from Horse Pasture by another spring-line stream draining to the Humber. In their natural state such streams would have been tidal and would have

[14]The Barton pre-Enclosure Town Book, currently being transcribed, will doubtless shed further light on this issue.

produced a linear ecology determined by the ebb and flow of brackish water. The Haven remains tidal with its flood defence clay banks topped by sturdy brick walls built in the early 21st century as part of the Humber Flood Defence Strategy. Apart from the stream crossing George Uppleby's 289 acres (the north-east corner of the parish), these streams remained defining features in the immediate post-enclosure lowland landscape.

In Barrow parish also spring line streams flowing to the Humber separated the areas of pre-enclosure coastal lowland nearest to the Estuary. Further inland the boundaries between Castles, Little Hann, West Hann, East Hann and Summer Crofts seem to have not been determined by natural features.

In Goxhill parish tidal streams defined either side of Saltmarsh but further east the boundary between Ox Marsh and Summer Crofts (Barrow) and Neatgangs and West Marsh (Goxhill), a surprisingly long straight parish boundary, was not defined by a natural feature. At some point(s) in the middle ages streams crossing the coastal lowlands must have been embanked as otherwise they would have been points of ingress through the Estuary clay bank. In more recent times such streams have been diverted to converge on single sluice gates, one in each of the three parishes.

Fig. 5 Goxhill Beck at a point near to the Humber bank sluice.

Fig. 6 Between Neatgangs Road and the sluice the stream (Goxhill Beck) that once separated three areas of Goxhill's pre-Enclosure common land (see Fig. 1) retains its meandering course.

Fig. 7 Between Neatgangs Road and North End, Goxhill the Beck was 'canalised' as part of the Enclosure process.

Etymologically the words 'ings' and 'marsh' are of Scandinavian origin, the former meaning low lying pasture or meadow, the latter meaning meadow land lying near water and, possibly implying, periodic inundation. These terms (and Neatgangs, see above) suggest that the coastal lowlands had had an

economic function for 1200 years before parliamentary enclosure. This in turn meant that some system of clay banks must have existed from that time and that the natural features of the post-glacial coastal lowlands must have from then been compromised.

Modern agricultural policies and practice have resulted in the diversity of post-enclosure ecological areas being obliterated, particularly where arable land is the main economic activity. The clay banks, much enlarged in the 20th century and now termed 'flood defences', remain, although probably further seaward than those of bygone centuries. The transitions from the natural post-glacial environment to that of today remains a matter of some speculation.

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