

Humber Estuary Coastal Authorities Group Flamborough Head to Gibraltar Point Shoreline Management Plan

Appendix D – Theme Review

Final

December 2010



Prepared for:

Humber Estuary Coastal Authorities Group

Revision Schedule

Flamborough Head to Gibraltar Point Shoreline Management Plan Appendix D - Theme Review December 2010

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CD1	9 November 2009	Consultation draft	Jonathan Short Assistant Engineer Laura Mitchell Engineer	Dr John Pos Associate	David Dales Director
F1	20 December 2010	Final	Jonathan Short Assistant Engineer Laura Evans Engineer	Dr John Pos Associate	David Dales Director

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Scott Wilson
Scott House
Alençon Link
Basingstoke
Hampshire
RG21 7PP

Tel: 01256 310200
Fax: 01256 310201

www.scottwilson.com

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D1 Introduction

D1.1 During Stage 2 of the Shoreline Management Plan (SMP) development process, a review of key features and issues and their associated benefits was undertaken. This information allowed locally-specific objectives to be identified that subsequently provided a basis for assessing policy options to inform policy development.

Methodology

D1.2 Features and issues were initially identified through a 3-day site visit (in October 2007) along the SMP coastline combined with use of Ordnance Survey mapping, aerial photography and other data supplied for the project. This was supplemented by information provided by the Client Steering Group, Elected Members Forum and feedback from stakeholders.

D1.3 Stakeholder input about features and issues was gathered through:

- Interviews with key organisations (January – May 2008);
- Two workshops held with key stakeholders (March 2008);
- Questionnaires issued to over 800 individuals, businesses and organisations (January – February 2008).

D1.4 Appendix B of the SMP provides further information about stakeholder involvement throughout the SMP process.

D1.5 A compendium of features and issues was produced as a result of this data gathering. This was then used to characterise the SMP frontage. The entire frontage was split into nineteen character areas. The divisions between the areas were created so that each area has a broadly similar character in terms of land use, geography and coastal character. Further detail about the divisions between character areas is provided in Table 1.1.

D1.6 Figure 1.1 shows a map of the locations of the character areas.

D1.7 The influence of the coastal zone and the extent of the potential flood and/or erosion risk largely determine the landward extent of the Character Areas. For example, where low-lying land stretches many kilometres inland in significant areas of Lincolnshire, the characterisation includes key features located a considerable distance from the shoreline, as they are still affected by shoreline management. Where coastal low-lying land is minimal, or erosion risk is the main threat, the characterisation covers much shorter distances inland.

Table 1.1: Divisions between character areas

Area	Basis for location of area boundaries
Area 1: Flamborough Head to Sewerby	Rural – urban land use change
Area 2: Bridlington to Hilderthorpe	Urban-rural land use change
Area 3: Wilsthorpe to Atwick	Rural - urban land use change
Area 4: North Cliff to Hornsea Burton (Hornsea)	Urban-rural land use change
Area 5: Rolston to Waxholme	Rural - urban land use change
Area 6: Owthorne to Hollym (Withernsea)	Urban-rural land use change
Area 7: Hollym to Dimlington Cliffs	Rural-industrial land use change
Area 8: Dimlington and Easington Gas Terminals	Industrial - rural land use change
Area 9: Easington to Kilnsea	Spurn is unique coastal feature – considered separately – rural land use
Area 10: Kilnsea to Spurn Point	Spurn is unique coastal feature – considered separately – rural land use.
Area 11: Easington Road to Stone Creek	SMP2 boundary
Area 12: East Immingham to Grimsby Docks	Industrial-urban land use change
Area 13a: Grimsby and Cleethorpes	Humberston Fitties considered separately because of flood risk issues
Area 13b: Humberston Fitties	Urban-rural land use change
Area 14: South of Humberston Fitties to Saltfleet	Change in coastal defences – rural land use.
Area 15: Saltfleet Haven to Theddlethorpe St Helen	Rural - urban land use change
Area 16: Viking Gas Terminal to Sandilands	Urban-rural land use change
Area 17: Sandilands to Chapel Point	Rural - urban land use change
Area 18a: Chapel Point to Skegness	Skegness considered separately because of its significance within East Lindsey's Local Development Framework
Area 18b: Skegness	Urban-rural land use change
Area 19: Gibraltar Point	

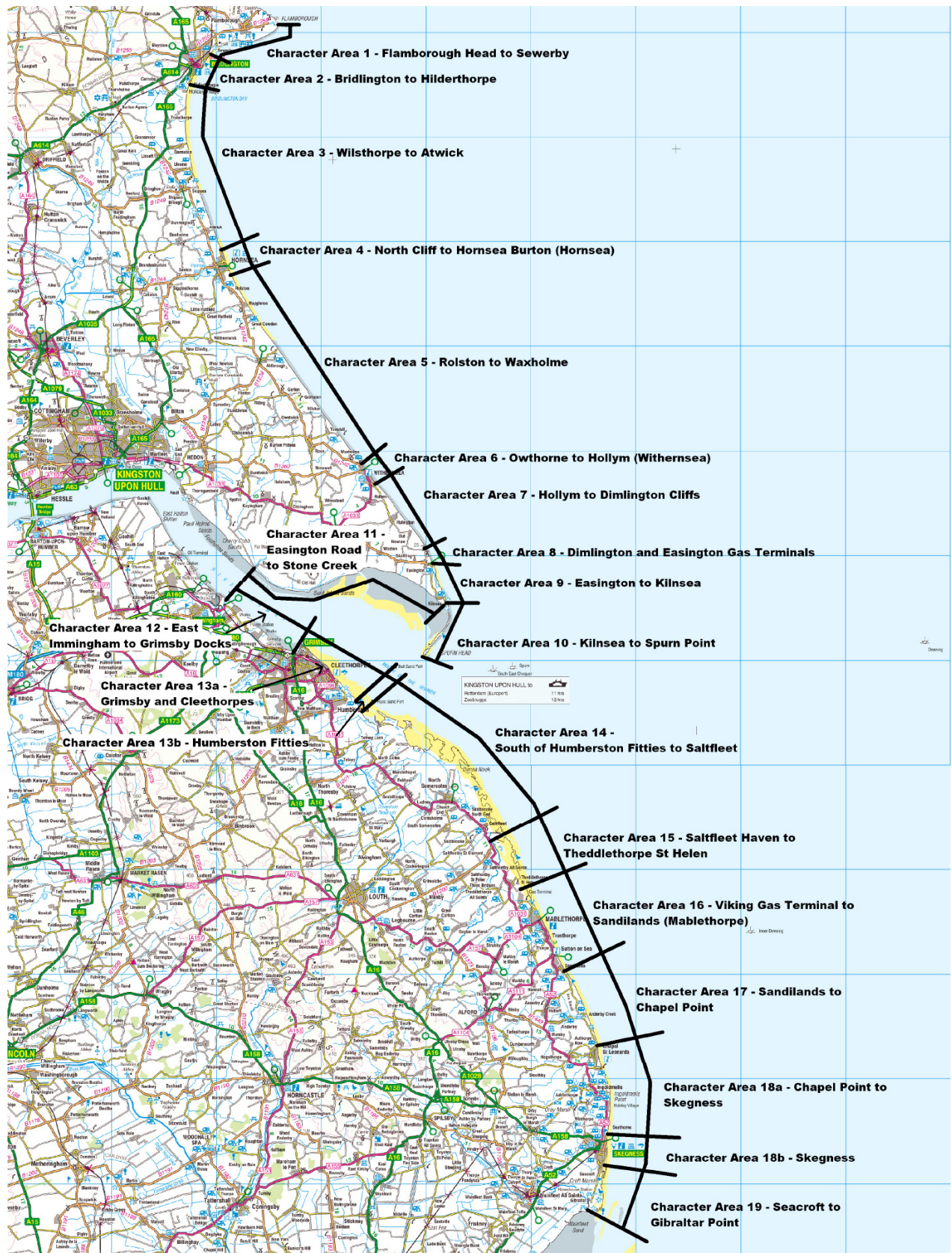


Figure 1.1: Map of Character Areas

Cross sections and characterisation

- D1.8 The theme review is provided in Chapter D2, summarised by Character Area. Also included is a schematic 'cross section' for each area. The cross sections are intended to encompass the key features of the area as a whole, rather than being a specific transect across the area. In addition to schematically characterising the area, the cross sections demonstrate how key features sit together and interact. The cross sections are not to scale and are deliberately stylised to display features and dependencies.
- D1.9 The cross sections vary significantly in the inland distance that they cover, depending on the distance inland that is affected by coastal flooding or erosion. Although the cross sections are not drawn to scale, at the top left hand corner of each cross section a distance is shown signifying the approximate distance inland that the cross section is intended to represent. For the cross sections within Lincolnshire, this is typically 10 kilometres and for the Holderness cross sections, this is typically 1 kilometre.
- D1.10 A key showing the colours used in the cross sections is provided below:

	Regional commercial centres and coastal towns		Tourism
	Coastal towns / villages		Infrastructure assets
	Rural (inland) settlements		Important features of the natural environment
	Rural farms and small communities		Conservation areas
	Recreation		

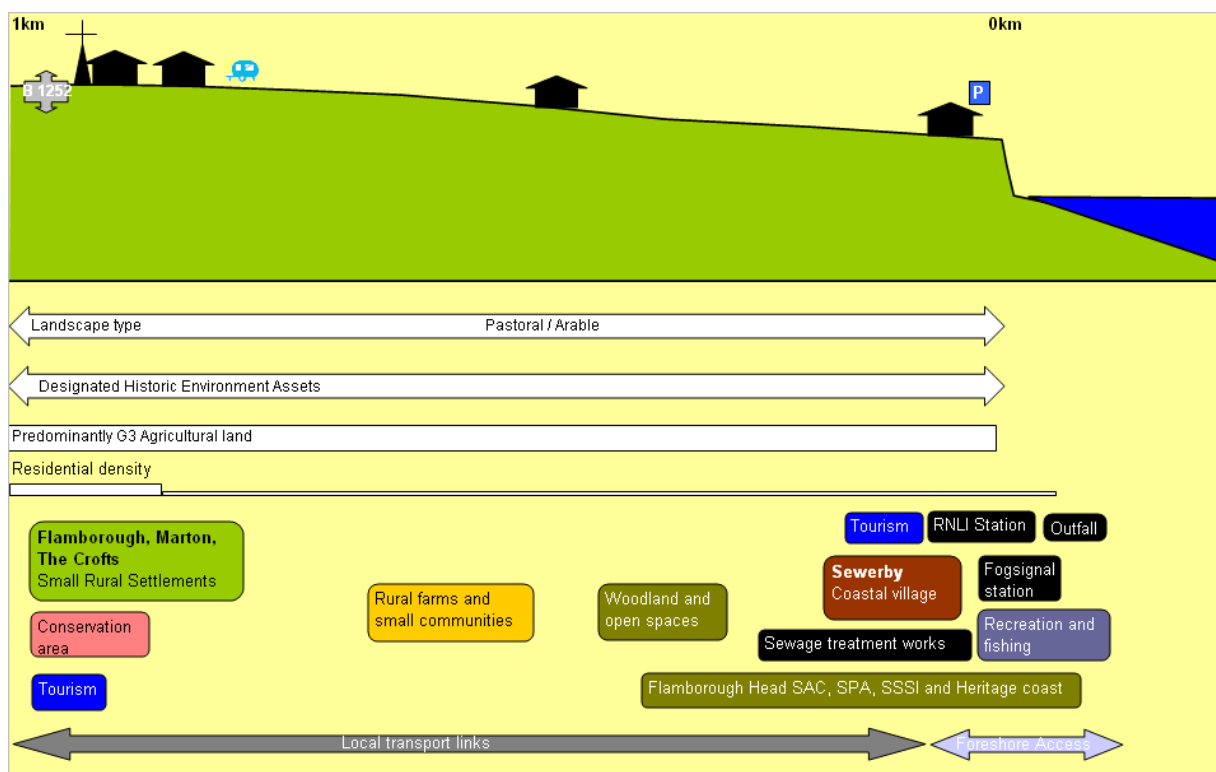
- D1.11 Within each area, the characterisation is split into a number of topics. The topics have been selected to cover the range of interests along the coast. The topics are listed below:
- Agriculture and industry: a summary of the agricultural land classification system referred to within this document is included in Annex A.;
 - Communities;
 - Flood and erosion risk;
 - Historic environment: a summary of historic environment designations is included in Annex C;
 - Infrastructure;
 - Landscape;
 - Natural environment: a summary of the international and national environmentally designated sites is included in Annex B; and
 - Tourism.

Local objectives

- D1.12 Chapter D2 includes the list of local objectives for each area developed from the key features and issues.

D2 Theme review

Area 1: Flamborough Head to Sewerby



Landscape

D2.1 This frontage is characterised by 30 to 50 metre high near vertical chalk cliffs, overlain by glacial till. Behind the cliff line, the landscape is gently undulating, rising inland towards the centre of the headland, reaching a peak elevation of around 55m ODN. Small incised valleys with streams at Danes Dyke and South Landing form natural low points in the landscape, typically 10 to 20 metres lower than the surrounding cliffs. The shore platform is composed of chalk bedrock with boulder and cobble deposits of eroded material. There are small pocket beaches present at South Landing and Danes Dyke. The entire headland is designated as a Heritage Coast.

Communities and flood and erosion risk

D2.2 The agricultural land is interspersed with the small nucleated settlements of Flamborough, Sewerby, Marton and The Crofts. Small rural communities and isolated farms are also scattered throughout the area. The small rural settlements of Flamborough, Marton and The Crofts are set back from the shoreline and are not at risk of erosion over the SMP2 timeframe.

Agriculture and industry

D2.3 The landscape of the area is largely open and rural. The dominant land use is grade 3 agricultural land, which is used mainly for arable farming with some small scale grazing. There

is a significant area of land farmed under Natural England's Environmental Stewardship scheme at Entry Level plus Higher Level.

Infrastructure

- D2.4 Infrastructure within the area includes a sewage treatment works and outfall south of Flamborough. There is also an RNL station at South Landing and a fog signal station at Flamborough Head.

Tourism

- D2.5 The small pocket beach at South Landing is designated as EC bathing beach and attracts visitors. There is a golf course near Sewerby that attracts visitors and recreation.

Natural environment

- D2.6 Flamborough Head is internationally designated as a Special Protection Area and Special Area of Conservation. This area is also a Sensitive Marine Area and Site of Special Scientific Interest. The entire headland also contains three Geological Conservation Review sites.

Historic environment

- D2.7 There is a designated conservation area in Flamborough village. The area includes many listed buildings including the Grade 1 listed building at Sewerby Hall. Scheduled Monuments in the area include: an Operation Diver heavy anti-aircraft gun site at Flamborough Head, Flamborough Castle, Danes Dyke, and an Anglo-Saxon cemetery at Home Farm. Other significant non-designated assets may also be present in the area. It is also important to note that there are potential issues with as yet unknown archaeological sites on land and also offshore.

Objectives

Flood and erosion risk

- Minimise coastal erosion risk to people and property.
- Make effective use of existing man-made or natural defences.

Communities

- Protect as many settlements as possible.

Natural environment

- Maintain natural processes leading to the exposure of the Flamborough chalk cliffs and formation of caves for their geological interest.
- Maintain and where possible enhance the extent of Flamborough vegetated chalk cliff habitat.
- Maintain and where possible enhance the breeding sea bird colonies at Flamborough Head.

- Maintain and where possible enhance the extent and condition of subtidal chalk reef habitat around Flamborough Head.
- Ensure that the impact on the UK's internationally designated habitats is acceptable.

Agriculture and industry

- Ensure that the impact on the UK's area of agricultural land is acceptable.

Tourism

- Maintain and enhance the viability of a diverse tourism economy.

Infrastructure

- Avoid interruption to the functioning of: the South Landing RNLI station; the fog signal station at Flamborough Head; sewage treatment facilities; and other key community services and utilities infrastructure.

Landscape

- To maintain and where possible improve the quality of the coastal landscape.

Coastal processes

- To prevent interruption of coastal processes which supply sediment to other coastlines.

Historic environment

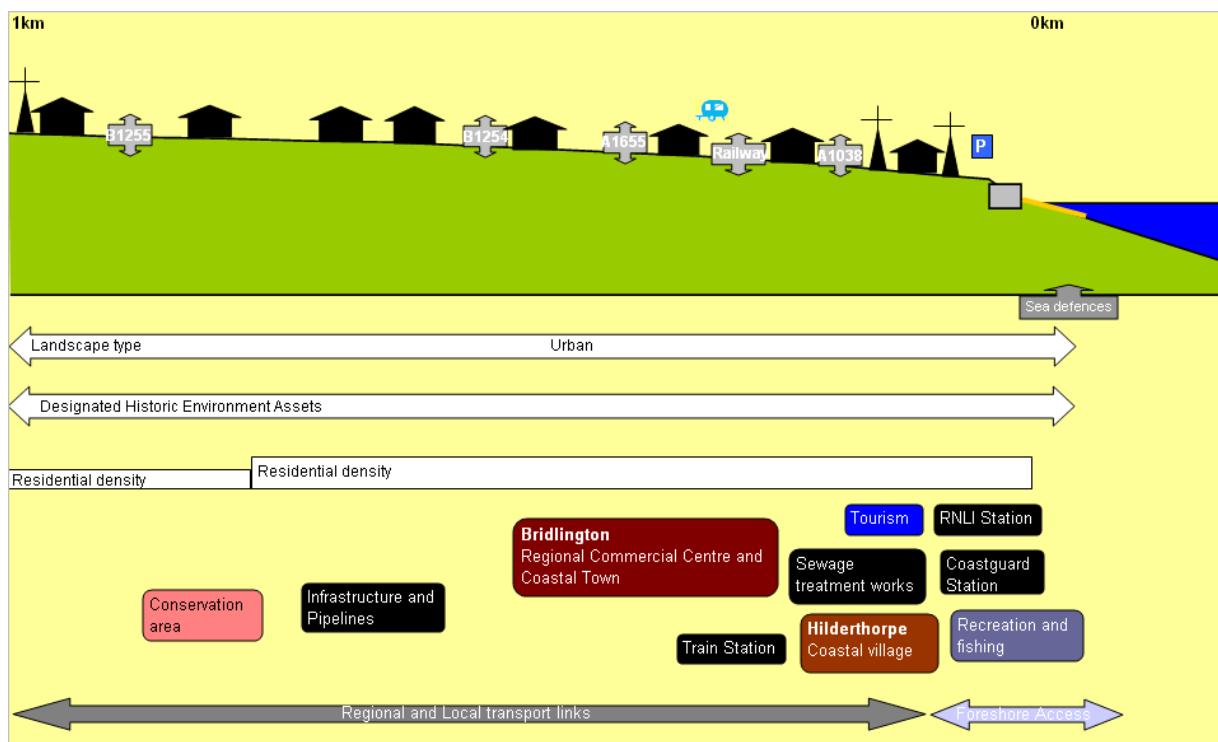
- Minimise damage to designated and significant historic environment assets (such as Buckden Dyke and Danes Dyke) from cliff erosion, where possible.
- Ensure coastal defence works do not threaten designated and significant historic environment assets, where possible.

Timing of policy

D2.8 Provide sufficient time if necessary, for:

- community adaptation.
- relocation / adaptation of sewage works and other key community services and utilities infrastructure.
- research of archaeological features and ecological surveys.
- provision of recreational access to the foreshore.

Area 2: Bridlington to Hilderthorpe



Landscape

- D2.9 This largely urban frontage has developed on gently sloping low cliffs consisting of a mixture of fluvial deposits and glacial tills. The town of Bridlington is typically at an elevation of between 9 and 16 metres ODN but the cliffs stand as high as 20 metres ODN just north of the town. To the north of the town, the landscape slopes gently upwards away from the shoreline and elevations are typically 30 to 40 metres ODN one kilometre inland. To the south of the town the landscape is mainly flat and at one kilometre inland the elevation is at around 10 metres ODN which is similar to the low cliffs at the shoreline.
- D2.10 The town of Bridlington is defended from erosion by a variety of masonry and concrete seawalls fronted by a timber groyne field. At its centre lies a busy fishing harbour bounded to the north and south by masonry piers.
- D2.11 The coastal hinterland is almost entirely urbanised with a busy commercial and tourist base at its centre surrounded by fairly high density residential housing. Towards the rear of the area, the residential density falls slightly as agricultural land begins to overlap the outskirts of the town. There are also many commercial properties and an industrial estate at Bessingby.

Communities

- D2.12 Bridlington provides many local and regional services and community facilities including schools, places of worship, public houses, shops, police station, hospital, doctors, museums, a leisure complex etc. In the south of the area, the urban area of Bridlington rolls into the smaller

coastal settlement of Hilderthorpe, which consists mainly of residential housing and is backed by the Bessingby Industrial Estate.

Infrastructure

- D2.13 Infrastructure in the area includes a sewage treatment works, harbour, a RNLI station, a coastguard station and a train station. Bridlington is regionally well connected by a railway linking Hull to Scarborough. Access to the north (Scarborough) and south (Hull and Beverley) is available by the A165. The A614 provides a link to areas to the west. Many local B roads feed the town from smaller adjacent settlements.

Tourism

- D2.14 The beach that fronts the town is an EC designated bathing beach and provides an important tourist attraction and recreational resource. The harbour area provides facilities for the local fishing community and is a focus for tourist and water sports enthusiasts.

Historic Environment

- D2.15 The Old Town area of Bridlington is a designated Conservation Area and the deserted medieval village of Hilderthorpe is a Scheduled Monument, and there are numerous listed buildings in the town. Other significant non-designated assets may also be present in the area. It is also important to note that there are potential issues with as yet unknown archaeological sites on land and also offshore.

Objectives

Flood and erosion risk

- Minimise coastal flood and erosion risk to people and property.
- Make effective use of existing man-made or natural defences.

Communities

- Protect as many settlements as possible.
- To maintain Bridlington as a viable town, seaside resort and regional commercial centre throughout the plan period.

Tourism

- Maintain and enhance the viability of a diverse tourism economy.

Infrastructure

- Avoid interruption to the functioning of the A165 and A614 and the rail network.
- Avoid interruption to the functioning of: the Bridlington RNLI station; coastguard station; harbour; sewage treatment works; and other key community services and utilities infrastructure.

Landscape

- To maintain and where possible improve the quality of the coastal landscape.

Coastal processes

- To prevent interruption of coastal processes which supply sediment to other coastlines.

Historic environment

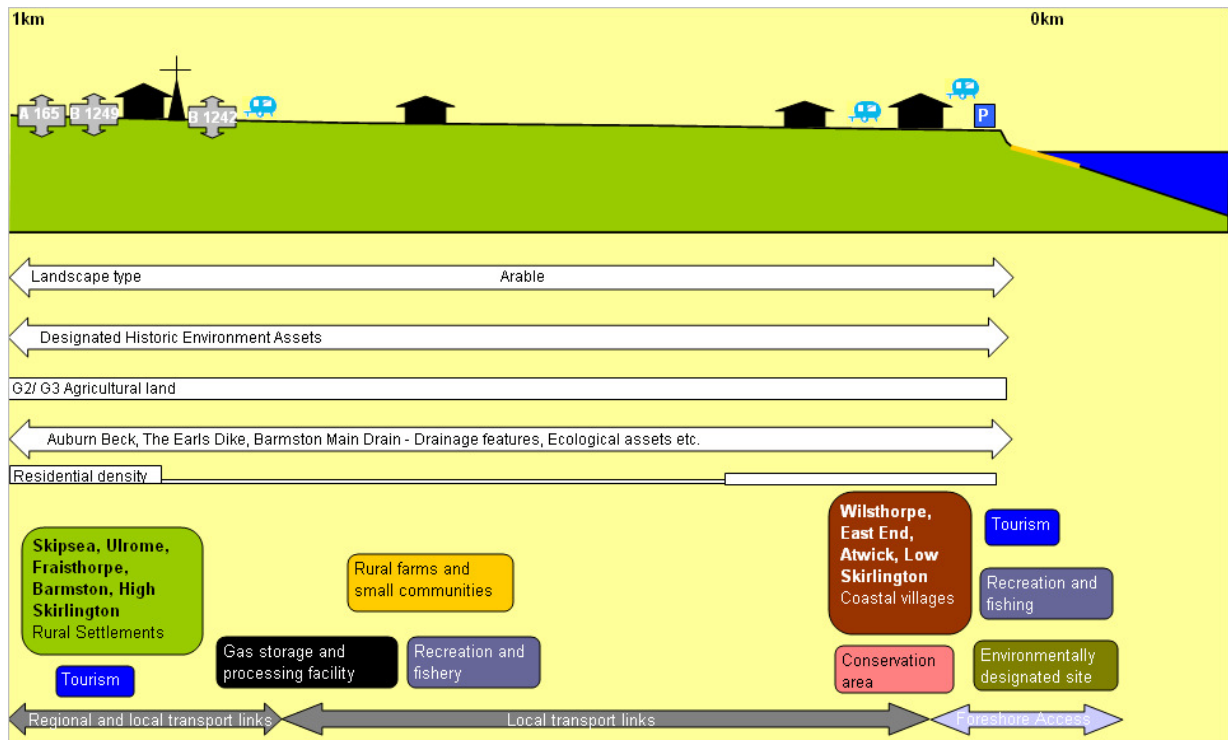
- Minimise damage to designated and significant historic environment assets (such as Wilsthorpe DMV) from cliff erosion, where possible.
- Ensure coastal defence works do not threaten designated and significant historic environment assets, where possible.

Timing of policy

D2.16 Provide sufficient time if necessary, for:

- community adaptation.
- relocation of regional infrastructure, ensuring continued A-road and rail transport linking Bridlington to Hull and Scarborough.
- relocation / adaptation of sewage works and other key community services and utilities infrastructure.
- research of archaeological features and ecological surveys.
- provision of recreational access to the foreshore.

Area 3: Wilsthorpe to Atwick



Landscape

D2.17 This largely rural stretch of coastline is characterised by undulating low glacial till cliffs interspersed with small sections of privately built coast protection works. In the north of the area, between Wilsthorpe and Atwick the cliffs typically stand at a height of 5 to 10 metres ODN. Between Atwick and Hornsea the cliffs are generally slightly higher at an elevation of between 14 to 20 metres ODN. Behind the cliff line the landscape is gently undulating at similar elevations to that of the cliffs, except for local hillocks set back around 500 – 1,000 metres from the shoreline such as at Leys Hill and Hamilton Hill, which stand at 27 and 26 metres ODN, respectively.

Communities

D2.18 The farmland is interspersed with small local settlements, rural communities and farmsteads. The main villages of Skipsea, Ulrome, Fraisthorpe, Barmston, High Skirlington and Atwick are set back slightly from the coast and provide local community facilities and services.

Flood and erosion risk

D2.19 The shoreline in the northern part of the area (between Wilsthorpe and Fraisthorpe) is eroding at an average rate of approximately 0.4 metres per year. Further south the erosion rate steadily increases to an average of approximately 1.4 metres per year between Fraisthorpe and Barmston. South of Barmston the erosion rate remains fairly constant before falling again to minimal levels towards the north of Hornsea. On the outskirts of several of coastal villages lie numerous residential and commercial properties that are either at or near the cliff edge.

These properties generally span local coast roads, so as coastal erosion continues there tends to be a succession of property loss.

D2.20 In the future, shoreline erosion is expected to continue, with the rate of retreat of the coastline dependent on the sediment supplied from adjacent sections of coast as well as any impact that future rise in sea level or change in climate may have upon coastal processes.

D2.21 In the north of the area, the landscape is drained via Auburn Beck, The Earls Dike, and Barmston Main Drain. These drains form in natural low points and create cuttings in the cliff line.

Agriculture and industry

D2.22 The dominant land use of the area is grade 2 and 3 agricultural land which is predominantly used for arable farming. There are areas of land farmed under Natural England's Environmental Stewardship scheme, predominantly at Entry Level. The nearshore waters are also used by local fishermen for netting.

Infrastructure

D2.23 Infrastructure in the area includes a natural gas storage and processing facility north of Atwick. There are several drain outfalls and the Barmston Main drain outfall is protected by coastal defences. The northern parts of the area are regionally well connected through the A165 which runs approximately north-south through the area. Access to areas to the west is available through the B1249. Hornsea, to the south, is accessible by the B1242. There are several minor roads through the area that provide coastal access from the smaller settlements.

Tourism

D2.24 Caravan and camping parks are integral to these coastal settlements and there is also a golf course at Out Leys and several fishing lakes that provide important recreational resources. The beach is used for informal recreation activities such as fishing and there are several EC designated bathing beaches along this area that can be accessed by a number of footpaths along the frontage.

Natural environment

D2.25 There are Sites of Special Scientific Interest at Withow Gap, Skipsea, and Skipsea Bail Mere. Skipsea Bail Mere is also a Geological Conservation Review site.

Historic environment

D2.26 There is a designated Conservation Area at Atwick. There are also several listed buildings in the area. The Royal Observer Corps underground monitoring post south of Skipsea is a designated Scheduled Monument. Other significant non-designated assets may also be present in the area. It is also important to note that there are potential issues with as yet unknown archaeological sites on land and also offshore.

Objectives

Flood and erosion risk

- Minimise coastal erosion risk to people and property.
- Make effective use of existing man-made or natural defences.

Communities

- Protect as many settlements as possible.

Natural environment

- Maintain natural processes relating to the exposure of glacial and post-glacial deposits at Skipsea.

Agriculture and industry

- Maintain and enhance the viability of the area's gas storage and processing industrial capacity.
- Protect as much grade 1 and 2 agricultural land as possible.
- Ensure that the impact on the UK's area of agricultural land is acceptable.

Tourism

- Maintain and enhance the viability of a diverse tourism economy.

Infrastructure

- Avoid interruption to the A165.
- Avoid interruption to the functioning of: the natural gas storage and processing facilities north of Atwick; the Barmston main drain; and other key community services and utilities infrastructure.

Landscape

- To maintain and where possible, improve the quality of the coastal landscape.

Coastal processes

- To prevent interruption of coastal processes which supply sediment to other coastlines.

Historic environment

- Minimise damage to designated and significant historic environment assets (such as Earl's Dyke and Withow Mere) from cliff erosion, where possible.

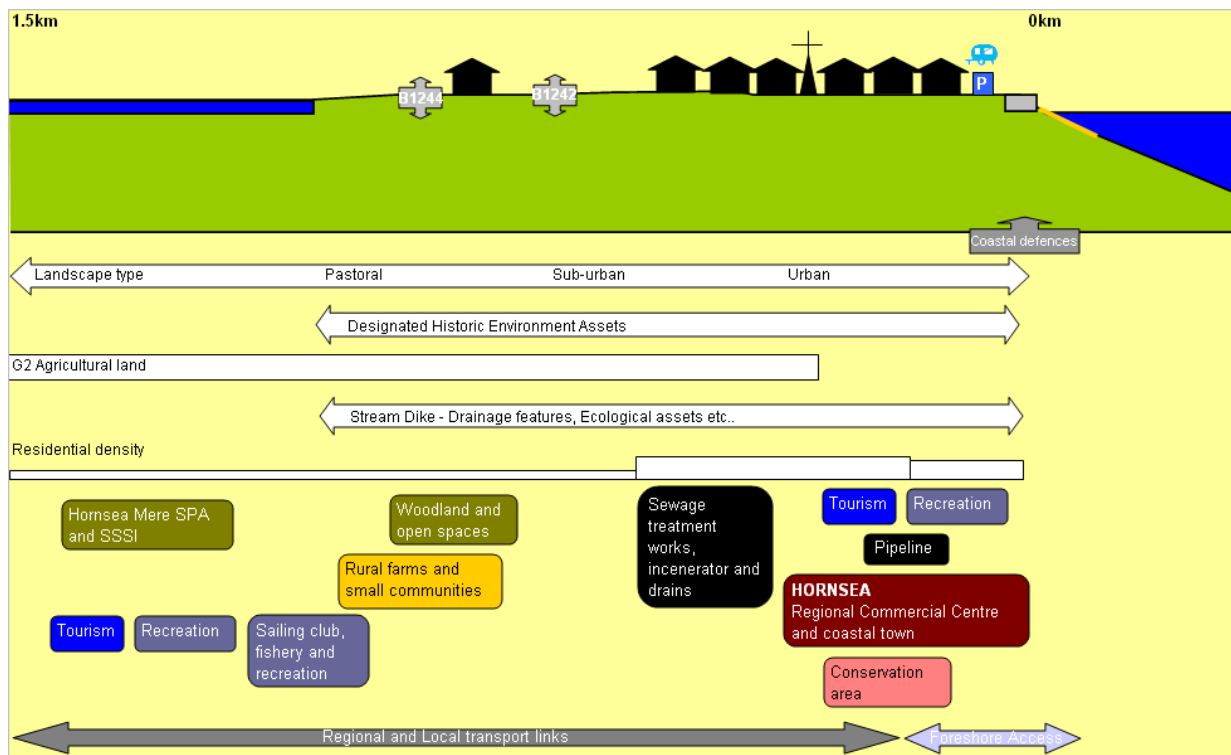
- Ensure coastal defence works do not threaten designated and significant historic environment assets, where possible.

Timing of policy

D2.27 Provide sufficient time if necessary, for:

- community adaptation.
- relocation of regional infrastructure, ensuring continued A-road transport links between Barmston and Bridlington.
- relocation / adaptation of sewage works and other key community services and utilities infrastructure.
- research of archaeological features and ecological surveys.
- provision of recreational access to the foreshore.

Area 4: North Cliff to Hornsea Burton (Hornsea)



Landscape

- D2.28 This frontage is characterised by a gently sloping landscape underlain by glacial tills. The urbanised frontage of Hornsea sits in a natural topographic depression (3 to 8 metres ODN). In Hornsea, the land rises gently upwards away from the sea towards the centre of the town to an elevation of 5 to 9 metres ODN before falling again towards Hornsea Mere at 3 to 4 metres ODN. Either side of the town, glacial till cliffs have typical elevations of 12 to 18 metres ODN. The low-lying Hornsea frontage is defended by a variety of concrete seawalls and is fronted by a timber groyne field that helps to maintain its wide sandy beaches.
- D2.29 To the north of the town the cliffs give way inland to a gently sloping landscape that rises up to a natural plateau at about 15 to 18 metres ODN, about one kilometre inland. To the south, the landscape slopes gently upwards to a natural peak of around 12 to 13 metres ODN before falling again alongside the Mere.

Communities

- D2.30 Hornsea is a small coastal town and consists of a mixture of residential properties, hotels and other tourist-related developments, interspersed with green spaces and parks. The highest population density occurs in the hinterland behind the defences. Behind the main development zone there are sporadic settlements, farmsteads and villages. These comprise the fringes of the town and form the transition between the town and the largely rural land behind.

Flood and erosion risk

- D2.31 Hornsea Mere is linked to the sea by Stream Dyke, a narrow channel that bisects the settlement of Hornsea and discharges through an outfall at the South Promenade. Management of Stream Dyke outfall prevents ingress of saltwater to Hornsea Mere.

Agriculture and industry

- D2.32 The dominant land use of the rural land behind the town is grade 2 and 3 agricultural land.

Infrastructure

- D2.33 Infrastructure in the area includes a sewage treatment works that serves the town. Hornsea is connected to the adjacent settlements of Rolston to the south and Atwick to the north via the B1242 which also bisects the town. Hornsea is also linked to Seaton to the west via the B1244.

Tourism

- D2.34 The local economy is highly dependent on tourism and recreation. Hornsea has a Blue Flag bathing beach and this provides a basis for recreation activities such as swimming, fishing and sailing. The town is bounded to the north and south by caravan and camping parks that are present on the coastal fringe.

Natural environment

- D2.35 Set back about one kilometre from the shoreline is Hornsea Mere, a Special Protection Area and Site of Special Scientific Interest. It forms an important habitat and significant amenity with recreational, educational and conservation value. Hornsea Mere is surrounded by agricultural fields and woodland and is linked to the sea by Stream Dyke.

Historic environment

- D2.36 The central part of Hornsea is designated as a Conservation Area. The area also contains two Scheduled Monuments which include a moated site at Hall Garth Park and the deserted village of Southorpe. There are also many listed buildings within the area. Other significant non-designated assets may also be present in the area. It is also important to note that there are potential issues with as yet unknown archaeological sites on land and also offshore.

Objectives

Flood and erosion risk

- Minimise coastal flood and erosion risk to people and property.
- Make effective use of existing man-made or natural defences.

Communities

- Protect as many settlements as possible.
- To maintain Hornsea as a viable town, seaside resort and regional commercial centre throughout the plan period.

Natural environment

- Manage the functioning of Stream Dike which drains Hornsea Mere and maintains the freshwater habitats.
- Maintain and if possible enhance the extent and condition of the freshwater habitats of Hornsea Mere, until this becomes environmentally unsustainable.

Tourism

- Maintain and enhance the viability of a diverse tourism economy.

Infrastructure

- Avoid interruption to the functioning of the B1244 and B1242 as key transport links.
- Avoid interruption to the functioning of: the sewage treatment works; Stream Dike; and other key community services and utilities infrastructure.

Landscape

- To maintain and where possible enhance the quality of the coastal landscape.

Coastal processes

- To prevent interruption of coastal processes which supply sediment to other coastlines.

Historic environment

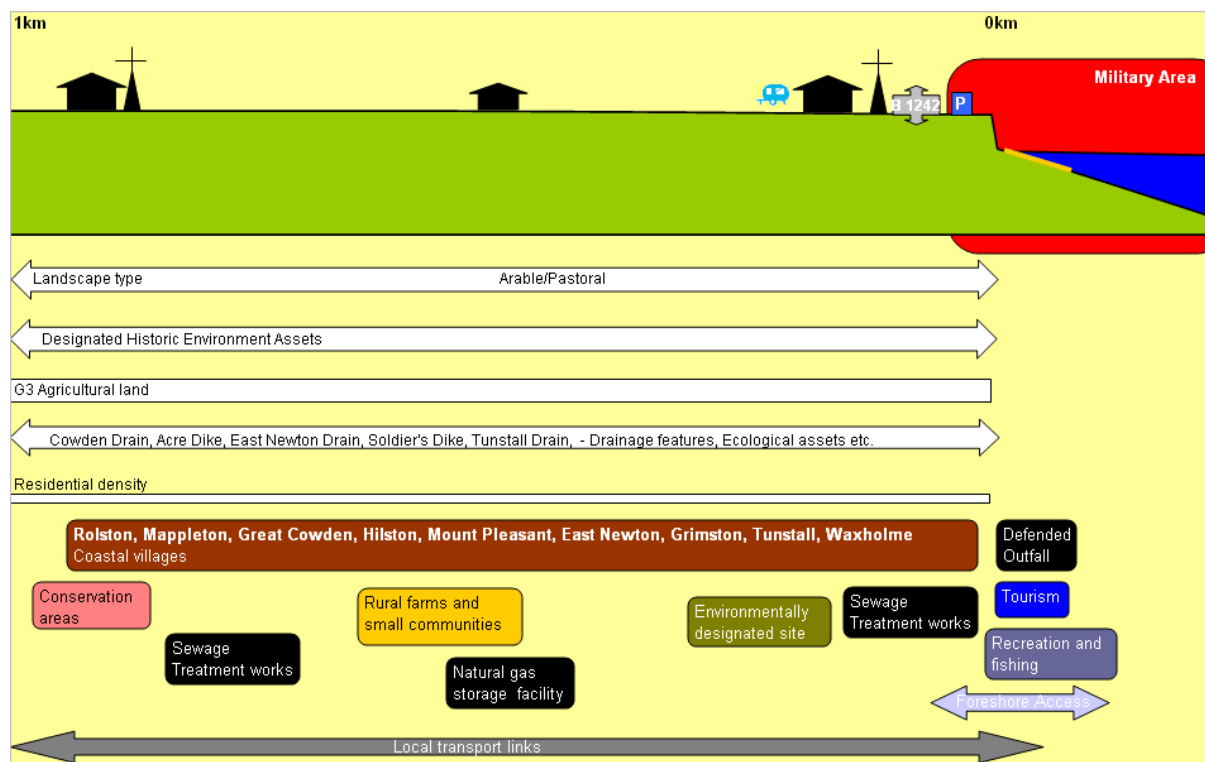
- Minimise damage to designated and significant historic environment assets from erosion, where possible.
- Ensure coastal defence works do not threaten designated and significant historic environment assets, where possible.

Timing of policy

D2.37 Provide sufficient time if necessary, for:

- community adaptation.
- change of flood risk management practices.
- relocation / adaptation of sewage works and other key community services and utilities infrastructure.
- research of archaeological features and ecological surveys.
- provision of recreational access to the foreshore.

Area 5: Rolston to Waxholme



Landscape

D2.38 This frontage is characterised by a gently undulating landscape fronted by undefended glacial till cliffs that typically stand between 15 and 25 metres ODN. Locally, the cliffs fall to an elevation of around 6 metres ODN, such as the area just south of Tunstall. Behind the cliff line the topography is characterised by gently sloping hillocks and dips.

Communities

D2.39 In this area there are several villages either located on, or just set back from, the coastline. These include Rolston, Mappleton, Great Cowden, Hilston, Mount Pleasant, Aldbrough, East Newton, Grimston, Tunstall, and Waxholme. In addition to these settlements there are a number of scattered farmsteads and small rural communities. There are also caravan parks at Aldbrough, North Cliff and Tunstall.

Flood and erosion risk

D2.40 There is a current trend of rapid shoreline retreat, with erosion rates of 1 to 3 metres per year on the undefended sections. There are assets currently very close to the cliffline, including the B1242 at Mappleton and a number of properties at villages such as Aldbrough and Tunstall which are at risk from erosion.

D2.41 Through this stretch, there are defended frontages at Mappleton and Tunstall. The defences at Mappleton provide protection for the village against coastal erosion and give access to the beach for recreational purposes

D2.42 At Tunstall, the hinterland levels then falls away from the coast along Tunstall Drain, leaving the area susceptible to extensive inland coastal flooding. At Tunstall, the floodbank and toe armouring that forms the area's coastal erosion and flood protection defence has been constructed in an ad-hoc manner over many years mainly by local landowners and the Environment Agency. The continued effectiveness of the defences at Tunstall is now threatened by coastal erosion and it is likely that alternative arrangements will be required shortly. The rising sea levels will also increase the threat of flooding to the low-lying parts of the area (currently only a few metres above sea level) both from estuarine and coastal waters.

Agriculture and industry

D2.43 The dominant land use of the area is grade 3 agricultural land which is mainly used for arable farming with some pastoral grazing. There are areas of land farmed under Natural England's Environmental Stewardship scheme, predominantly at Entry Level.

Infrastructure

D2.44 Infrastructure within the area includes sewage treatment works and a natural gas storage facility approximately 2.5 km south east of Aldbrough. There is a Ministry of Defence site in the vicinity of Cowden Parva. There are no A roads within the area. The area is connected to the settlements of Hornsea to the north, and Withernsea to the south, by the B1242. There are also minor roads that provide a link between some of the smaller settlements and the B1242, and there is also access to the shoreline from minor roads at several locations.

Tourism

D2.45 The beaches are accessible at several locations along the frontage and there is an EC designated bathing beach at Tunstall. The beaches form an important feature that attracts a variety of informal recreational activities including fishing. There are caravan parks at Aldbrough, North Cliff and Tunstall.

Natural environment

D2.46 The submarine forest south of Tunstall is a Regionally Important Geological and Geomorphological Site and inland, Lambwath Meadows is a Site of Special Scientific Interest.

Historic environment

D2.47 There are several listed buildings within the area including a Grade 1 listed building at Grimston Garth and there is a designated Conservation Area at Tunstall. Two moated sites near Grimston Garth are designated as a Scheduled Monument. Other significant non-designated assets may also be present in the area. It is also important to note that there are potential issues with as yet unknown archaeological sites on land and also offshore.

Objectives

Flood and erosion risk

- Minimise coastal erosion risk to people and property.
- Make effective use of existing man-made or natural defences.

Communities

- Protect as many settlements as possible.

Natural environment

- Maintain natural processes relating to the submarine forest at Tunstall.
- Maximise opportunities for habitat creation around coastal realignment at Tunstall Drain.

Agriculture and industry

- Protect as much grade 1 and grade 2 agricultural land as possible.
- Ensure that the impact on the UK's area of agricultural land is acceptable.

Tourism

- Maintain and enhance the viability of a diverse tourism economy.

Infrastructure

- Avoid interruption to the functioning of the drainage network including; Tunstall, Cowden, and East Newton drains.
- Avoid interruption to the functioning of: the natural gas storage facility; Cowden Parva MOD site; sewage treatment works; B1242; and other key community services and utilities infrastructure.

Landscape

- To maintain and where possible improve the quality of the coastal landscape.

Coastal processes

- To prevent interruption of coastal processes which supply sediment to other coastlines.

Historic environment

- Minimise damage to designated and significant historic environment assets (such as Great and Little Cowden DMV's and Ringbrough WW2 features) from cliff erosion, where possible.
- Ensure coastal defence works do not threaten designated and significant historic environment assets, where possible.

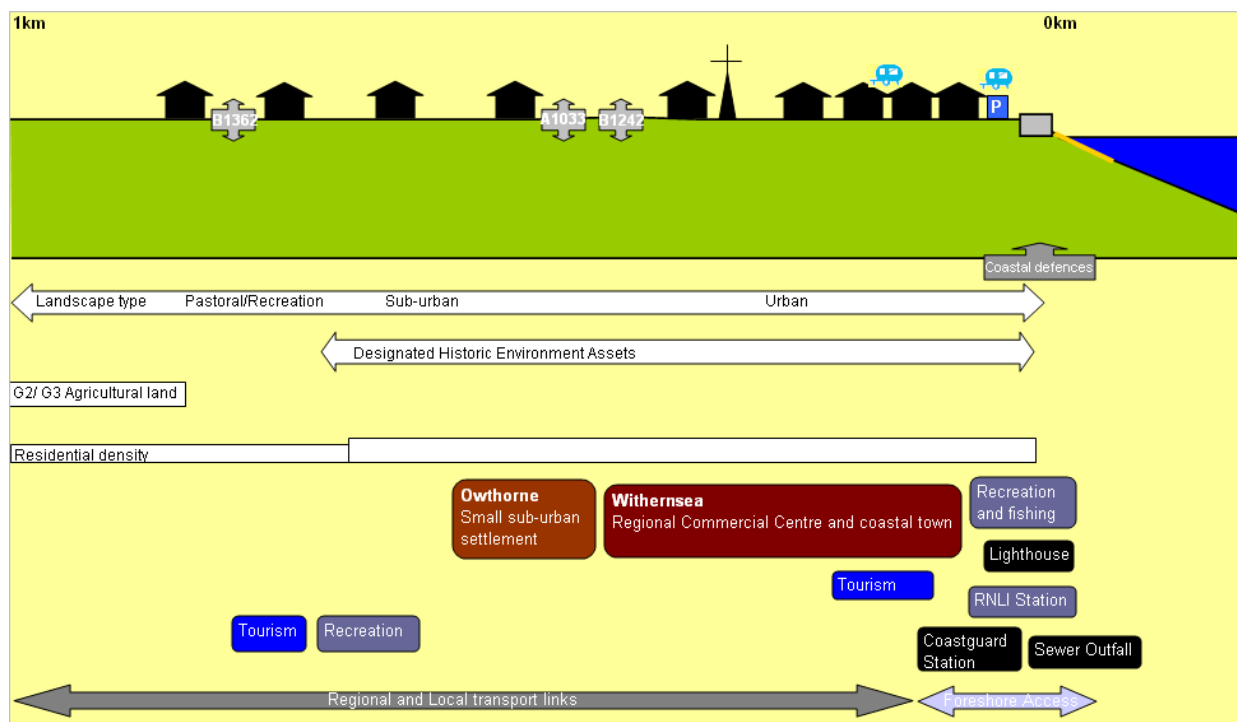
Timing of policy

D2.48 Provide sufficient time if necessary, for:

- community adaptation.
- relocation / adaptation of the sewage works, MOD use of the foreshore, B1242 and other key community services and utilities infrastructure.

- research of archaeological features and ecological surveys.
- provision of recreational access to the foreshore.

Area 6: Owthorne to Hollym (Withernsea)



Landscape

D2.49 This urbanised frontage is built upon low cliffs comprising glacial tills. The town of Withernsea sits in a natural topographic depression between relatively higher ground either side. Central areas of the town are at only 4 or 5 metres ODN. The northern fringes of the Withernsea are a little higher at between 8m to 15m ODN and the southern extremity of the Withernsea is also at approximately 8 to 11 metres ODN.

Communities

D2.50 The area mainly consists of residential housing. Withernsea is a small coastal town located round the A1033 which bisects the town. Owthorne is a suburb of the main town and is located just to the north of Withernsea. Housing is mainly in the form of small estates and avenues feeding off the main road. The town is bounded by several caravan parks to the north and south. Withernsea provides many local and sub-regional services and facilities. At the rear of the town the residential housing gives way to parks, sports grounds, a golf course, allotments and agricultural land.

Flood and erosion risk

D2.51 The topography of the area means that parts of Withernsea are at risk of flooding from the south-east, from flood waters originating in the Humber.

Agriculture and industry

- D2.52 At the rear of the town the residential housing gives way to grade 2 and 3 agricultural land, used predominantly for arable farming. Local fishermen use the nearshore waters for netting and boat launching and landing access is available.

Infrastructure

- D2.53 The area includes sewerage infrastructure, a RNLI station and coastguard station. The A1033 forms the town's major communication route with areas to the south and west. The B1362 also links Withernsea to Rimswell to the west. The B1242 connects Withernsea with settlements to the north.

Tourism

- D2.54 Tourism is a key economic driver for the area and Withernsea has many visitor attractions including an EC designated bathing beach. The beach is an important recreational resource for a variety of activities including use by anglers and walkers. Local fishermen use the nearshore waters for netting and boat launching and landing access is available.

Historic environment

- D2.55 There are listed buildings within the area. Other significant non-designated assets may also be present in the area. It is also important to note that there are potential issues with as yet unknown archaeological sites on land and also offshore.

Objectives

Flood and erosion risk

- Minimise coastal flood and erosion risk to people and property.
- Make effective use of existing man-made or natural defences.

Communities

- Protect as many settlements as possible.
- To maintain Withernsea as a viable town, seaside resort and regional commercial centre throughout the plan period.

Tourism

- Maintain and enhance the viability of a diverse tourism economy.

Infrastructure

- Avoid interruption to the functioning of the A1033.
- Avoid interruption to the functioning of: the sewerage infrastructure; the Withernsea RNLI station; the Withernsea coastguard station; and other key community services and utilities infrastructure.

Landscape

- To maintain and where possible improve the quality of the coastal landscape.

Coastal processes

- To prevent interruption of coastal processes which supply sediment to other coastlines.

Historic environment

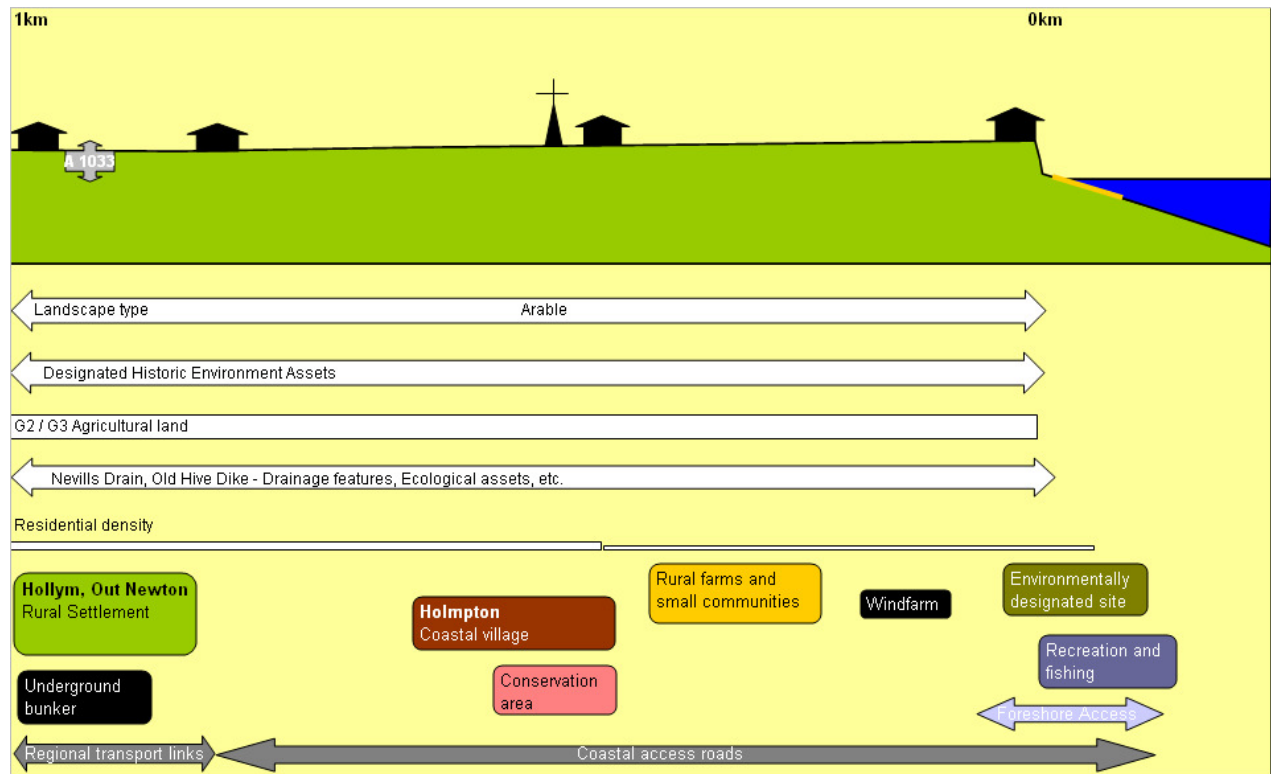
- Minimise damage to designated and significant historic environment assets (such as Noah's Wood) from cliff erosion, where possible.
- Ensure coastal defence works do not threaten designated and significant historic environment assets, where possible.

Timing of policy

D2.56 Provide sufficient time if necessary, for:

- community adaptation.
- change of flood risk management practices.
- relocation of regional infrastructure, ensuring continued A road transport links between Withernsea and Hull.
- relocation / adaptation of sewage works and other key community services and utilities infrastructure.
- research of archaeological features and ecological surveys.
- provision of recreational access to the foreshore.

Area 7: Hollym to Dimlington Cliffs



Landscape

D2.57 This frontage is composed of cliffs comprising glacial tills. The cliffs generally stand between 10 and 20 metres ODN except for a higher section between 20 and 30 metres ODN around Out Newton and Dimlington towards the south of the area. Throughout the area the land is undulating and the landscape generally slopes downwards away from the shoreline. The land is typically at an elevation of 5 to 20 metres ODN one kilometre back from the shoreline. A drain and a dike also follow the bottom of the natural topographic depressions one kilometre either side of the settlement of Holmpton.

Communities

D2.58 There are a few small settlements in the area, with the main villages being Holmpton, Hollym and Out Newton. Hollym is set back approximately one kilometre from the coastline and is a rural village with a few local services. Out Newton consists of a small collection of scattered houses to the south of Holmpton. Holmpton is also a linear style village with a few local services and two access roads to the beach. The beach is used for a range of recreation activities including fishing. There are also several scattered farmsteads and small communities in the area.

Flood and erosion risk

- D2.59 There is a current trend for rapid cliff erosion in the area (typically 1 to 2.5 metres per year), and this is expected to continue as sea levels rise. There are a number of properties at villages such as Holmpton and Out Newton which are at risk from erosion.

Agriculture and industry

- D2.60 The main land use is grade 2 and 3 arable land. There are areas of land farmed under Natural England's Environmental Stewardship scheme, predominantly at Entry Level. The nearshore is also used as an inshore fishery by local vessels.

Infrastructure

- D2.61 The main infrastructure of the area comprises the sewage works at Hollym, Out Newton wind farm and a RAF underground bunker south of Hollym, which is also a visitor attraction. Hollym is connected to Withernsea and Hull by the A1033. Minor roads provide a basic communication link with the other smaller settlements and rural communities.

Tourism

- D2.62 The beach is used for a range of recreation activities including fishing.

Natural environment

- D2.63 The Dimlington cliffs are designated as a geological Site of Special Scientific Interest and a Geological Conservation Review site. There is also a Conservation Area in Holmpton.

Historic environment

- D2.64 There is a Conservation Area in Holmpton. The area also has a few listed buildings. Other significant non-designated assets may also be present in the area. It is also important to note that there are potential issues with as yet unknown archaeological sites on land and also offshore.

Objectives

Flood and erosion risk

- Minimise coastal erosion risk to people and property.

Communities

- Protect as many settlements as possible.

Natural environment

- Maintain natural processes leading to the exposure of the geological features at Dimlington cliffs.

Agriculture and industry

- Protect as much grade 1 and 2 agricultural land as possible.
- Ensure that the impact on the UK's area of agricultural land is acceptable.

Tourism

- Maintain and enhance the viability of a diverse tourism economy.

Infrastructure

- Avoid interruption to the functioning of the A1033.
- Avoid interruption to the functioning of Hollym sewage treatment works, Out Newton wind farm and other key community services and utilities infrastructure.

Landscape

- To maintain and where possible, improve the quality of the coastal landscape.

Coastal processes

- To prevent interruption of coastal processes which supply sediment to other coastlines.

Historic environment

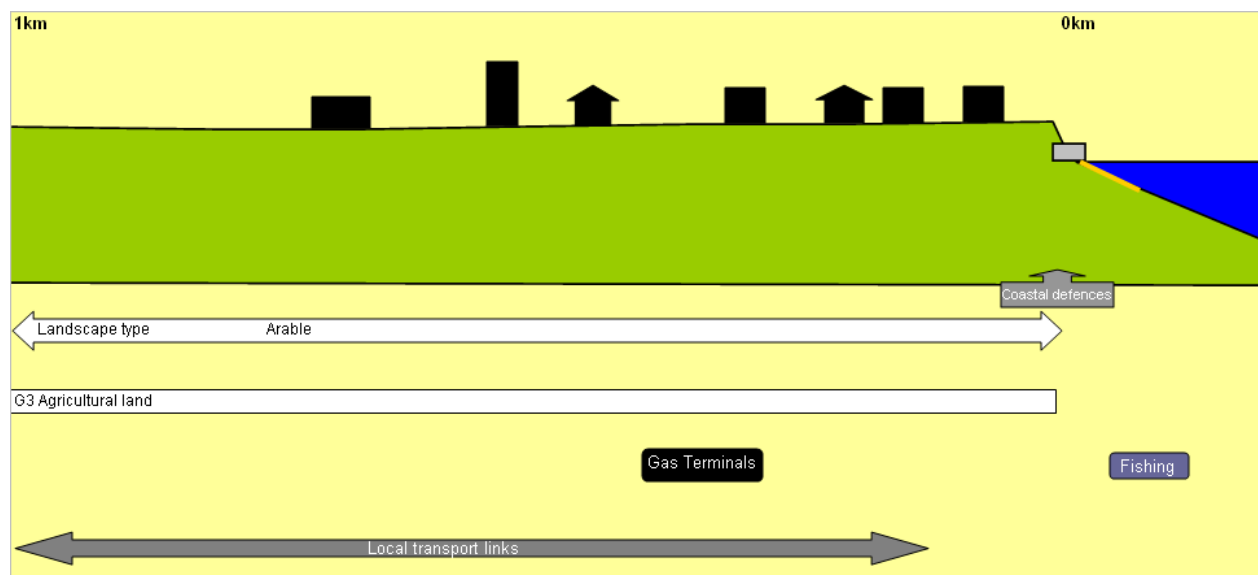
- Minimise damage to designated and significant historic environment assets (such as Out Newton ROC site) from cliff erosion, where possible.
- Ensure coastal defence works do not threaten designated and significant historic environment assets, where possible.

Timing of policy

D2.65 Provide sufficient time if necessary, for:

- community adaptation.
- relocation of regional infrastructure, ensuring continued A road transport links between Hollym and Withernsea.
- research of archaeological features and ecological surveys.
- provision of recreational access to the foreshore.

Area 8: Dimlington and Easington Gas Terminals



Landscape

- D2.66 This area contains low (5 to 12 metre ODN) cliffs developed in glacial tills. In front of the cliffs there is a rock revetment which was constructed to protect the gas terminal facilities. Retention of these defences may depend upon the continued existence of the gas terminals. Forward of the defences is a sand beach and wide shore platform.

Agriculture and industry

- D2.67 The area is fronted by large industrial sites containing British Gas and British Petroleum gas terminals which are located on the cliff top at Dimlington, just north of Easington. These supply 20 to 25 % of the UK's natural gas and are defended by a rock revetment. Behind the gas terminals is grade 3 agricultural land used for arable farming. There are areas of land farmed under Natural England's Environmental Stewardship scheme, predominantly at Entry Level.

Tourism

- D2.68 The beach is used for recreational activities including fishing.

Infrastructure

- D2.69 A minor road provides a connection from the gas terminals to the coastal settlement of Easington just to the south of this area.

Historic environment

- D2.70 There are no designated historic environmental assets within this character area. It is also important to note that there are potential issues with as yet unknown archaeological sites on land and also offshore.

Objectives

Flood and erosion risk

- Minimise coastal erosion risk to people and property.
- Make effective use of existing man-made or natural defences.

Agriculture and industry

- Maintain and enhance the viability of the Easington and Dimlington gas terminals.
- Ensure that the impact on the UK's area of agricultural land is acceptable.

Landscape

- To maintain and where possible, improve the quality of the coastal landscape.

Coastal processes

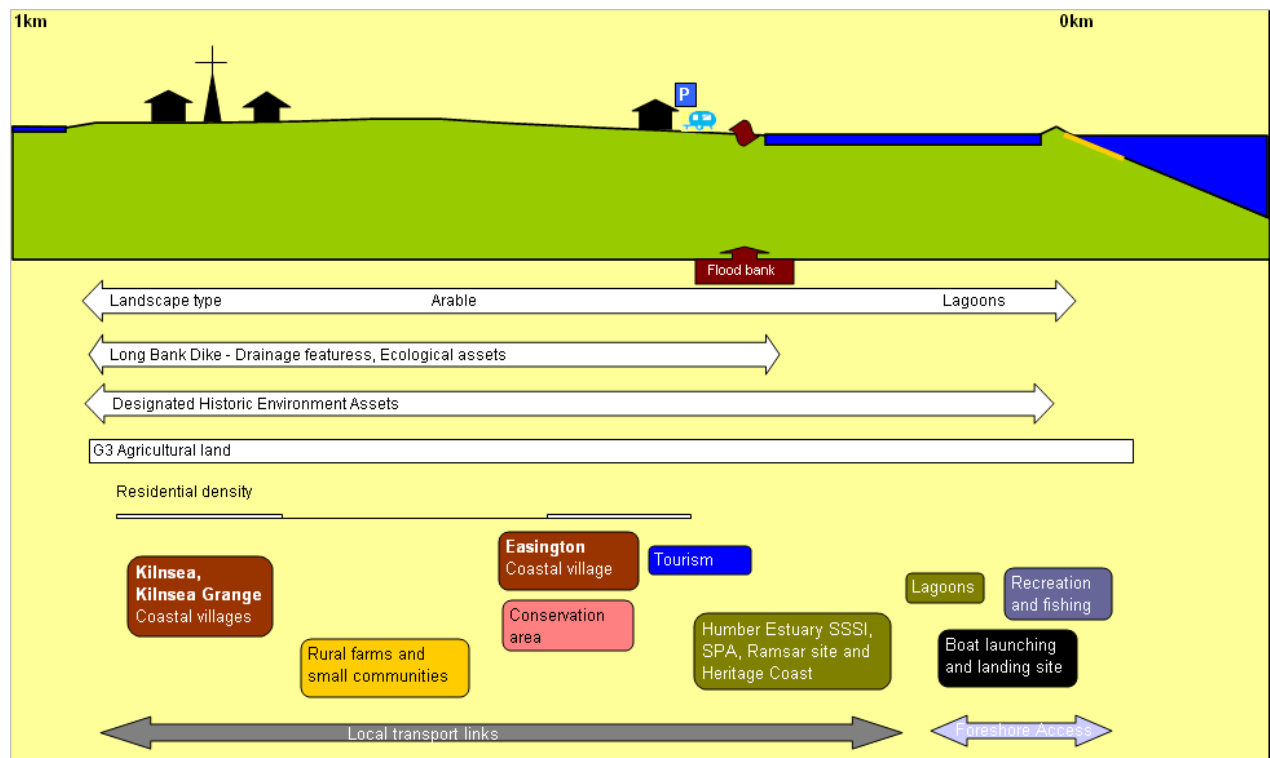
- To prevent interruption of coastal processes which supply sediment to other coastlines.

Timing of policy

D2.71 Provide sufficient time if necessary, for:

- relocation / adaptation of the gas terminals.
- change of flood risk management practices.

Area 9: Easington to Kilnsea



Landscape

D2.72 The north of the area is characterised by a gently undulating landscape with low cliffs developed in glacial tills and the Spurn Heritage coast designation extends into this area.. The land varies in elevation between 2 and 10 metres ODN. The settlement of Easington has developed in a topographic depression with the lowest point of the village at only 3 or 4 metres ODN. Behind the village, the land rises again to a height similar to that of the 5 to 10 metre ODN cliffs. South of the settlement is a generally flat low-lying area (2 to 5 metres ODN) of saline lagoons and sand dunes that are backed and contained by a rock gabion floodbank. This bank stretches from the naturally slightly higher ground at the north of the lagoons down to near the south of the lagoons, before heading inland and joining up with the Easington bank which protects the estuarine coastline. Presently the floodbank is set well back from the main coastline. However as cliff erosion continues it will eventually become the area’s main coastal flood protection structure. It is expected that the current floodbank will provide effective flood protection for the next 30 years. South of the floodbank, the land rises gradually towards Kilnsea, typically to around 5 to 12 metres ODN.

Communities

D2.73 In the north of the area, the coastal village of Easington is located between 300 metres and one kilometre behind the cliff line. The nucleus of the village is centred around the location where the B 1445 and a minor road converge. The village contains local services such as a school, post office and public house. There is a caravan site on the undefended cliff top to the south east of Easington.

D2.74 The residential density in the south of the area is very low, with mainly scattered farms and small communities. Kilnsea forms the only cluster of properties including a visitor centre and is set back between 200 and 800 metres from the open coast. There is a caravan park on the coastal fringe to the east of Kilnsea.

Flood and erosion risk

D2.75 The undefended cliffs are currently eroding at a rate of between 0.9 to 1.6 metres per year. In future this trend for erosion and beach lowering is expected to continue or even increase as the effects of climate change and sea level rise impact upon coastal processes.

Agriculture and industry

D2.76 The dominant land use is grade 3 agricultural land. There are areas of land farmed under Natural England's Environmental Stewardship scheme, predominantly at Entry Level. The nearshore zone is used by fishing boats which currently have a privately built launching and landing access at Easington.

Infrastructure

D2.77 There is little infrastructure in the area, with only minor roads providing links between the scattered farmsteads and small communities.

Tourism

D2.78 There are two caravan parks on the coastal fringe to the east of Kilnsea and Easington.

Natural environment

D2.79 The saline lagoons and dune field contain many important habitats and are designated as a Site of Special Scientific Interest. The Lagoons and their associated bird interest are also included in the area designated as part of the Humber Estuary Special Protection Area and Ramsar site. The section of the east coast at Kilnsea is part of the Humber Estuary SSSI because the maintenance of natural coastal processes in this area is key to the geomorphological functioning of Spurn and the Humber Estuary. The environmental significance of the area attracts many visitors to the area.

Historic environment

D2.80 Easington is a designated Conservation Area. This area has a few listed buildings and the Tithe Barn is a designated Scheduled Monument. Other significant non-designated assets may also be present in the area. It is also important to note that there are potential issues with as yet unknown archaeological sites on land and also offshore.

Objectives

Flood and erosion risk

- Minimise coastal flood and erosion risk to people and property.
- Make effective use of existing man-made or natural defences.

Communities

- protect as many settlements as possible.

Natural environment

- Ensure that there are no adverse impacts to the UK's internationally designated sites.
- Maintain natural processes relating to the saline lagoons at Easington.
- Maintain and if possible enhance the extent and condition of the saline lagoons.

Agriculture and industry

- Ensure that the impact on the UK's area of agricultural land is acceptable.

Tourism

- Maintain and enhance the viability of a diverse tourism economy.

Landscape

- To maintain and where possible improve the quality of the coastal landscape.

Coastal processes

- To prevent interruption of coastal processes which supply sediment to other coastlines.

Historic environment

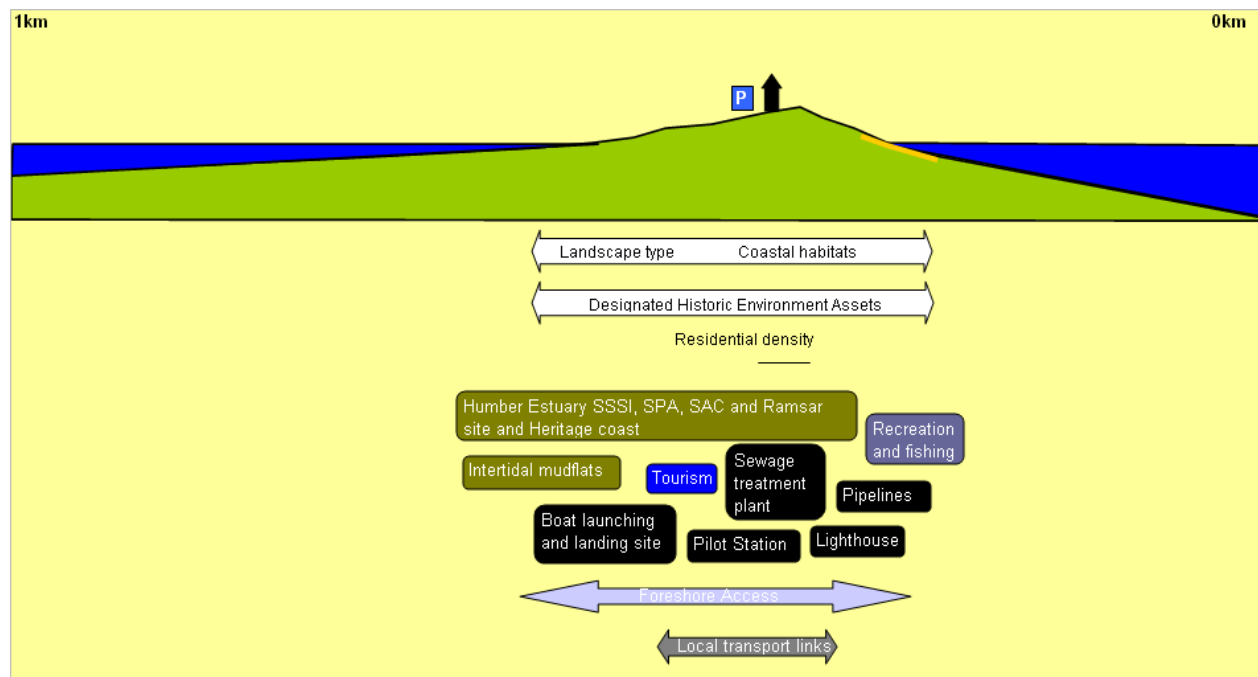
- Minimise damage to designated and significant historic environment assets (such as Godwin Battery) from erosion and flooding, where possible.
- Ensure coastal defence works do not threaten designated and significant historic environment assets, where possible.

Timing of policy

D2.81 Provide sufficient time if necessary, for:

- community adaptation.
- change of flood risk management practices.
- research of archaeological features and ecological surveys.
- relocation/adaptation of visitor centre, caravan site, and other key community services and infrastructure.
- provision of recreational access to the foreshore.

Area 10: Kilnsea to Spurn Point



Landscape

- D2.82 The northern part of this area comprises generally flat low-lying land (typically around 5 metres ODN). This feeds into the start of the five kilometre long Spurn peninsula which varies in width at mean high water from under 10 metres to approximately 25 metres. The spine of the gravel barrier, founded on a hard glacial till, is capped by sand dunes and is at an elevation of at least 5 metres ODN, but the elevation varies along its length and rises as high as 14 metres ODN near the point. Over the bulk of its length these dunes hide the area's long history as a centre for both fishing and military activities. On its seaward face this meant the construction of a variety of concrete and timber coast protection structures that now, due to their age and lack of maintenance, are all in various states of collapse.
- D2.83 Spurn peninsula comprises open land with different coastal habitat types including sand dunes and sandy beaches on the eastern shoreline and a sandy foreshore at the head giving way to mudflats and saltmarsh over much of the western shoreline. Spurn peninsula is included within the Spurn Heritage Coast,

Communities

- D2.84 There are also residential properties used by the RNLI crew.

Tourism

- D2.85 There is extensive recreational use based mainly around walking and observing the wildlife.

Infrastructure

- D2.86 The infrastructure of the area includes a permanently manned lifeboat station at Spurn Head where there are also residential properties used by the RNLI crew. There is also an access

road running along the spine of the peninsula incorporating water and electricity mains services. Other facilities include the Humber pilots station, sewage treatment infrastructure, fuel tanks, and field centre and observatory facilities associated with the nature reserve.

Natural environment

D2.87 Spurn is an important area for nature conservation and is designated as part of the Humber Estuary Special Protection Area, Special Area of Conservation and Ramsar site. The area is also a Site of Special Scientific Interest and a National Nature Reserve. The site is important for, amongst other species, wildfowl and waders. In addition to its wildlife interest, there is a Geological Conservation Review site at Spurn Head.

Historic environment

D2.88 Spurn Head has a disused lighthouse and WW1 artillery batteries which are of historical interest. There are a number of listed buildings on the peninsular. Other significant non-designated assets may also be present in the area. It is also important to note that there are potential issues with as yet unknown archaeological sites on land and also offshore.

Objectives

Flood and erosion risk

- Minimise coastal flood and erosion risk to people and property.
- Make effective use of existing man-made or natural defences.

Communities

- Protect as many settlements as possible.

Natural environment

- Maintain natural processes relating to the saltmarshes, mudflats and sand dunes.
- Maintain and where possible enhance the natural processes relating to the geomorphological functioning of Spurn.
- Maintain and if possible enhance the extent and condition of the saltmarshes, mudflats and sand dunes.
- Maintain and enhance populations of waterfowl.
- Ensure that the impact on the UK's area of internationally designated habitat is acceptable.

Agriculture and Industry

- Ensure that the impact on the UK's area of agricultural land is acceptable.

Tourism

- Maintain and enhance the viability of a diverse tourism economy.

Infrastructure

- Avoid interruption to the functioning of: the Spurn RNL station, sewage treatment works, Humber pilots station, lighthouse and other key community services and utilities infrastructure.

Landscape

- To maintain and where possible, improve the quality of the coastal landscape.

Coastal processes

- To prevent interruption of coastal processes which supply sediment to other coastlines.

Historic environment

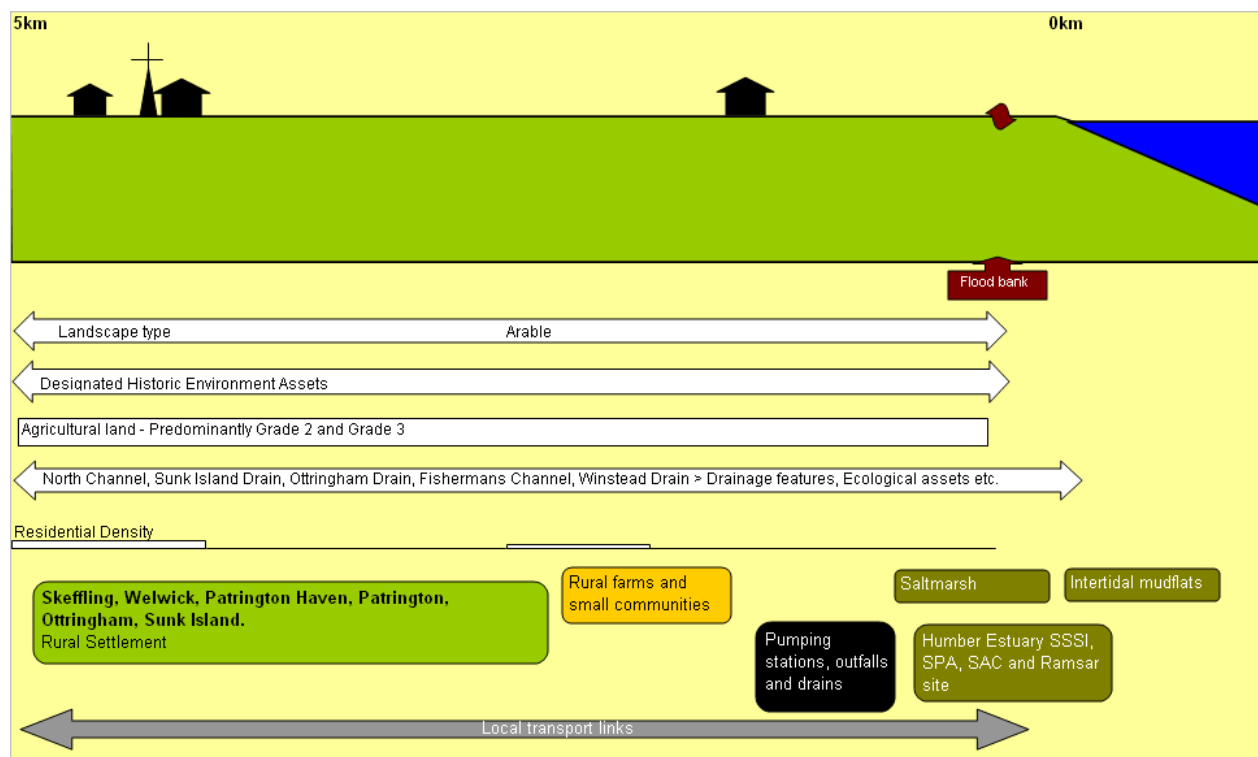
- Minimise damage to designated and significant historic environment assets (such as WW1 and WW2 features) from erosion and flooding, where possible.
- Ensure coastal defence works do not threaten designated and significant historic environment assets, where possible.

Timing of policy

D2.89 Provide sufficient time if necessary, for:

- community adaptation.
- change of flood risk management practices.
- relocation / adaptation of RNL station, Humber pilots station, sewage treatment works and other key community services and utilities infrastructure.
- relocation / adaptation of visitor centre, caravan site and other key community services and infrastructure
- research of archaeological features and ecological surveys.
- provision of recreational access to the foreshore.

Area 11: Easington Road to Stone Creek



Landscape

- D2.90 The area is characterised by low lying floodplain between 2 and 4 metres ODN with little variation in topography across the area, and consequently only very gentle gradients. There is a history of land reclamation along parts of this frontage, meaning that there are a number of set-back banks inland that are the remains of historic defences. Localised areas of shore face erosion are occurring to the east of Hawkins Point. West of Hawkins Point the shoreline is largely stable and/or slightly accreting. In this area fine sediment is supplied to the foreshore fed by a net up-estuary sediment transport mechanism
- D2.91 The area is predominantly rural and comprises mainly grade 2 and 3 agricultural land with a small area of grade 1 agricultural land towards the centre of Sunk Island.
- D2.92 The Humber Estuary is designated as a Special Protection Area, Special Area of Conservation, Ramsar site and Site of Special Scientific Interest and part of the area is within the Heritage Coast.

Communities

- D2.93 There are scattered rural farms and small communities throughout the area with clusters of rural settlement at Sunk Island, Patrington Haven, Skeffling, Welwick and Ottringham.

Flood and erosion risk

- D2.94 As the majority of the area is at risk of flooding from the Humber Estuary it is defended by a generally steep-sided earth embankment, with typical crest heights of 4.5 to 6 metres ODN or by naturally higher ground (up to 12.5 metres ODN) in the east of the area towards Kilnsea. Defences are in fair to poor condition, mainly due to the close proximity of the shoreline to defences and local areas of foreshore lowering and erosion. Tidal flooding has the potential to be extensive should a breach in the defences occur, due to the low-lying nature of the land behind the defences.

Agriculture and industry

- D2.95 The area is predominantly rural and comprises mainly grade 2 and 3 agricultural land with a small area of grade 1 agricultural land towards the centre of Sunk Island. There are areas of land farmed under Natural England's Environmental Stewardship scheme, predominantly at Entry Level. The majority of the land is used for arable farming although isolated pockets of land are used for pastoral grazing.

Infrastructure

- D2.96 The area includes drainage infrastructure such as pumping stations and outfalls in conjunction with a number of drains, dikes and streams to aid the drainage of the low-lying land. The area has a limited road network and connections to other areas are generally restricted, with only minor roads serving the scattered settlements.

Natural environment

- D2.97 The Humber Estuary is designated as a Special Protection Area, Ramsar site and Special Area of Conservation. It is also nationally designated as a Site of Special Scientific Interest due to its many important habitats including intertidal mudflats and saltmarsh. This area is of particular importance for wildfowl and waders; in particular over-wintering and migrating birds.. There are a number of Sites of Nature Conservation Interest.

Historic environment

- D2.98 There are Scheduled Monuments within the area, including two moated sites near Winsetts Farm and Winestead Manor, and a heavy anti-aircraft gunsite at Stone Creek. The area also contains many listed buildings and a Conservation Area at Sunk Island. Other significant non-designated assets may also be present in the area. It is also important to note that there are potential issues with as yet unknown archaeological sites on land and also offshore.

Objectives

Flood and erosion risk

- Minimise coastal flood and erosion risk to people and property.
- Make effective use of existing man-made or natural defences.

Communities

- Protect as many settlements as possible.

Natural environment

- Maintain natural processes relating to the saltmarshes and mudflats.
- Maintain and enhance the extent and condition of saltmarshes and mudflats if possible.
- Maintain and enhance populations of waders and wildfowl.
- Ensure that the impacts on the UK's area of internationally designated habitats are acceptable.

Agriculture and industry

- Protect as much grade 1 and 2 agricultural land as possible.
- Ensure that the impact on the UK's area of agricultural land is acceptable.

Infrastructure

- Avoid interruption to the drainage functions of: the North Channel; Sunk Island, Ottringham and Winstead drains, and; the pumping stations.

Landscape

- To maintain and where possible improve the quality of the coastal landscape.

Coastal processes

- To prevent interruption of coastal processes which create intertidal and subtidal habitats within the Humber Estuary.

Historic environment

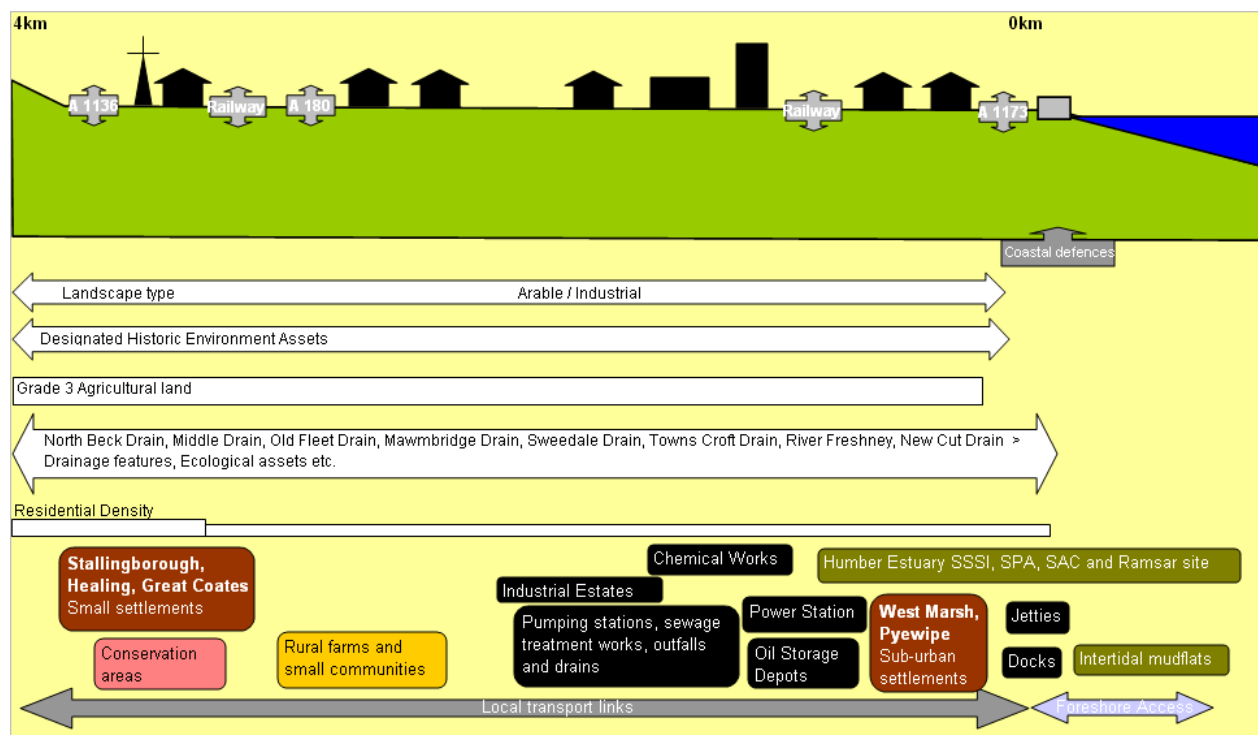
- Minimise damage to designated and significant historic environment assets from erosion and flooding, where possible.
- Ensure coastal defence works do not threaten designated and significant historic environment assets, where possible.

Timing of policy

D2.99 Provide sufficient time if necessary, for:

- community adaptation.
- change of flood risk management practices.
- relocation / adaptation of pumping stations, drainage outfalls and other key community services infrastructure.
- research of archaeological features and ecological surveys.
- provision of recreational access to the foreshore.

Area 12: East Immingham to Grimsby Docks



Landscape

- D2.100 This highly industrial area has developed on a floodplain, generally only 2 to 5 metres ODN in the west of the area. Further east, around Pyewipe, the land is slightly higher, typically at around 3 to 10 metres ODN. The landscape is generally flat.
- D2.101 The coastal hinterland is heavily industrialised and the infrastructure and activities are mainly associated with the operations of Immingham docks, just to the west of the area. These industrial units are interspersed with grade 3 agricultural land used for arable farming.
- D2.102 The intertidal mudflats and foreshore are included within the internationally designated Humber Estuary Special Protection Area, Special Area of Conservation, Ramsar site and Site of Special Scientific Interest. The frontage is popular with anglers and the nearshore zone supports a local commercial fishing industry.

Communities

- D2.103 Set back behind the main industrial area are the settlements of Stallingborough and Healing which are mainly residential areas with a few local services and community facilities. Towards the rear of the floodplain there are scattered farms and small rural communities.

Flood and erosion risk

- D2.104 The floodplain stretches a considerable distance inland from the shoreline. The back of the floodplain (typically 2-5 kilometres inland) is marked by a ridge of higher ground that forms the edge of the Lincolnshire Wolds. The floodplain is protected from coastal flooding by a

combination of earth embankments, concrete seawalls and stone revetments with a crest height at approximately 5 to 6 metres ODN.

Agriculture and industry

- D2.105 The coastal hinterland is heavily industrialised and the infrastructure and activities are mainly associated with the operations of Immingham docks, just to the west of the area. The industrial estates include operations such as chemical works infrastructure, oil storage depots and power generation infrastructure. There are also many bulk dry and liquid storage facilities and warehouses. These industrial units are interspersed with grade 3 agricultural land used for arable farming. There are areas of land farmed under Natural England's Environmental Stewardship scheme, predominantly at Entry Level, with some areas of Entry Level plus Higher Level. The nearshore zone supports a local commercial fishing industry.

Infrastructure

- D2.106 In addition to the major industrial infrastructure and port facilities in the area, there are also several drains, sewage treatment works and land drainage pumping stations at Mawnbridge and Middle Drain. The area has a well-developed communications network with one railway line to serve the industrial sites, and one to serve the settlements. The A180 is the arterial roadway through the area and the A1173 links this road to Immingham docks. The A1136 also provides the main route access to residential Grimsby and areas further south.

Natural environment

- D2.107 The intertidal mudflats and foreshore are included within the internationally designated Humber Estuary Ramsar site, Special Protection Area and Special Area of Conservation. The area is also nationally designated as a Site of Special Scientific Interest. There several Sites of Nature Conservation Interest in the area.

Historic environment

- D2.108 There are Scheduled Monuments in the area including a medieval settlement at Stallingborough, and two moated sites at Healing Hall. There are also many listed buildings within the area. Other significant non-designated assets may also be present in the area. It is also important to note that there are potential issues with as yet unknown archaeological sites on land and also offshore.

Objectives

Flood and erosion risk

- Minimise coastal flood and erosion risk to people and property.
- Make effective use of existing man-made or natural defences.

Communities

- Protect as many settlements as possible.

Natural environment

- Maintain natural processes relating to intertidal habitats and subtidal flats.
- Maintain and enhance the intertidal habitats and subtidal flats if possible.
- Maintain and enhance populations of waders and wildfowl.
- Ensure that the impacts on the UK's area of internationally designated habitats are acceptable.

Agriculture and industry

- Maintain and enhance the viability of the area's industrial facilities including: petrochemical; chemical; oil storage; bulk and liquid storage; power generation; and other manufacturing, processing and storage infrastructure.
- Ensure the impact on the UK's agricultural land is acceptable.

Infrastructure

- Avoid interruption to the functioning of Immingham and Grimsby ports.
- Avoid interruption to the A1136, A180, A1173 and the rail network.
- Avoid interruption to the functioning of the drainage network including: North Beck, Middle, Old Fleet, Mawmbridge, Sweedale, Towns Croft and New Cut drains; the River Freshney and land drainage pumping stations.
- Avoid interruption to the functioning of the sewage works and other key community services and utilities infrastructure.

Landscape

- To maintain and where possible improve the quality of the coastal landscape.

Coastal processes

- To prevent interruption to the role of coastal processes which create intertidal and subtidal habitats within the Humber Estuary.

Historic environment

- Minimise damage to designated and significant historic environment assets from erosion and flooding, where possible.
- Ensure coastal defence works do not threaten designated and significant historic environment assets, where possible.

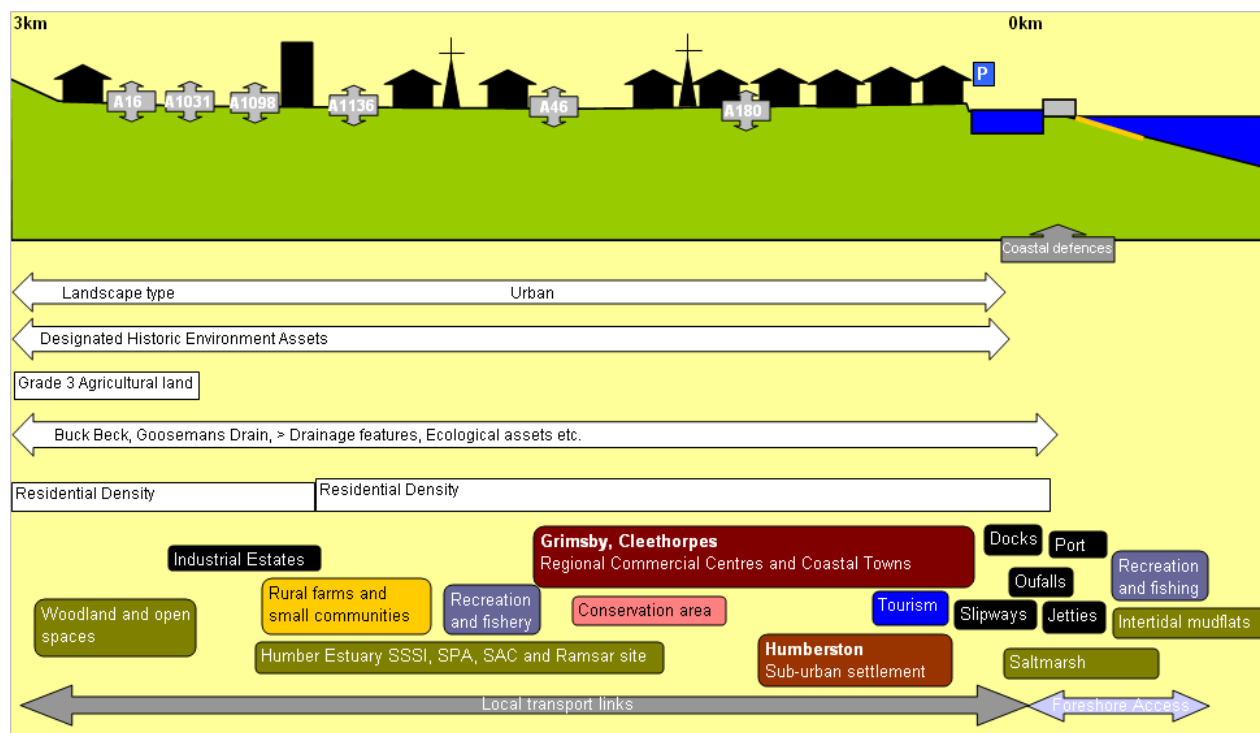
Timing of policy

D2.109 Provide sufficient time if necessary, for:

- community adaptation.

- change of flood risk management practices.
- relocation of regional infrastructure, ensuring continued A road and rail transport links between Immingham, Healing, Stallingborough, Pyewipe and Grimsby.
- relocation / adaptation of sewage treatment works, pumping stations and other key community services and utilities infrastructure.
- research of archaeological features and ecological surveys.
- adaptation of Immingham and Grimsby ports.
- provision of recreational access to the foreshore.

Area 13a: Grimsby and Cleethorpes



Landscape

D2.110 This predominantly urban and industrial frontage has developed on generally low lying, gently sloping land, underlain by estuarine alluvium deposits and glacial tills. The centre of the residential area of Grimsby is located in a natural topographic depression which is only 2 to 3 metres ODN. Along the coastal frontage and around Grimsby docks there are coastal defences or man-made higher ground that maintain an elevation of at least 5 metres ODN. Landward of the towns of Grimsby and Cleethorpes lies naturally higher ground of between 10 and 20 metres ODN. This higher ground extends eastwards to the coast in the centre of Cleethorpes at an elevation of approximately 10 metres ODN. The areas either side of this finger of natural higher ground are at an elevation similar to that of central Grimsby (2 to 3 metres ODN).

D2.111 The coast in this area is internationally designated as part of Humber Estuary Special Protection Area, Special Area of Conservation, Ramsar site and Site of Special Scientific Interest.

Communities

D2.112 Grimsby and Cleethorpes are regional commercial centres and provide many community and visitor facilities and services including schools, places of worship, public houses, shops, police station, hospital, doctors, museums, a leisure complex etc. Humberston is a smaller satellite settlement to the south east of the main urban area of Cleethorpes and Grimsby. It is mainly composed of residential housing and also provides local services and community facilities. The land use comprises a mix of relatively high density residential housing, commercial properties

and industrial areas in Grimsby and Cleethorpes. Towards the fringes of the towns, these developed areas are interspersed with open spaces, sports fields, and a country park.

Flood and erosion risk

- D2.113 Due to the low-lying nature of the land, significant parts of the coastal hinterland are at risk of coastal flooding. There are therefore a variety of coastal defences that provide protection including seawalls and embankments.

Agriculture and industry

- D2.114 Grimsby dock is a large commercial port and handles large volumes of foodstuffs, timber, steel, minerals, ores and grain. There are also fish processing facilities adjacent to the dock area that are supplied by the local fishing vessels that use the dock. They also receive a large quantity of fish from elsewhere.
- D2.115 Landward of the towns is grade 3 agricultural land. There are areas of land farmed under Natural England's Environmental Stewardship scheme, predominantly at Entry Level.

Infrastructure

- D2.116 In addition to the well developed industrial infrastructure in Grimsby, there is a dredged navigation channel for the dock, and a marina. Cleethorpes has a pier, promenades and slipways. There is also an outfall for Buck Beck, which is the main drainage channel for the area.
- D2.117 The area has a well developed transport network with major arterial routes consisting of the A16, A180, A1136, A1098, and A1031. A railway also provides access to Cleethorpes and Grimsby from the west. Pedestrian access to the beaches is available at many locations along the frontage.

Tourism

- D2.118 Tourism is a key economic driver in Cleethorpes and this area has many recreation and tourism developments close to the EC designated bathing beach that fronts the town. The beach is used for a variety of recreational activities including sailing, water sports, fishing, walking and bathing. There are several caravan and camping parks near the coastal strip in the east of the area at Humberston.

Natural environment

- D2.119 The foreshore of the area is mainly muddy with some sandy and gravelly deposits. The lower foreshore area is comprised of mudflats, although the upper shore is sandy, particularly in front of Cleethorpes. The coast in this area is internationally designated as part of Humber Estuary Ramsar site, Special Protection Area and Special Area of Conservation. The area is also nationally designated as a Site of Special Scientific Interest. Part of Cleethorpes Sands is also a local nature reserve.

Historic environment

- D2.120 Humberston Abbey is a Scheduled Monument, and the area also contains numerous listed buildings. The Dock Tower on Grimsby docks is the area's only Grade 1 listed building. There are registered parks and gardens and several Conservation Areas within Cleethorpes, Grimsby

and Humberston. Other significant non-designated assets may also be present in the area. It is also important to note that there are potential issues with as yet unknown archaeological sites on land and also offshore.

Objectives

Flood and erosion risk

- Minimise coastal flood and erosion risk to people and property.
- Make effective use of existing man-made or natural defences.

Communities

- Protect as many settlements as possible.
- To maintain Grimsby and Cleethorpes as viable towns, seaside resorts, and regional commercial centres throughout the plan period.

Natural environment

- Maintain natural processes relating to the intertidal habitats and subtidal flats.
- Maintain and enhance the intertidal habitats and subtidal flats if possible.
- Maintain and enhance populations of waders and wildfowl.
- Ensure that the impact on the UK's area of internationally designated habitats is acceptable.

Agriculture and industry

- Maintain and enhance the viability of the fish and food processing facilities and other commercial dock activities and facilities.
- Ensure the impact on the UK's area of agricultural land is acceptable.

Tourism

- Maintain and enhance the viability of a diverse tourism economy.

Infrastructure

- Avoid interruption to the functioning of the port of Grimsby.
- Avoid interruption to the A16, A1031, A1098, A1136, A46, A180 and the rail network.
- Avoid interruption to the functioning of the drainage network including Buck Beck and Goosemans Drain.
- Avoid interruption to the functioning of the dredged navigation channel; the marina; piers; and other key community services and utilities infrastructure.

Landscape

- To maintain and where possible, improve the quality of the coastal landscape.

Coastal processes

- To prevent interruption to the role of coastal processes which create intertidal and subtidal habitats within the Humber Estuary.

Historic environment

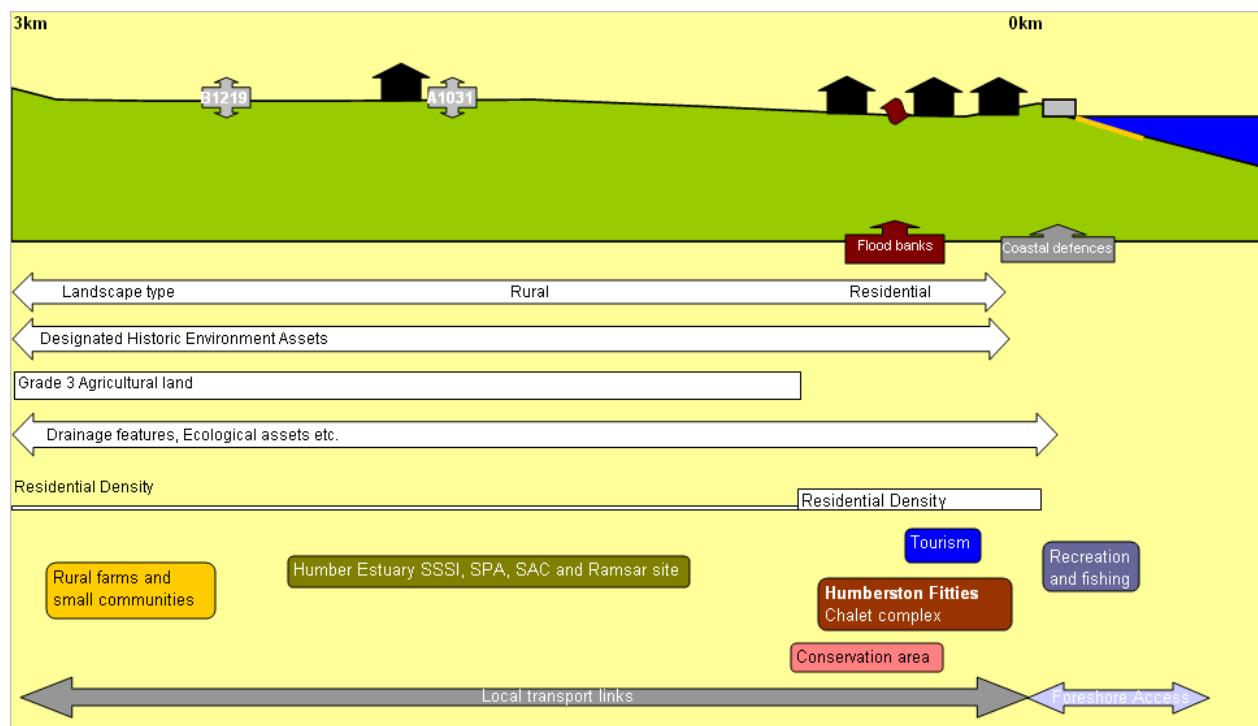
- Minimise damage to designated and significant historic environment assets from erosion and flooding, where possible.
- Ensure coastal defence works do not threaten designated and significant historic environment assets, where possible.

Timing of policy

D2.121 Provide sufficient time if necessary, for:

- community adaptation.
- change of flood risk management practices.
- relocation of regional infrastructure, ensuring continued A road and rail transport links between Grimsby and Cleethorpes and nearby settlements.
- relocation / adaptation of sewage treatment works and other key community services and utilities infrastructure.
- research of archaeological features and ecological surveys.
- adaptation of Grimsby port.
- provision of recreational access to the foreshore.

Area 13b: Humberston Fitties



Landscape

D2.122 The chalet park at Humberston Fitties is situated behind a line of coastal defences, which are comprised of timber groynes and breastwork, but some chalets are located in front of the Environment Agency flood bank. Behind the flood bank at the rear of Humberston Fitties the landscape is generally low lying and fairly flat and slopes gently from north to south with typical elevations of 5 to 10m ODN in the north of the area down to around 3m ODN in the south of the area.

D2.123 The lower foreshore area is comprised of mudflats, although the upper shore is saltmarsh and the beach is backed by sand dunes. The coast in this area is internationally designated as part of Humber Estuary Special Protection Area, Special Area of Conservation, Ramsar site and Site of Special Scientific Interest.

Communities

D2.124 The coastal hinterland is comprised of holiday chalets which are predominantly used seasonally. Behind the holiday chalet park of Humberston Fitties, the landscape is open and there are very few houses and these are well scattered.

Flood and erosion risk

D2.125 The chalet park is generally low lying, typically at around 2 to 3m ODN and therefore at risk of flooding. Due to the low-lying nature of the land in this area, much of the southern area behind Humberston Fitties is at risk of flooding.

Agriculture and industry

- D2.126 Behind the holiday chalet park of Humberston Fitties, the landscape is open and generally used for grade 3 agricultural land drained by small drains. The inshore zone is used for netting and shellfish fishing.

Infrastructure

- D2.127 Towards the rear of the area, the A1031 provides a major transport link to Grimsby and Cleethorpes to the north and Mablethorpe to the south and a minor road links the chalets at Humberston Fitties to the A1031.

Tourism

- D2.128 The coastal hinterland is comprised of holiday chalets which are predominantly used seasonally. The nearshore and foreshore is used predominantly for informal recreational activities such as bathing and boating. The area is also used by walkers and birdwatchers.

Natural environment

- D2.129 The foreshore of the area is mainly muddy with some sandy and gravelly deposits. The lower foreshore area is comprised of mudflats, although the upper shore is and the beach is backed by sand dunes. The coast in this area is internationally designated as part of Humber Estuary Ramsar site, Special Protection Area and Special Area of Conservation. The area is also nationally designated as a Site of Special Scientific Interest.

Historic environment

- D2.130 A Conservation Area is designated at Humberston Fitties. Other significant non-designated assets may also be present in the area. It is also important to note that there are potential issues with as yet unknown archaeological sites on land and also offshore.

Objectives

Flood and erosion risk

- Minimise coastal flood and erosion risk to people and property.
- Make effective use of existing man-made or natural defences.

Communities

- Protect as many settlements as possible.

Natural environment

- Maintain natural processes relating to the intertidal habitats and subtidal flats.
- Maintain and enhance the intertidal habitats and subtidal flats if possible.
- Maintain and enhance populations of waders and wildfowl.
- Ensure that the impact on the UK's area of internationally designated habitats is acceptable.

Agriculture and industry

- Ensure the impact on the UK's area of agricultural land is acceptable.

Tourism

- Maintain and enhance the viability of a diverse tourism economy.

Infrastructure

- Avoid interruption to the A1031.

Landscape

- To maintain and where possible, improve the quality of the coastal landscape.

Coastal processes

- To prevent interruption to the role of coastal processes which create intertidal and subtidal habitats within the Humber Estuary.

Historic environment

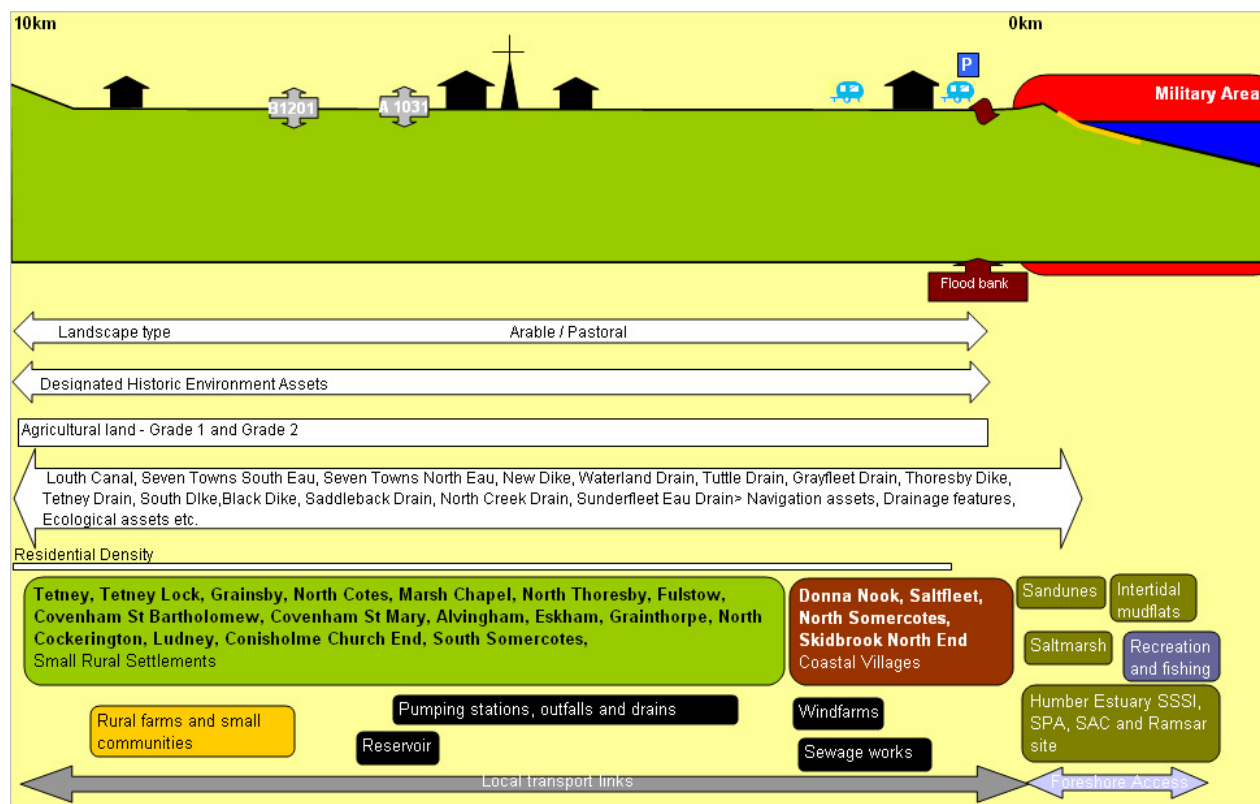
- Minimise damage to designated and significant historic environment assets from erosion and flooding, where possible.
- Ensure coastal defence works do not threaten designated and significant historic environment assets, where possible.

Timing of policy

D2.131 Provide sufficient time if necessary, for:

- community adaptation.
- change of flood risk management practices.
- research of archaeological features and ecological surveys.
- provision of recreational access to the foreshore.

Area 14: South of Humberston Fitties to Saltfleet



Landscape

- D2.132 This area is comprised of low-lying open floodplain composed of glacial tills and alluvial deposits. The floodplain (typically 2 to 3 metres ODN) is wide, and stretches back up to 10 kilometres inland from the coast. There is little change in relief across the floodplain with only very gentle gradients. The back of the floodplain is marked by a ridge of higher ground with a gradual increase in gradient as the land rises towards the Lincolnshire Wolds.
- D2.133 In front of the defence line is a wide sandy inter-tidal area with extensive sub-tidal sand flats. The backshore is characterised by sand dunes. This wide and shallow intertidal and sub-tidal zone provides protection to the frontage from north easterly storms.

Communities

- D2.134 The residential density is generally low in this area, with the majority of the residential areas comprising mainly linear style villages in two main bands along the A1031 and a minor road towards the rear of the floodplain. The large settlements include North Somercotes, Tetney, and Saltfleet and these villages are situated nearer the coast and provide local community facilities and services. There are also many scattered farms and rural communities throughout the area. There are caravan parks near the coast at North Somercotes, Skidbrooke North End, and Saltfleet.

Flood and erosion risk

- D2.135 Due to the low elevation of the floodplain, a large area of land is susceptible to inundation by coastal waters. Due to this flooding risk, most of the frontage is defended against coastal waters by a clay embankment. In addition to the embankment, sand dunes also form part of the defence line for the southern parts of the area towards Saltfleet.

Agriculture and industry

- D2.136 The main land use of the area is grade 1 and 2 agricultural land which is drained through a network of dikes, streams and drains. There are areas of land farmed under Natural England's Environmental Stewardship scheme, predominantly at Higher Level within the coastal strip, and Entry Level further inland.

Infrastructure

- D2.137 Infrastructure in the area includes a reservoir at Covenham, sewage treatment works, wind farms, land drainage pumping stations and Tetney tank farm. The area around Donna Nook is a Ministry of Defence site (RAF bombing range). The region is bisected by the A1031 which connects many of the settlements in the area, as well as providing a local link to Cleethorpes and Grimsby to the north, and Mablethorpe to the south. A network of minor roads links the small rural communities and settlements and there is access to the coast at Saltfleet, North Somercotes, Skidbrooke North End, Donna Nook, North Cotes and Humberston Fitties.

Tourism

- D2.138 Tourism is an important aspect of the local economy, and the beach provides an important recreational resource for a range of activities including walking, boating, angling and bathing. There is a lake and fishery at North Somercotes which also attracts visitors and the Louth Canal also provides a recreation asset.

Natural environment

- D2.139 The coast in this area is of high environmental significance, with many important habitats. The entire intertidal foreshore and coastal strip is designated as part of the Humber Estuary Ramsar site, Special Protection Area and Special Area of Conservation. The area is also a Site of Special Scientific Interest. There is also a large National Nature Reserve at Donna Nook and a RSPB reserve at Tetney Marshes. There are also several Sites of Nature Conservation Interest across the area. Part of the marshes is also a target area for the Lincolnshire Coastal Grazing Marsh Project.

Historic environment

- D2.140 The area contains many listed buildings and a moated site at North Cockerington Hall, designated as a Scheduled Monument. Other significant non-designated assets may also be present in the area. It is also important to note that there are potential issues with as yet unknown archaeological sites on land and also offshore.

Objectives

Flood and erosion risk

- Minimise coastal flood and erosion risk to people and property.
- Make effective use of existing man-made or natural defences.

Communities

- Protect as many settlements as possible.

Natural environment

- Maintain natural processes relating to the mudflats, saltmarsh and sand dunes.
- Maintain and if possible, enhance the area and condition of mudflats, saltmarsh and sand dunes.
- Maintain and enhance populations of waders and wildfowl and grey seals.
- Ensure that the impacts on the UK's area of internationally designated habitat are acceptable.

Agriculture and industry

- Protect as much grade 1 and 2 agricultural land as possible.
- Ensure that the impact on the UK's area of agricultural land is acceptable.

Tourism

- Maintain and enhance the viability of a diverse tourism economy.

Infrastructure

- Avoid interruption to the functioning of the A1031.
- Avoid interruption to the functioning of the drainage network including land drainage pumping stations.
- Avoid interruption to the functioning of the reservoir, sewage treatment works, MOD site, oil terminal, wind farm and other key community services and utilities infrastructure.

Landscape

- To maintain and where possible, improve the quality of the coastal landscape.

Coastal processes

- To prevent interruption of coastal processes which develop subtidal and intertidal habitats and supply sediment to other coastlines.

Historic environment

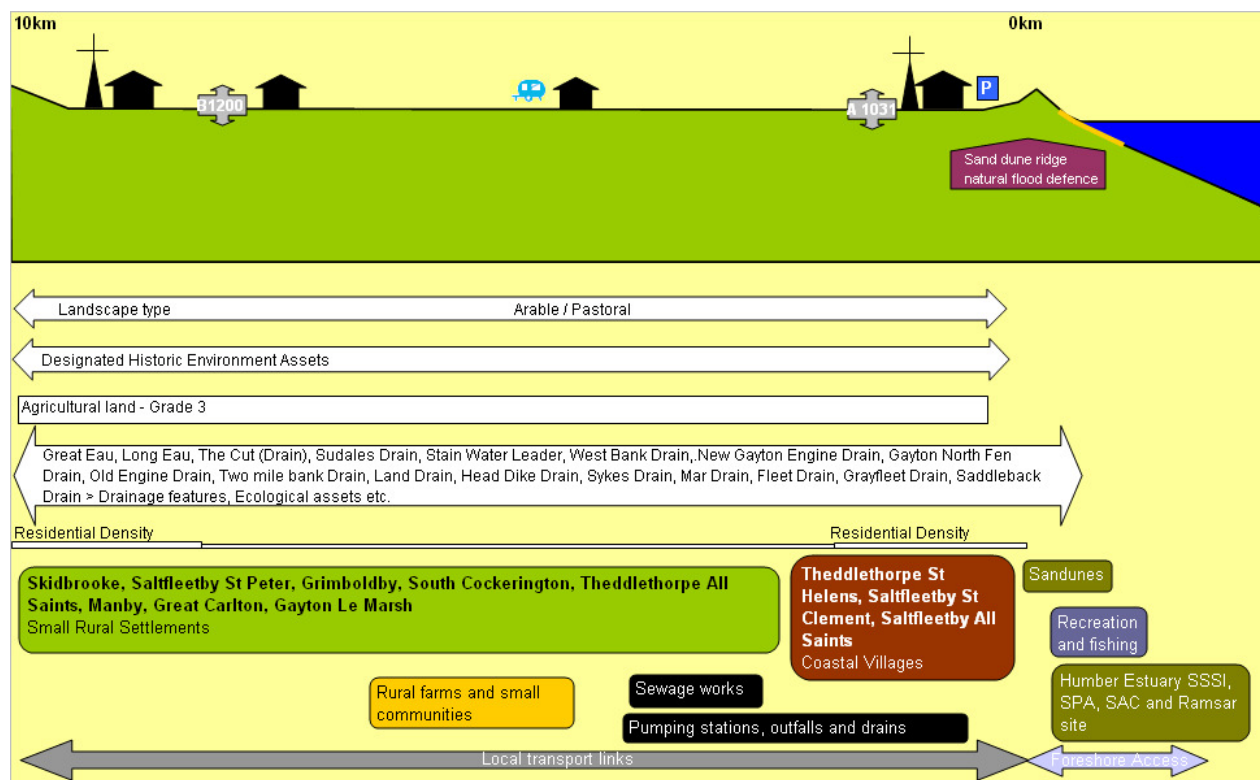
- Minimise damage to designated and significant historic environment assets from erosion and flooding, where possible.
- Ensure coastal defence works do not threaten designated and significant historic environment assets, where possible.

Timing of policy

D2.141 Provide sufficient time if necessary, for:

- Community adaptation.
- change of flood risk management practices.
- relocation of regional infrastructure, ensuring continued A road and rail transport links to Grimsby, Cleethorpes and Mablethorpe.
- relocation / adaptation of MOD use of the foreshore, sewage treatment works, oil terminal and other key community services and utilities infrastructure.
- research of archaeological features and ecological surveys.
- provision of recreational access to the foreshore.

Area 15: Saltfleet Haven to Theddlethorpe St Helen



Landscape

D2.142 This area comprises low-lying open floodplain based in glacial tills and alluvial deposits. The floodplain, generally at an elevation of 2 to 3 metres ODN, is wide and stretches back up to 10 kilometres inland from the coast in this area. There is little change in relief across the floodplain with only gentle gradients. The back of the floodplain is marked by a ridge of higher ground with a gradual increase in gradient as the land rises towards the Lincolnshire Wolds.

Communities

D2.143 Residential density is low and settlement is mainly scattered along the various roads. There are clusters of coastal settlements at Theddlethorpe, Theddlethorpe St Helen, Saltfleetby St Clement and Saltfleetby All Saints. Set back from the shoreline on the floodplain are the villages of Manby, Grimoldby, Gayton Le Marsh, Great Carlton and Saltfleetby St Peter. Amongst the villages there are also many farms and small rural communities.

Flood and erosion risk

D2.144 Due to the low-lying nature of the area, significant areas of land are at risk of coastal flooding. Currently the low-lying land is protected against inundation from coastal waters by a wide, natural, mature sand dune ridge that is present along the whole frontage. These dunes have typical crest elevations of 9 to 14 metres ODN and consequently they provide an effective and substantial natural barrier to flooding.

Agriculture and industry

- D2.145 The area is mainly comprised of grade 3 agricultural land. There are areas of land farmed under Natural England's Environmental Stewardship scheme, at both Entry Level and Higher Level.

Infrastructure

- D2.146 The agricultural landscape is divided by the Great Eau and Long Eau Rivers. In addition to the main rivers, a series of drains and dikes form the rest of the drainage network for the floodplain. There is land drainage infrastructure within the area such as the pumping station at Theddlethorpe. The A1031 provides the main transport link to Mablethorpe, the nearest town, just to the south of the area. The B1200 runs inland from the A1031 and this connects the small villages to the large market town of Louth to the west. There is footpath access to the beach along the entire frontage.

Tourism

- D2.147 There is limited tourism infrastructure, however the area attracts large numbers of visitors drawn by its wildlife and rural character.

Natural environment

- D2.148 Part of the Humber Estuary Ramsar site, Special Protection Area and Special Area of Conservation is included in this area. Due to their environmental importance, the Saltfleetby – Theddlethorpe dunes are a National Nature Reserve and are designated as a Site of Special Scientific Interest. Part of the marshes is also a target area for the Lincolnshire Coastal Grazing Marsh project.

Historic environment

- D2.149 The area has many listed buildings, including the west tower at the former Church of St Peter at Saltfleetby St Peter which is a Grade 1 listed building. Other significant non-designated assets may also be present in the area. It is also important to note that there are potential issues with as yet unknown archaeological sites on land and also offshore.

Objectives

Flood and erosion risk

- Minimise coastal flood and erosion risk to people and property.
- Make effective use of existing man-made or natural defences.

Communities

- Protect as many settlements as possible.

Natural environment

- Maintain natural processes relating to the mudflats, saltmarsh and sand dunes.

- Maintain and enhance the extent and condition of mudflats, saltmarshes and sand dunes if possible.
- Maintain and enhance populations of birds.
- Ensure that the impact on the UK's area of internationally designated habitat is acceptable.

Agriculture and industry

- Ensure that the impact on the UK's area of agricultural land is acceptable.

Tourism

- Maintain and enhance the viability of a diverse tourism economy.

Infrastructure

- Avoid interruption to the functioning of the A1031.
- Avoid interruption to the drainage network including land drainage pumping stations.
- Avoid interruption to the functioning of sewage works and other key community services and utilities infrastructure.

Landscape

- To maintain and where possible, improve the quality of the coastal landscape.

Coastal processes

- To prevent interruption of coastal processes which develop intertidal and subtidal habitats and supply sediment to other coastlines.

Historic environment

- Minimise damage to designated and significant historic environment assets from erosion and flooding, where possible.
- Ensure coastal defence works do not threaten designated and significant historic environment assets, where possible.

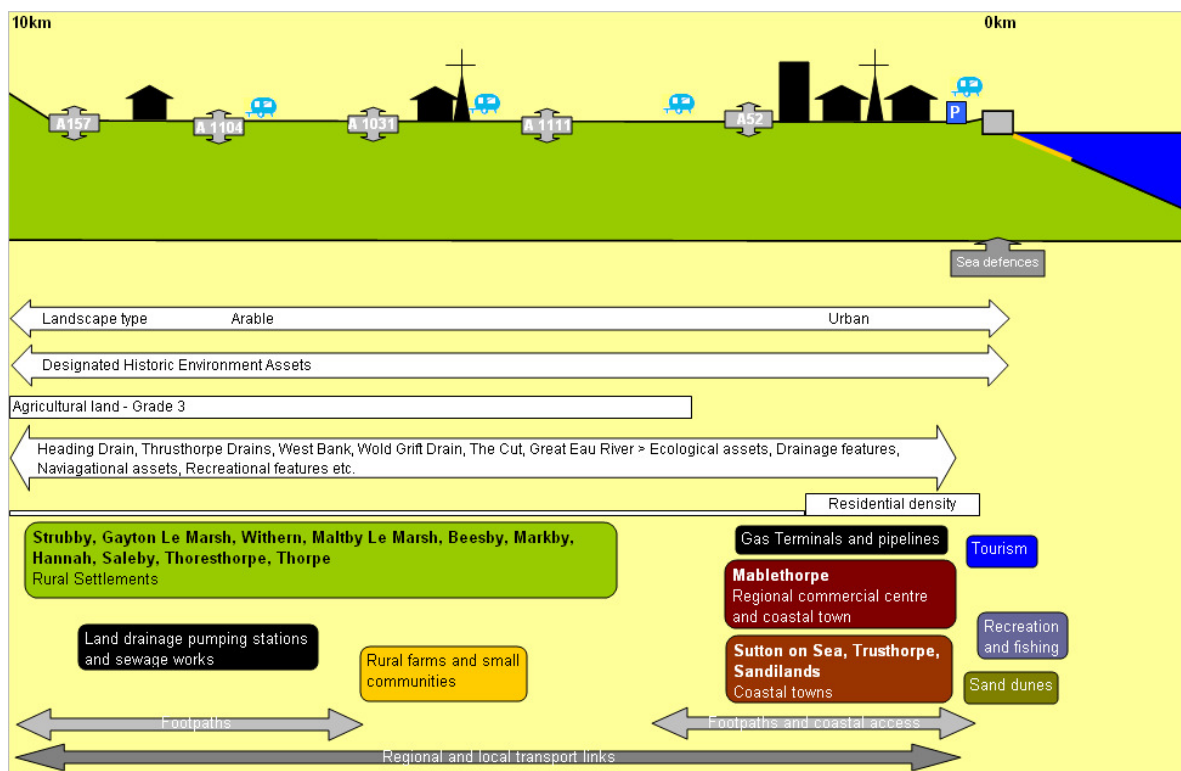
Timing of policy

D2.150 Provide sufficient time if necessary, for:

- community adaptation.
- change of flood risk management practices.
- relocation of regional infrastructure, ensuring continued A road transport links to Mablethorpe.
- relocation / adaptation of sewage treatment works, pumping stations and other key community services and utilities infrastructure.

- research of archaeological features and ecological surveys.
- provision of recreational access to the foreshore.

Area 16: Viking Gas Terminal to Sandilands (Mablethorpe)



Landscape

D2.151 The area is characterised by a largely urbanised frontage that has been developed on an area of Lincolnshire Marshes which typically extend between 4 and 6 kilometres inland from the sea up to the edge of the Lincolnshire Wolds. The low lying area is generally only 1 to 3 metres ODN, with very gentle topographic gradients. The towns of Mablethorpe, Trusthorpe, Sutton on Sea and Sandilands comprise the main urban coastal developments of the area and are fronted by hard promenades that stand between 5 and 7 metres ODN. These hard structures protect the low-lying developments (2 to 3 metres ODN) from flooding and erosion. To the north of these settlements the land is less developed and natural protection from the sea is provided by sand dunes with typical elevations of 8 to 12 metres ODN, but locally these are as high as 15 metres ODN.

Communities

D2.152 The settlements of Mablethorpe, Trusthorpe, Sutton on Sea and Sandilands form a nearly continuous urban belt along much of the area's coastal frontage. These coastal towns provide services and facilities to the local catchment, with Mablethorpe being the regional commercial centre. Highest population densities occur closest to the coast and the commercial activities are mainly based around the tourist industry. Inland, there are also a number of scattered farms and small rural communities.

Flood and erosion risk

D2.153 The towns of Mablethorpe, Trusthorpe, Sutton on Sea and Sandilands are fronted by hard promenades that stand between 5 and 7 metres ODN. These hard structures protect the low-lying developments (2 to 3 metres ODN) from flooding and erosion. To the north of these settlements the land is less developed and natural protection from the sea is provided by sand dunes with typical elevations of 8 to 12 metres ODN, but locally these are as high as 15 metres ODN. Due to the low-lying nature of the area, significant areas of land are at risk of coastal flooding.

Agriculture and industry

D2.154 In the north of the area, set back approximately 300 metres from the shoreline is the Viking Gas Terminal, the major industrial site in the area.

D2.155 Behind the main urban coastal dwellings the predominant land use is grade 3 agricultural land. There are areas of land farmed under Natural England's Environmental Stewardship scheme, predominantly at Entry Level.

Infrastructure

D2.156 There are several pumping stations on the floodplain along with the 'Heading drain' and 'The Cut' that help to drain the low-lying floodplain. Sewage treatment infrastructure is also present within the area.

D2.157 The area is regionally and locally connected through a road network to the north by the A1131, to the west by the A1104, A157 and A1111, and to the south by the A52.

Tourism

D2.158 Tourism is a key economic driver for these towns and the surrounding settlements and consequently they are fringed by a number of caravan and camping parks. The beaches and promenades provide opportunities for many recreation and leisure activities, and this forms the basis of the area's tourism.

Historic environment

D2.159 There are Scheduled Monuments in the area including Hagnaby Abbey (a Premonstratensian Abbey and a post-medieval house and formal garden), as well as a small moated site south of Stain Farm. In addition, the area has many listed buildings. Other significant non-designated assets may also be present in the area. It is also important to note that there are potential issues with as yet unknown archaeological sites on land and also offshore.

Objectives

Flood and erosion risk

- Minimise coastal flood and erosion risk to people and property.
- Make effective use of existing man-made or natural defences.

Communities

- Protect as many settlements as possible.
- To maintain Mablethorpe, Sutton on Sea, Sandilands and Trusthorpe as viable towns and seaside resorts.

Natural environment

- Maintain natural processes relating to the sandflats and sand dunes.
- Maintain and enhance the extent and condition of sandflats and sand dunes if possible.
- Ensure that the impacts on the UK's area of internationally designated habitat are acceptable.

Agriculture and industry

- Maintain and enhance the viability of the Viking gas storage and processing facilities and other key community services and utilities infrastructure.
- Ensure that the impact on the UK's area of agricultural land is acceptable.

Tourism

- Maintain and enhance the viability of a diverse tourism economy.

Infrastructure

- Avoid interruption to: the A157, A1104, A1031, A111 and A52.
- Avoid interruption to the drainage network including: Heading, Trusthorpe, West Bank, The Cut, and Wold Grift drains; the Great Eau river; and land drainage pumping stations.
- Avoid interruption to sewage works and other key community services and utilities infrastructure.

Landscape

- To maintain and where possible, improve the quality of the coastal landscape.

Coastal processes

- To prevent interruption of coastal processes which supply sediment to other coastlines.

Historic environment

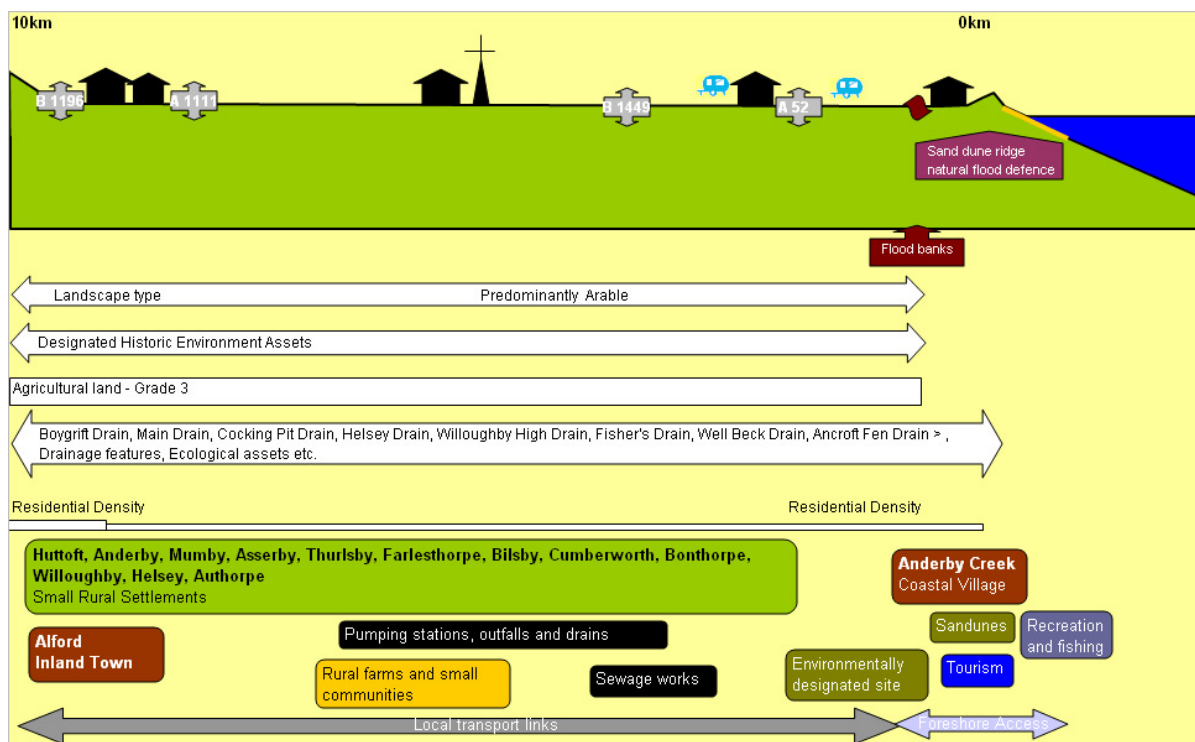
- Minimise damage to designated and significant historic environment assets from erosion and flooding, where possible.
- Ensure coastal defence works do not threaten the various assets located on the foreshore (such as the submerged forest around Mablethorpe and Sutton on Sea), and other designated and significant historic environment assets, where possible.

Timing of policy

D2.160 Provide sufficient time if necessary, for:

- community adaptation.
- change of flood risk management practices.
- relocation of regional infrastructure, ensuring continued A road transport which link Mablethorpe, Sutton on Sea and Trusthorpe with Louth and Alford to the west.
- relocation / adaptation of gas terminal, sewage treatment works, and other key community services and utilities infrastructure.
- research of archaeological features and ecological surveys.
- provision of recreational access to the foreshore.

Area 17: Sandilands to Chapel Point



Landscape

D2.161 This area consists of mainly low-lying floodplain underlain by glacial tills. Typical elevations on the floodplain are between 1 to 5 metres ODN. However, there are many gently sloping hillocks towards the centre and rear of the floodplain. These undulations rise up to around 10 metres ODN, and some of the area's settlements have developed on these areas of slightly higher ground. A ridge of more continuous higher ground marks the edge of the low-lying floodplain and the start of the Lincolnshire Wolds at approximately 10 kilometres inland.

Communities

D2.162 Residential density is generally low with settlements mainly consisting of small rural villages. The larger settlement of Alford is situated at the rear of the floodplain, around 10 kilometres inland. This is the area's only town and it has many local facilities and services. Anderby Creek is the only coastal settlement and is situated behind the dunes but seawards of the sea bank, which provides flood protection to the low-lying land behind. There are many scattered farms and small rural communities between the villages as well as several caravan and camping sites in the coastal hinterland.

Flood and erosion risk

D2.163 Due to the generally low-lying nature of the floodplain, a very large area is potentially at risk of flooding from coastal waters. Natural protection is provided to the area by the sand dunes along the frontage and there is a man-made raised bank set back between 50 and 600 metres behind the sand dunes. As sea level rise occurs, the risk of coastal flooding will increase.

Agriculture and industry

- D2.164 The main land use of this area is grade 3 agricultural land, used mostly for arable farming, and some pastoral grazing. There are areas of land farmed under Natural England's Environmental Stewardship scheme, predominantly at Entry Level.

Infrastructure

- D2.165 The key infrastructure in the area includes land drainage pumping stations at Boygriff and Anderby. The area is also drained by a number of drainage channels such as the Main Drain that discharges into the sea at Anderby Creek. There are two main roads in the area, the A1111 provides a link between Sutton on Sea and Alford to the west and the A52 runs through several of the villages such as Mumby and Huttoft to Chapel St Leonards, Ingoldmells and Skegness to the south. There are also a number of minor roads providing links between the smaller settlements. There is a network of footpaths across the area providing access to the coast.

Tourism

- D2.166 Tourism is key to the local economy in this area with a number of caravan and camping sites in the area. The beach is an EC designated bathing beach and provides an important recreational resource. There is a golf course near the coast at Sandilands that also attracts visitors. Coastal access points are located at Huttoft Car Terrace, Moggs Eye, Anderby Creek, Wolla Bank and Chapel Six Marshes.

Natural environment

- D2.167 The environmental significance of the area is high, with the Wolla Bank to Chapel Point area and Sea Bank Clay Pits designated as Sites of Special Scientific Interest. There are Regionally Important Geomorphological and Geological Sites at Moggs Eye and Huttoft Bank and numerous Sites of Nature Conservation Interest. Some of the area is also a target area for the Lincolnshire Coastal Grazing Marsh Project. This area includes the extent of the proposed Lincolnshire Coastal Country Park.

Historic environment

- D2.168 There is a registered park and garden at Well Hall as well as numerous listed buildings in the area. Markby Abbey is a Scheduled Monument. Other significant non-designated assets may also be present in the area. It is also important to note that there are potential issues with as yet unknown archaeological sites on land and also offshore.

Objectives

Flood and erosion risk

- Minimise coastal flood and erosion risk to people and property.
- Make effective use of existing man-made or natural defences.

Communities

- Protect as many settlements as possible.

Natural environment

- Maintain natural processes relating to Wolla Bank to Chapel Point and to Sea Bank Clay Pits reedbeds and marsh.
- Maintain and enhance the extent and condition of the Wolla Bank to Chapel Point and to Sea Bank Clay Pits reedbeds and marsh if possible.
- Maintain natural processes relating to the sandflats and sand dunes.
- Maintain and enhance the extent and condition of sandflats and sand dunes, if possible.

Agriculture and industry

- Ensure that the impact on the UK's area of agricultural land is acceptable.

Tourism

- Maintain and enhance the viability of a diverse tourism economy.

Infrastructure

- Avoid interruption to the functioning of A111 and A52.
- Avoid interruption to the drainage network including: Boygriff, Main, Cocking Pit, Helsey, Willoughby High, Fishers, Well Beck and Ancroft drains; and the land drainage pumping stations.
- Avoid interruption to the functioning of pumping stations and other key community services and utilities infrastructure.

Landscape

- To maintain and where possible, improve the quality of the coastal landscape.

Coastal processes

- To prevent interruption of coastal processes which supply sediment to other coastlines.

Historic environment

- Minimise damage to designated and significant historic environment assets from erosion and flooding, where possible.
- Ensure coastal defence works do not threaten designated and significant historic environment assets, where possible.

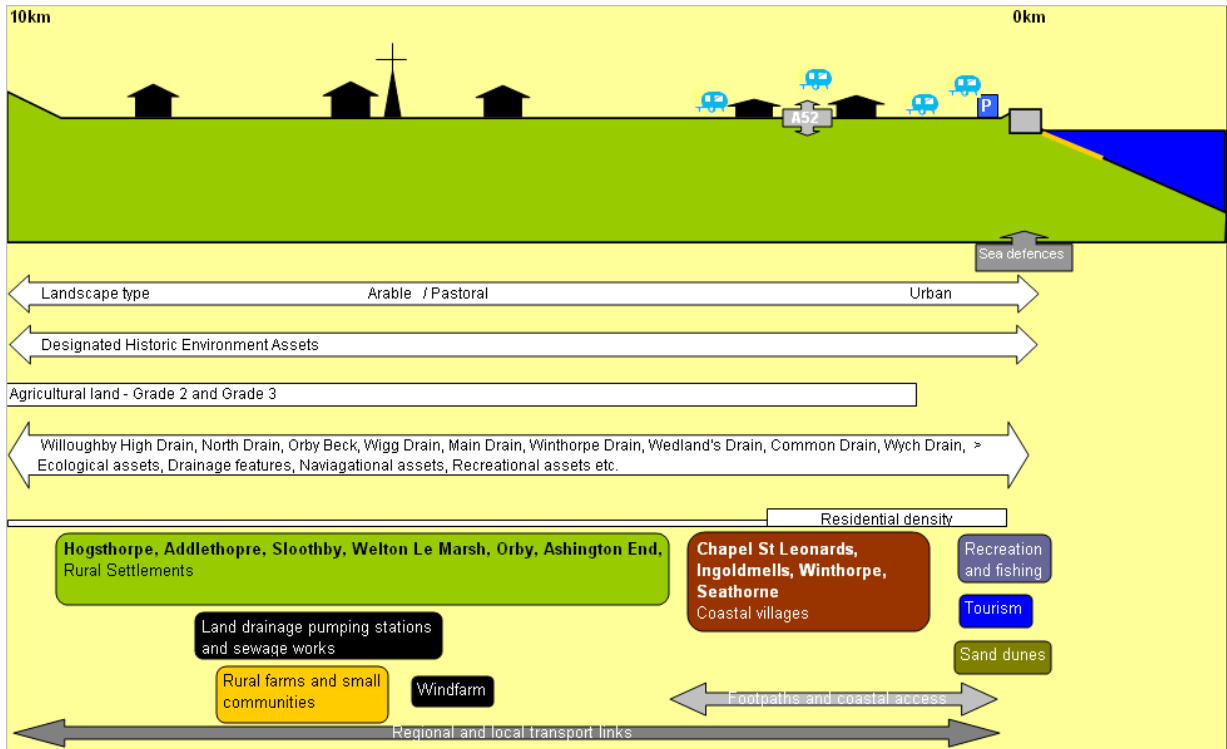
Timing of policy

D2.169 Provide sufficient time if necessary, for:

- community adaptation.
- change of flood risk management practices.

- relocation of regional infrastructure, ensuring continued A road transport links to Sutton on Sea and Chapel St Leonards.
- relocation / adaptation of pumping stations and other key community services and utilities infrastructure.
- research of archaeological features and ecological surveys.
- provision of recreational access to the foreshore.

Area 18a: Chapel Point to Skegness



Landscape

- D2.170 This area consists of low-lying floodplain underlain by glacial tills (clay). Topographic gradients are very gentle and typical elevations are only 1 to 3 metres ODN on the floodplain which extends approximately 10 kilometres inland in this area. The back of the floodplain is signified by a ridge of higher land that also marks the start of the Lincolnshire Wolds.
- D2.171 There are sand dunes along northern parts of the frontage, and at intervals along the remainder of the front. These dunes rise to an elevation of at least 5 metres ODN and in places, such as near Chapel Point, they rise as high as 14 metres ODN.

Communities

- D2.172 The coastal hinterland is mainly urbanised with a virtually continuous belt of settlement along the frontage which includes the villages of Chapel St Leonards and Ingoldmells. There are many caravan parks along the coast; the majority of these are at Ingoldmells which is comprised almost entirely of caravan and camping parks or holiday villages. There is also relatively high density housing in Chapel St Leonards. Smaller sub-urban settlements of Winthorpe and Seathorne are situated to the south of Ingoldmells and these are composed mainly of housing.

Flood and erosion risk

- D2.173 Due to the low-lying floodplain, there is the potential for coastal flooding over a significant area. The dunes provide a natural barrier to flooding, but these have been supplemented or replaced

with hard defences such as promenades in front of the major settlements of Ingoldmells and Chapel St Leonards.

Agriculture and industry

- D2.174 Behind the urbanised coastal strip is mainly grade 3 agricultural land that is farmed both arably and pastorally. There are areas of land farmed under Natural England's Environmental Stewardship scheme, predominantly at Entry Level.

Infrastructure

- D2.175 The key infrastructure in the area includes land drainage pumping stations at Ingoldmells and Chapel Basin, coastguard lookout stations, and sewage treatment works. The area has a well-developed road network with the A52 linking the coastal towns with areas to the north, the A158 providing an arterial route to Horncastle and areas to the west, and the A52 providing access to towns to the south of the area. There are many coastal access points along the frontage.

Tourism

- D2.176 Tourism provides the main economic driver for the area and consequently there are many caravan parks along the coast. The majority of these are at Ingoldmells which is comprised almost entirely of caravan and camping parks or holiday villages.
- D2.177 The beaches play an integral role in supporting the regional tourist industry, and they provide an important resource for informal recreation. The beaches are EC designated bathing beaches and are also used by anglers for fishing.

Natural environment

- D2.178 The area contains a target area for the Lincolnshire Coastal Grazing Marsh Project on the floodplain.

Historic environment

- D2.179 There are many listed buildings including Grade 1 listed buildings at Dobson's Windmill in Burgh Le Marsh, and the Church of St Mary in Winthorpe. There are also scheduled monuments at Butler Bump round barrow cemetery between Cumberworth and Willoughby, Manor Farm moated site in Orby, a Motte castle at Castle Hill 250 metres east of Manby Hall Farm, and Bratofft Hall moated site. Other significant non-designated assets may also be present in the area. It is also important to note that there are potential issues with as yet unknown archaeological sites on land and also offshore.

Objectives

Flood and erosion risk

- Minimise coastal flood and erosion risk to people and property.
- Make effective use of existing man-made or natural defences.

Communities

- Protect as many settlements as possible.

Natural environment

- Maintain natural processes relating to the sandflats, grazing marshes and sand dunes.
- Maintain and enhance the extent and condition of sandflats, grazing marshes and sand dunes if possible.

Agriculture and industry

- Protect as much grade 1 and 2 agricultural land as possible.
- Ensure that the impact on the UK's area of agricultural land is acceptable.

Tourism

- Maintain and enhance the viability of a diverse tourism economy.

Infrastructure

- Avoid interruption to functioning of the A52.
- Avoid interruption to: the drainage network including: Willoughby High, North, Orby, Wigg, Wedland's, Common, Firsby, and Wych drains; and Ingoldmells and Chapel Basin land drainage pumping stations.
- Avoid interruption to the functioning of: the sewage works; coastguard lookout stations; and other key community services and utilities infrastructure.

Landscape

- To maintain and where possible, improve the quality of the coastal landscape.

Coastal processes

- To prevent interruption of coastal processes which supply sediment to other coastlines.

Historic environment

- Minimise damage to designated and significant historic environment assets from erosion and flooding, where possible.
- Ensure coastal defence works do not threaten designated and significant historic environment assets, where possible.

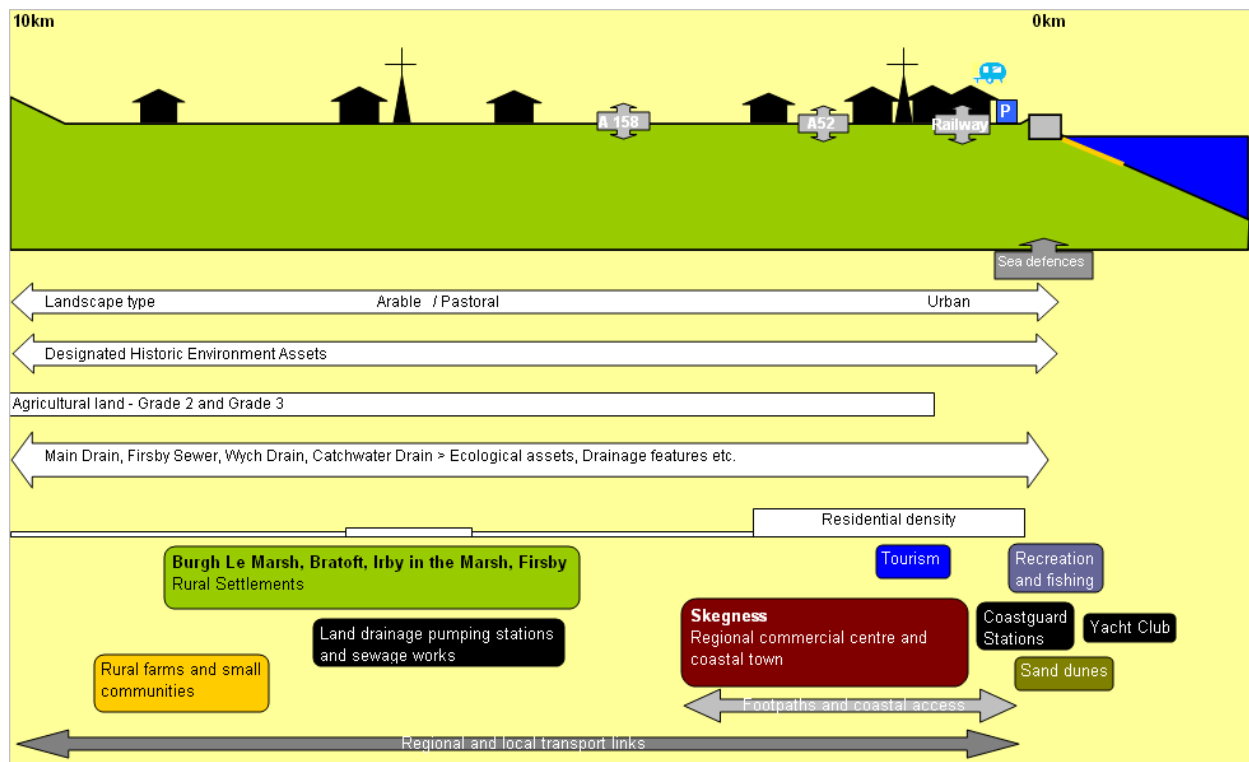
Timing of policy

D2.180 Provide sufficient time if necessary, for:

- community adaptation.

- change of flood risk management practices.
- relocation of regional infrastructure, ensuring continued A road and rail transport links connecting Chapel St Leonards and Ingoldmells with Skegness, Horncastle and Grantham.
- relocation / adaptation of sewage treatment works and other key community services and utilities infrastructure.
- research of archaeological features and ecological surveys.
- provision of recreational access to the foreshore.

Area 18b: Skegness



Landscape

D2.181 This area consists of low-lying floodplain underlain by glacial tills (clay). Topographic gradients are very gentle and typical elevations are only 2 to 4 metres ODN on the floodplain which extends approximately 10 kilometres inland in this area. The back of the floodplain is signified by a ridge of higher land that also marks the start of the Lincolnshire Wolds.

Communities

D2.182 This predominantly urban frontage is a lively seaside resort, the fifth largest, by visitor numbers in the UK. There is relatively high density housing in Skegness. Skegness is the regional commercial centre with many services and entertainment facilities including schools, places of worship, public houses, shops, police station, hospital, doctors, museums, a leisure complex etc. Behind the urbanised coastal strip, the farmland of the floodplain is interspersed with a number of villages with local facilities and small rural communities and farmsteads.

Flood and erosion risk

D2.183 Due to the low-lying floodplain, there is the potential for coastal flooding over a significant area. The artificially nourished beach and dunes provide a natural barrier to flooding, but these have been supplemented or replaced with hard defences such as promenades in front of the town of Skegness.

Agriculture and industry

- D2.184 Behind the urbanised coastal strip is mainly grade 2 and 3 agricultural land that is farmed both arably and pastorally. There are areas of land farmed under Natural England's Environmental Stewardship scheme, predominantly at Entry Level.

Infrastructure

- D2.185 Skegness has a well developed road network and the A158 provides an arterial route to Horncastle and areas to the west, and the A52 links the town with Mablethorpe to the north and Boston to the south. A railway also provides a regional link to the East Coast Main Line at Grantham.

Tourism

- D2.186 The beaches play an integral role in supporting the regional tourist industry which is key to the local economy. The beaches are EC designated bathing beaches which provide an important resource for informal recreation and are also used by anglers for fishing.

Natural environment

- D2.187 The foreshore and sand dunes in the southern part of Skegness are also designated under the Saltfleetby-Theddlethorpe Dunes & Gibraltar Point Special Area of Conservation and the Gibraltar Point Site of Special Scientific Interest. The area contains a target area for the Lincolnshire Coastal Grazing Marsh Project on the floodplain.

Historic environment

- D2.188 There are many listed buildings including Grade 1 listed buildings at Dobson's Windmill in Burgh Le Marsh. Other significant non-designated assets may also be present in the area. It is also important to note that there are potential issues with as yet unknown archaeological sites on land and also offshore.

Objectives

Flood and erosion risk

- Minimise coastal flood and erosion risk to people and property.
- Make effective use of existing man-made or natural defences.

Communities

- Protect as many settlements as possible.
- To maintain Skegness as a viable town and seaside resorts, and also a regional commercial centre throughout the plan period.

Natural environment

- Maintain natural processes relating to the sandflats, grazing marshes and sand dunes.

- Maintain and enhance the extent and condition of sandflats, grazing marshes and sand dunes if possible.

Agriculture and industry

- Protect as much grade 1 and 2 agricultural land as possible.
- Ensure that the impact on the UK's area of agricultural land is acceptable.

Tourism

- Maintain and enhance the viability of a diverse tourism economy.

Infrastructure

- Avoid interruption to functioning of the A158 and the A52.
- Avoid interruption to: the drainage network including: Main, Winthorpe and Catchwater drains.
- Avoid interruption to the functioning of key community services and utilities infrastructure.

Landscape

- To maintain and where possible, improve the quality of the coastal landscape.

Coastal processes

- To prevent interruption of coastal processes which supply sediment to other coastlines.

Historic environment

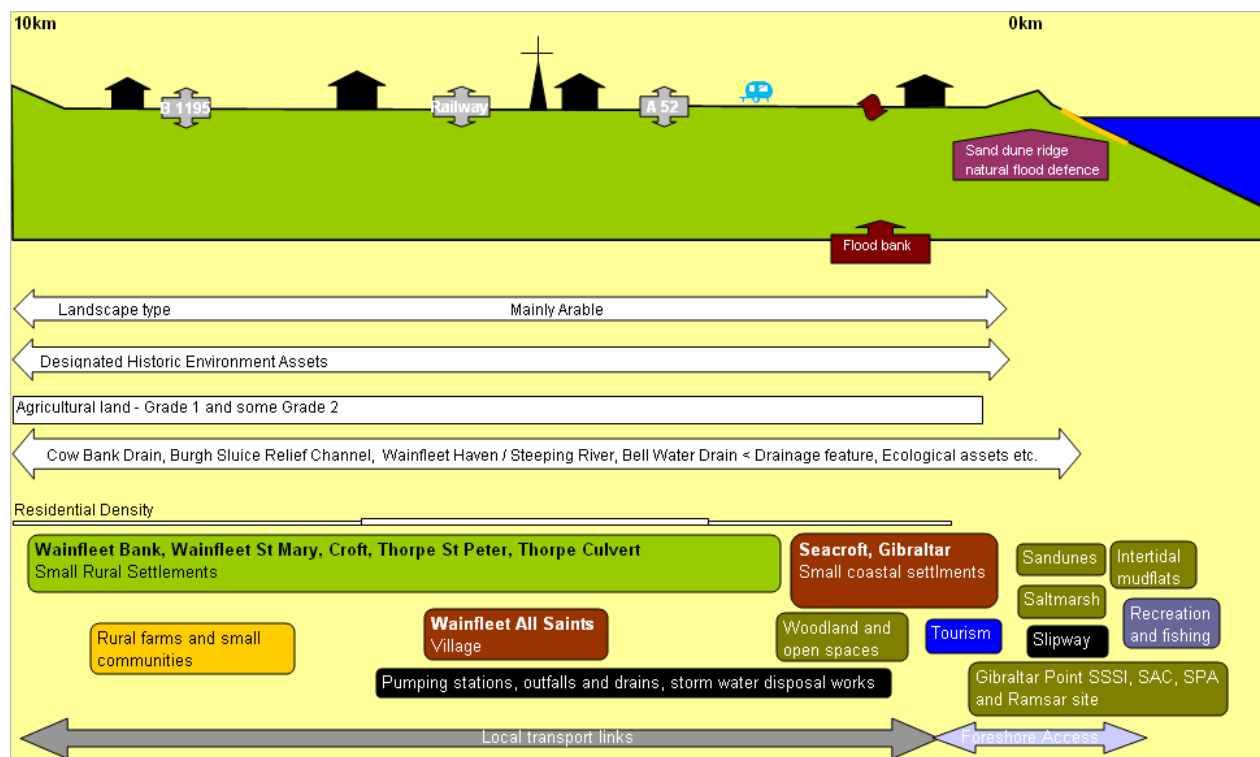
- Minimise damage to designated and significant historic environment assets from erosion and flooding where possible.
- Ensure coastal defence works do not threaten designated and significant historic environment assets, where possible.

Timing of policy

D2.189 Provide sufficient time if necessary, for:

- community adaptation.
- change of flood risk management practices.
- relocation of regional infrastructure, ensuring continued A road and rail transport links connecting Skegness to Horncastle, Mablethorpe, Grantham and Boston.
- relocation / adaptation of key community services and utilities infrastructure.
- research of archaeological features and ecological surveys.
- provision of recreational access to the foreshore.

Area 19: Seacroft to Gibraltar Point



Landscape

D2.190 This area comprises low-lying floodplain with underlying glacial tills (clay). The land seaward of the A52 is at an elevation of 2 to 5 metres ODN. West of the A52 the land is slightly lower, with some parts at sea level and typically 1 to 3 metres ODN. The rear of the floodplain is marked by a ridge of higher ground that starts around 10 kilometres inland. Natural sand dunes comprise the interface between the floodplain and the foreshore and these form a series of dune ridges (typically 5 to 10 metres ODN) interspersed with saltmarsh.

Communities

D2.191 The coastal hinterland has a very low residential density with a few houses in Seacroft (a suburb of Skegness), and a few scattered small rural communities and farms. Set back about 6 kilometres from the coast is the slightly larger village of Wainfleet All Saints, which provides local services and community facilities. There are a number of small rural settlements such as Wainfleet Bank, Wainfleet St Mary, Croft, Thorpe St Peter, and Thorpe Culvert towards the rear of the floodplain. These small settlements have local facilities.

Flood and erosion risk

D2.192 There is potential for coastal flooding for a significant area of the floodplain due to its low elevation relative to sea level. Currently the mature sand dunes and sea banks in the south of the area provide barriers to coastal flooding. The defence provided by the dunes is extended by an earth embankment that extends north-west from the dunes along the north bank of the Steeping River.

Agriculture and industry

- D2.193 This area contains very fertile land and the dominant land use is therefore mainly grade 1 with some grade 2 agricultural land. This land is used for arable farming and this constitutes the main economic activity in this area. There are areas of land farmed under Natural England's Environmental Stewardship scheme, predominantly at Higher Level.

Infrastructure

- D2.194 Infrastructure in this area includes a land drainage pumping station at Burgh Sluice and a main line railway that runs from Skegness to the north of the area to Wainfleet All Saints, and then on to Grantham. The A52 provides a main route to Skegness, and the B1195 links Wainfleet All Saints with the villages to the north and west of the area. The land is drained through a network of drains, many of which feed into the Wainfleet Haven or Steeping River that forms the boundary of this SMP area with the adjacent Wash SMP. It carries run-off from the Lincolnshire Wolds to the west and discharges through a sluice at Gibraltar Point. There are two car parks and a visitor centre at Gibraltar Point, where there is also access to the beach.

Tourism

- D2.195 The aesthetic values of the area attract many visitors and the beach and coastal strip is used by walkers and ornithologists.

Natural environment

- D2.196 The areas of woodland, dunes, saltmarsh and intertidal banks and mudflats provide a diverse range of habitats. The coast is designated as the Gibraltar Point Ramsar site, Special Protection Area, and Special Area of Conservation. The area is also a designated Site of Special Scientific Interest. There is a National Nature Reserve at Gibraltar Point and part of the marshes are a target area for the Lincolnshire Coastal Grazing Marsh Project.

Historic environment

- D2.197 There are many listed buildings within the area, including a Grade 1 listed building at Magdalen College School (now a library) at Wainfleet All Saints. There is a Scheduled Monument at the Medieval Salt workings at Wainfleet Saint Mary. Other significant non-designated assets may also be present in the area. It is also important to note that there are potential issues with as yet unknown archaeological sites on land and also offshore.

Objectives

Flood and erosion risk

- Minimise coastal flood and erosion risk to people and property.
- Make effective use of existing man-made or natural defences.

Communities

- Protect as many settlements as possible.

Natural environment

- Maintain natural processes relating to the mudflats, grazing marshes, saltmarshes and sand dunes.
- Maintain and enhance the mudflats, grazing marshes, saltmarshes and sand dunes if possible.
- Ensure that the impact on the UK's area of internationally designated habitat is acceptable.

Agriculture and industry

- Protect as much grade 1 and 2 agricultural land as possible.
- Ensure that the impact on the UK's area of agricultural land is acceptable.

Tourism

- Maintain and enhance the viability of a diverse tourism economy.

Infrastructure

- Avoid interruption to the functioning of the A52 and rail network.
- Avoid interruption to the functioning of the drainage network including: Cow Bank and Bell Water drains; Burgh Sluice relief channel; the Steeping River; and land drainage pumping stations.
- Avoid interruption to the functioning of pumping stations and other key community services and utilities infrastructure.

Landscape

- To maintain and where possible improve the quality of the coastal landscape.

Coastal processes

- To prevent interruption of coastal processes which supply sediment to other coastlines.

Historic environment

- Minimise damage to designated and significant historic environment assets from erosion and flooding, where possible.
- Ensure coastal defence works do not threaten designated and significant historic environment assets, where possible.

Timing of policy

D2.198 Provide sufficient time if necessary, for:

- community adaptation.
- change of flood risk management practices.

- relocation of regional infrastructure, ensuring continued A road and rail transport links connecting the area to Skegness.
- relocation / adaptation of pumping stations and other key community services and utilities infrastructure.
- research of archaeological features and ecological surveys.
- provision of recreational access to the foreshore.

Socio-economic summary

D2.199 Along the coastal strip of this SMP, there are several coastal towns, villages and individual dwellings. The coast is generally viewed as an attractive place to live and visit. However, there are frequently challenges shared by many coastal communities, as identified in a recent Government report (Communities and Local Government Committee, 2007):

- Physical and social isolation;
- High proportions of older people together with higher levels of outward migration among young people;
- Low-wage, low-skill economies and seasonality of employment;
- Frequent dependency on a single industry; and
- A high incidence of poor housing conditions and a high proportion of private rented homes.

D2.200 The Indices of Multiple Deprivation 2007 are the Government's official measure of multiple deprivation at the small area level. The indices combine a number of indicators, chosen to cover a range of economic, social and housing issues, into a single deprivation score for each small area in England. This allows each area to be ranked relative to one another according to their level of deprivation. The Index of Multiple Deprivation maps deprivation across England by super output area, taking into account the following socio-economic criteria:

- Living environment;
- Crime;
- Barriers to housing and services;
- Education and skills;
- Health;
- Employment; and
- Income.

Areas 1 to 11: Flamborough Head to Stone Creek

D2.201 Policy approaches for the Coastal sub-area of the East Riding are set out in the Yorkshire and Humber Plan: Regional Spatial Strategy (published in 2008). The Regional Spatial Strategy will focus new development on the Scarborough urban area (north of the SMP boundary), with supporting growth at Bridlington.

D2.202 Bridlington is identified as a Principal Town with Hornsea and Withernsea identified as Local Service Centres. Withernsea is also identified as having particular needs for wide ranging regeneration due to its declining economy and relatively high unemployment and deprivation levels. The Regional Spatial Strategy identifies that risks from flooding, erosion and landslip along the coast should be avoided through roll-back approaches (i.e. moving development back away from the coastline) to relocate existing uses.

D2.203 Within the East Riding, deprivation has become more focused on certain areas of the coastline – Bridlington, south of Bridlington and Withernsea/Welwick. In the East Riding, the areas with

the worst health records are also found in Bridlington. Within the East Riding it is clear that deprivation is concentrated along much of the length of coast line, although deprivation does not reach the extreme levels that it does in the other authorities.

Areas 12 to 13b: East Immingham to Humberston Fitties

- D2.204 Policy approaches for the Humber Estuary sub-area are set out in the Yorkshire and Humber Plan: Regional Spatial Strategy (published in 2008). Grimsby and Cleethorpes are identified as Sub Regional Towns.
- D2.205 North East Lincolnshire Council's Annual Monitoring Report for 2008 states that chemical industry, manufacturing, port activities and food processing have formed the main economic base of North East Lincolnshire since the decline of the fishing industry. In particular, the recent history of Grimsby is tied to the development of its ports and docks. Grimsby's economy has suffered from industrial decline and restructuring and economic indicators show falling performance in recent years.
- D2.206 In parts of Grimsby there are serious levels of social and economic deprivation, high crime levels, fuel poverty, poor health and unemployment. In Grimsby as a whole there is a need to improve the activity levels and skills of the potential workforce. There are low levels of employment growth and participation, and so employment growth and diversification, especially of service jobs must be pursued.
- D2.207 There is a substantial amount of land to facilitate growth and rejuvenate former employment sites in the urban area and regenerate key sites including the Grimsby Fish Docks. The role of Cleethorpes as a focus for tourism will be supported whilst recognising the attraction of the waterfront for residential development, and the estuary as internationally significant habitat.
- D2.208 Southeast of Grimsby are the towns of Humberston Waltham and New Waltham, all of which are closely associated with the Grimsby/Cleethorpes conurbation.
- D2.209 The Yorkshire and Humber Plan: Regional Spatial Strategy states that there have been historic population losses from Grimsby to surrounding areas (although not to the same extent as Hull), which should be arrested by a range of urban regeneration and other policy approaches. The Regional Spatial Strategy promotes strengthening the role of Grimsby/Cleethorpes as a 'Sub-Regional Town', particularly through town centre renaissance and housing renewal and growth. In particular the Regional Spatial Strategy seeks to:
- Foster value-added port-related activities,
 - Encourage growth and diversification, particularly the development of a stronger service sector,
 - Enhance the tourism offer and attraction of Cleethorpes.
- D2.210 The Humber area suffers from a significant degree of polarisation in terms of social and economic characteristics and this is reflected in the diverse physical condition of, and market demand for housing. Grimsby has smaller and less intense concentrations of housing stress than Hull, but none the less Renaissance Programmes are underway. There are also areas of strong market pressure and affordability issues, although these areas tend to be south of Grimsby/Cleethorpes, away from the estuary.

- D2.211 The emerging Local Development Framework for North East Lincolnshire is likely to have a focus on developing and improving vital and viable town centres. This will involve focusing retail development on the town centres of Grimsby, Cleethorpes and Immingham to strengthen their retail offer, and where appropriate bring about regeneration; securing high quality developments. This should be driven by the 'Renaissance Programme', which links priorities for housing with community and regeneration objectives, seeking to build sustainable high quality communities.
- D2.212 Within North East Lincolnshire there are five Super Output Areas that rank within the 200 most deprived Super Output Areas in the country in terms of Index of Multiple Deprivation. The most deprived four are located close to each other in central Grimsby, relatively near to the docks. In North East Lincolnshire, poor health is focused in Central Grimsby. However, Grimsby does not suffer from poor health to the same degree that it does with deprivation more generally, with only two Super Output Areas within the worst 1,000 Super Output Areas nationally in terms of health.

Areas 14 to 19: South of Humberston Fitties to Gibraltar Point

- D2.213 In East Lindsey there are small but significant pockets of social deprivation in parts of the District, particularly along the coast, which are among the most deprived in the East Midlands. There is a larger proportion of older people living in East Lindsey than the national norm and a large number of people with longstanding health conditions or disabilities retire to this area, often on relatively low fixed incomes.
- D2.214 Skegness remains one of the UK's premier seaside towns. Holiday centres along the coast such as Skegness and Mablethorpe provide employment, although much of it is seasonal. However Skegness and Mablethorpe also contain concentrated areas of deprivation, which should continue to be addressed by regeneration initiatives as a priority. Within the Eastern Sub-Area, Skegness and Mablethorpe are earmarked for regeneration by the Regional Spatial Strategy.
- D2.215 Deprivation appears to have become more focused and more severe in parts of East Lindsey (in and around Skegness and Mablethorpe). In East Lindsey poor health is very much associated with settlements along the coast in a similar way to deprivation more generally.

Offshore activity

- D2.216 There are currently two offshore wind farms under construction along the SMP coastline; Inner Dowsing and Lynn, offshore of Skegness. The Inner Dowsing and Lynn windfarms will each have 27 turbines with an output of 90MW. There are also a number of planned and/or proposed offshore wind farms (including the Westernmost Rough, Humber Gateway and Lincolnshire windfarms as well as a number of windfarms further offshore), which may require on-shore facilities along the coastline. Existing power generation infrastructure on the south bank of the Humber is a particular attraction for further wind turbine development. However, care needs to be taken to protect this area from over-development of wind turbines to the detriment of the area's character and amenity.
- D2.217 There are eight areas licensed for marine sand and aggregate extraction; the most northerly area is offshore of Easington and the most southerly area offshore of Chapel St Leonards. The Yorkshire and Humber Plan: Regional Spatial Strategy highlights that it is important to consider offshore sand and gravel extraction, which may have adverse marine environmental impacts.

The East Midlands Biodiversity Strategy highlights that aggregate extraction could affect the seabed topography as well as increasing turbidity. This could disturb the benthic communities and possibly lead to a reduction in species diversity and loss of communities of marine species.

D3 Glossary

Term	Definition
Accretion	The addition of newly deposited sediment leading to a relative rise in elevation of a beach or surface.
Adaptation	The need for a community or habitat to modify the way it functions in response to a changing environment.
Agricultural land classification	An assessment that provides an indication of the quality of agricultural land as a grade from 1 (best quality) to 5 (poorest quality). The classification system is the responsibility of Defra.
Appropriate Assessment (AA)	An Appropriate Assessment is required to comply with the requirements of the EU Habitats Directive for land use plans that are likely to have a significant effect on a Natura 2000 site.
Baseline scenarios	Concept used in developing a SMP to illustrate the role of shoreline management by assessing the effect of two contrasting management approaches – ‘no active intervention’ and ‘with present management’ – for all frontages and all epochs.
Bathymetry	Describes the sea bed levels and the changes in depth.
Beach nourishment	Artificial process of replenishing the beach with material from another source.
Beach recycling	Artificial process of replenishing a beach by taking surplus sand from one part of the coastline to recharge depleted areas.
Benefits (related to issue)	The service that a feature provides. In other words, why people value or use a feature. For example, a nature reserve, as well as helping to preserve biodiversity and meet national legislation, may also provide a recreation outlet much like a sports centre provides a recreation function.
Benefit-cost ratio	This is the ratio between the value of the benefits that a section of defence protects and the cost of maintaining that defence over the period of the SMP. This is used to assess the economic viability of a proposed policy.
Biodiversity Action Plan	This sets out a programme for conserving the UK’s biodiversity through targets for a range of specific habitats with the aim of reducing loss of biodiversity.
Breaker zone	Area in the sea where incoming waves begin to break.
Climate change	Long-term change in the patterns of average weather. Its relevance to shoreline management concerns its effect on sea levels, current patterns and storminess.
Coastal squeeze	The reduction in habitat area that can arise if the natural landward migration of a habitat due to sea level rise is prevented by the fixing of the high water mark, for example by sea wall.
Condition grade	Indicator based on visual inspection of defence condition ranging from condition grade 1 (very good) to grade 5 (very poor). Undertaken by the operating authority.
Conservation Areas	Places of special architectural or historic interest deserving special

Term	Definition
	protection which are designated as conservation areas
Department for Environment, Food and Rural Affairs (Defra)	Government department which is responsible for the environment, for food and farming, and for rural matters.
Downdrift	Relates to the movement of beach materials along the shoreline. Places that are downdrift receive an input of sediment from erosion of 'updrift' areas.
Ebb tide	The falling tide, the part of the tidal cycle between high water and the next low water.
Ecosystem	Organisation of the biological community and the physical environment in a specific geographical area.
Environmental impact assessment	Detailed studies that predict the effects of a development project on the environment. They also provide plans for mitigating any significant environmental effects.
Epoch	A period of time. For SMPs, three epochs are defined: Epoch 1: present day to 2025 Epoch 2: 2025 to 2055 Epoch 3: 2055 to 2105
Erosion	The process of removing sediment from the cliff or beach.
EU Bathing Water Directive	The aim of this directive is to protect public health and the environment from faecal pollution at bathing waters. It sets a number of microbiological and physico-chemical standards that bathing waters must either comply with ('mandatory' standards) or endeavour to meet ('guideline' standards).
EU Birds Directive	European legislation on the conservation of birds.
EU Habitats Directive	European legislation on the conservation of habitats.
European Annex 1 priority habitats	Annex 1 of the European Habitats Directive defines certain habitats as being a priority because they are considered to be particularly vulnerable. Examples within this SMP area include coastal lagoons and 'grey dunes'.
Feature	Something tangible that provides a service to society in one form or another or, more simply, benefits certain aspects of society by its very existence. Usually this will be in a specific place and relevant to the SMP.
Flood tide	Rising tide, part of the tidal cycle between low water and the next high water.
Foreshore	Zone on the beach between the high water and low water marks.
Gabion	A cage filled with rock used to stabilise the shoreline against erosion.
Geomorphology	The branch of physical geography/geology that deals with the form of the Earth, the general configuration of its surface, the distribution of the land, water etc.
Groyne	Coast protection structure built perpendicular to the shoreline and designed to trap sediment (shingle, sand and mud).
Heritage Coast	A non-statutory designation by Natural England for coasts of scenic quality, their largely undeveloped nature and their special wildlife and

Term	Definition
	historic interest. Local authorities assist with the management of Heritage Coasts.
Hinterland	Generally, used to refer to the area landward of the shoreline that is influenced in some way by the coast/sea.
Indicators	Used to support the appraisal of policies against criteria.
Intent of management	A vision for the future of shoreline management along a certain frontage for all epochs. This vision is then translated to specific policies for the purpose of management.
Intertidal	The area between high and low tide.
Imperative Reasons of Overriding Public Interest (IROPI)	Reasons where the interests of a Natura 2000 site are overridden by other concerns – listed in the Habitat Regulations.
Listed building	A building or other structure officially designated as being of special architectural, historical or cultural significance.
Local Development Framework (LDF)	A collection of local development documents that outline how a local authority will manage planning in their area.
Local nature reserves	A statutory designation for sites established by local authorities in consultation with Natural England. These sites are generally of local significance and also provide important opportunities for public enjoyment and recreation.
Longshore transport/ drift	The natural transport of beach material along the coast.
Maintain	That the value of a feature is not allowed to deteriorate
Mean sea level	Average height of the sea surface over a 19-year period.
Mean high water	The average level of all high waters observed over a sufficiently long period.
Mean low water	The average level of all low waters observed over a sufficiently long period.
Mudflat	Low-lying muddy land that is covered at high tide and exposed at low tide.
National Flood and Coastal Defence Database (NFCDD)	National database for managing flood risk management asset data.
National property dataset	GIS dataset that provides information on the location and type of properties in England and Wales. This includes the value of properties based on 2005 values.
National nature reserves	These represent some of the most important natural and semi-natural ecosystems in Great Britain and are managed to protect the conservation value of the habitats that occur on these sites. These are a statutory designation by Natural England.
Natura 2000	A term used commonly to refer to Special Protection Areas and Special Areas of Conservation.
Objective	A desired state to be achieved in the future. An objective is set, through consultation with key parties, to encourage the resolution of an issue or a range of issues.
Offshore zone	Extends from the low water mark seawards.

Term	Definition
Ordnance datum	A baseline elevation used on ordnance survey maps for deriving height. In the UK, this is mean sea level in Newlyn, Cornwall, measured between 1915 and 1921.
Outflanking	The process whereby erosion occurs immediately adjacent to a defended section of coast, eventually resulting in the land behind the defence being eroded from the side.
Policy	In this context, “policy” refers to the generic shoreline management options (no active intervention, hold the existing line of defence, managed realignment and advance the existing line of defence)
Policy Development Zone (PDZ)	A length of coastline defined to assess similar issues and interactions to examine and develop management scenarios. These zones are only used to develop policy.
Present value (PV)	The value of a stream of benefits or costs when discounted back to the present day. For this SMP, the discount factors used are the latest provided by Defra for assessing schemes, that is 3.5% for years 0-30, 3.0% for years 31-75 and 2.5% thereafter.
Principle	High-level statement outlining a goal or vision agreed by partner authorities and used to develop the SMP.
Prograding	When the shoreline is developing and building seaward through accretion.
Ramsar site	Area designated under the Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat, 1971
Rapid Coastal Zone Assessment (RCZA)	Survey of the historic environment assets within the coastal strip being undertaken by English Heritage.
Regional Spatial Strategy (RSS)	A collection of regional development documents that outline how a regional assembly will manage planning in their area.
Registered parks and gardens	Parks and gardens registered for their historic value so they are considered in the planning process. Local planning authorities must consult English Heritage where planning applications may affect these sites.
Residential density	The number of people living in a residential area compared with the total area of residential land.
Residual life	Period of time until a defence has deteriorated to a state in which it no longer performs its function
Rollback	The process by which assets physically move further inland away from the threat of coastal erosion.
Revetment	A structure at the rear of the beach to provide protection to the cliff, dune or hard structure at the rear of the beach.
Scheduled Monument	A statutory designation under the Ancient Monuments and Archaeological Areas Act, 1979.
Sea level rise	Increase in sea levels in relation to land levels.
Sediment cell	A sediment cell is a length of coastline and its nearshore area within which the movement of sand and shingle is largely self-contained.
Sediment transport	The movement of shingle, sand and mud within the coastal zone

Term	Definition
	through the actions of waves, currents, tides and wind.
Shoreline Management Plan	A non-statutory plan that provides a large-scale assessment of the risks associated with coastal processes and presents a policy framework to reduce these risks to people and the developed, historic and natural environment in a sustainable manner.
Site of Special Scientific Interest (SSSI)	An area designated under the Wildlife and Countryside Act, 1981 as representing some of the best examples of Britain's natural features including flora, fauna and geology.
Special Area of Conservation (SAC)	Area designated under the EU Habitats Directive (92/43/EEC) in order to protect habitats or species of European importance.
Special Protection Area (SPA)	Area designated under the EU Birds Directive (79/409/EEC) in order to establish a network of protected areas for birds.
Stakeholder	An organisation or individual affected by or interested in the Flamborough Head to Gibraltar Point Shoreline Management Plan.
Storm surge	A temporary rise in the sea level on an open coast resulting from a storm.
Strategic Environmental Assessment (SEA)	An environmental assessment required by the EU SEA Directive (2001/42/EC) for a range of land use plans and programmes. SEA is not a statutory requirement for Shoreline Management Plans.
Sub-littoral	The area of the seas between the intertidal zone and the edge of the continental shelf.
Sustainable	Meeting the needs of the present generation without compromising the ability of future generations to meet their own needs. In terms of sustainability of coastal defences, this refers to the technical, economic and environmental viability of maintaining a defence line.
Swell	Waves which have travelled into the area after having been generated by winds in other areas. These waves may travel thousands of kilometres from their origin before dying away.
Tidal prism	The volume of water within an estuary between the level of high and low tide, typically taken for mean spring tides.
Tidal flood risk	The risk of flooding associated with the normal and extreme tidal cycles. Flood risk is measured as the probability of flooding (that is, at location X, there is a 1 in 100 or one per cent chance of flooding in any given year) multiplied by the impact or consequences that will result if flooding occurs.
Tide	Periodic rising and falling of the sea resulting from the gravitational attraction of the moon and sun.
Topography	Describes the level or surface of the land and the features of a landscape.
Transgression	The landward movement of the shoreline in response to a rise in sea level.
Water Framework Directive (WFD)	EU water legislation designed to improve and integrate the way water bodies are managed throughout Europe.
Water table	The upper surface of groundwater. Below this level, the soil is

Term	Definition
	saturated with water.

D4 List of Abbreviations and Acronyms

Organisations directly involved in SMP	
EA	Environment Agency
EH	English Heritage
ELDC	East Lindsey District Council
ERYC	East Riding of Yorkshire Council
LCC	Lincolnshire County Council
NE	Natural England
NELC	North East Lincolnshire Council
NFU	National Farmers' Union
RFDC	Regional Flood Defence Committee
External/other organisations	
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
CLG	Communities & Local Government
Defra	Department for Environment, Food and Rural Affairs
EU	European Union
HECAG	Humber Estuary Coastal Authorities Group
IDB	Internal Drainage Board
NECAG	North East Coastal Authorities Group
OS	Ordnance Survey
QRG	Quality Review Group
SMP Groups (Consultation)	
CSG	Client Steering Group
EMF	Elected Members Forum
KSG	Key Stakeholder Group
Plans/Strategies/Studies & Assessments	
AA	Appropriate Assessment
CFMP	Catchment Flood Management Plan
CHaMP	Coastal Habitat Management Plan
HRA	Habitat Regulations Assessment
HFRMS	Humber Flood Risk Management Strategy
ICZM	Integrated Coastal Zone Management
LDF	Local Development Framework
MSfW	Making Space for Water
PPG	Planning Policy Guidance
PPS25	Planning Policy Statement 25
RBMP	River Basin Management Plan
RCZA	Rapid Coastal Zone Assessment
RSS	Regional Spatial Strategy
SEA	Strategic Environmental Assessment
SFRA	Strategic Flood Risk Assessment

SMP	Shoreline Management Plan
SNSSTS	Southern North Sea Sediment Transport Study
UKCP	United Kingdom Climate Programme (formally UKCIP, United Kingdom Climate Impact Programme)
WFD	Water Framework Directive
Special interest sites	
LNR	Local Nature Reserve
NNR	National Nature Reserve
SAC	Special Area of Conservation
SM	Scheduled monument
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
Technical terms	
AOD	Above Ordnance Datum
ATL	Advance the line
BAP	Biodiversity Action Plan
GIS	Geographical Information System
HTL	Hold the line
IROPI	Imperative reasons of overriding public interest
LiDAR	Light detection and ranging
MR	Managed realignment
NAI	No active intervention
NFCDD	National flood and coastal defence database
NPD	National property dataset
ODN	Ordnance datum Newlyn
PDZ	Policy development zone
PU	Policy unit
PV	Present value
SOP	Standard of protection
WPM	With present management

Annex A: Agricultural land classification system

D4.1 In the UK, agricultural land is classified according to its quality using a consistent, country-wide system. This is known as the Agricultural Land Classification system and is the responsibility of Defra. Descriptions of land categories are given below:

- Grade 1 – excellent quality agricultural land: land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown and commonly includes top fruit, soft fruit, salad crops and winter harvested vegetables. Yields are high and less variable than on land of lower quality.
- Grade 2 – very good quality agricultural land: land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.
- Grade 3 - good to moderate quality agricultural land: land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.
 - Subgrade 3a - good quality agricultural land: Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.
 - Subgrade 3b - moderate quality agricultural land: land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.
- Grade 4 - poor quality agricultural land: land with severe limitations which significantly restrict the range of crops and/or level of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops) the yields of which are variable. In moist climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.
- Grade 5 - very poor quality agricultural land: land with very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

Annex B: Internationally and nationally designated sites within the SMP area

Name	Features of interest	Area (hectares)
Flamborough Head SAC	<ul style="list-style-type: none"> • Reefs • Vegetated sea cliffs of the Atlantic and Baltic coasts • Submerged or partially submerged sea caves 	6,312
Flamborough Head SSSI	The site comprises the coastal cliffs of Flamborough Head between Reighton and Sewerby, composed of chalk and softer sedimentary rocks. The cliff line exposes a variety of geological features. These rock exposures are also of interest in supporting important breeding bird colonies, whilst the cliff tops support interesting plant communities.	315
Flamborough Head and Bempton Cliffs SPA	<p>This site qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:</p> <p>During the breeding season;</p> <ul style="list-style-type: none"> • Kittiwake <i>Rissa tridactyla</i> <p>Assemblage qualification: A seabird assemblage of international importance</p> <p>The area qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 seabirds: During the breeding season, the area regularly supports 305,784 individual seabirds</p>	212
Skipsea Bail Mere SSSI	<p>Skipsea Mere Bail consists of an area of agricultural land lying immediately north west of the village of Skipsea. The interest lies in the lake deposits underlying below the fields and can be accessed by auger or borehole.</p> <p>Skipsea Bail Mere is important for the interpretation of the vegetational history of the northern part of the Holderness coastal plain. The organic deposits which have infilled the basin contain a pollen and macrofaunal record that extends from the Devensian Late Glacial (around 13 Ka BP) through to historic times.</p>	44
Withow Gap, Skipsea SSSI	Withow Gap, Skipsea is an important site for the interpretation of Late Devensian (glacial) and Flandrian (post-glacial) environmental history in Holderness. The unique feature of the site is the exposure in a coastal section of a sequence of mere deposits which occupies a hollow in the Late Devensian (Skipsea) till. This provides an unusual opportunity to see the complete stratigraphy, its lateral variations and the complexity of the geomorphological processes that operated at the former lake margin. Both the coastal section and the subsurface aspects of the hollow inland are invaluable for research and education, and the site has yielded a considerable volume of palaeoenvironmental data from studies of pollen, plant macrofossils, molluscs and lithostratigraphy.	8

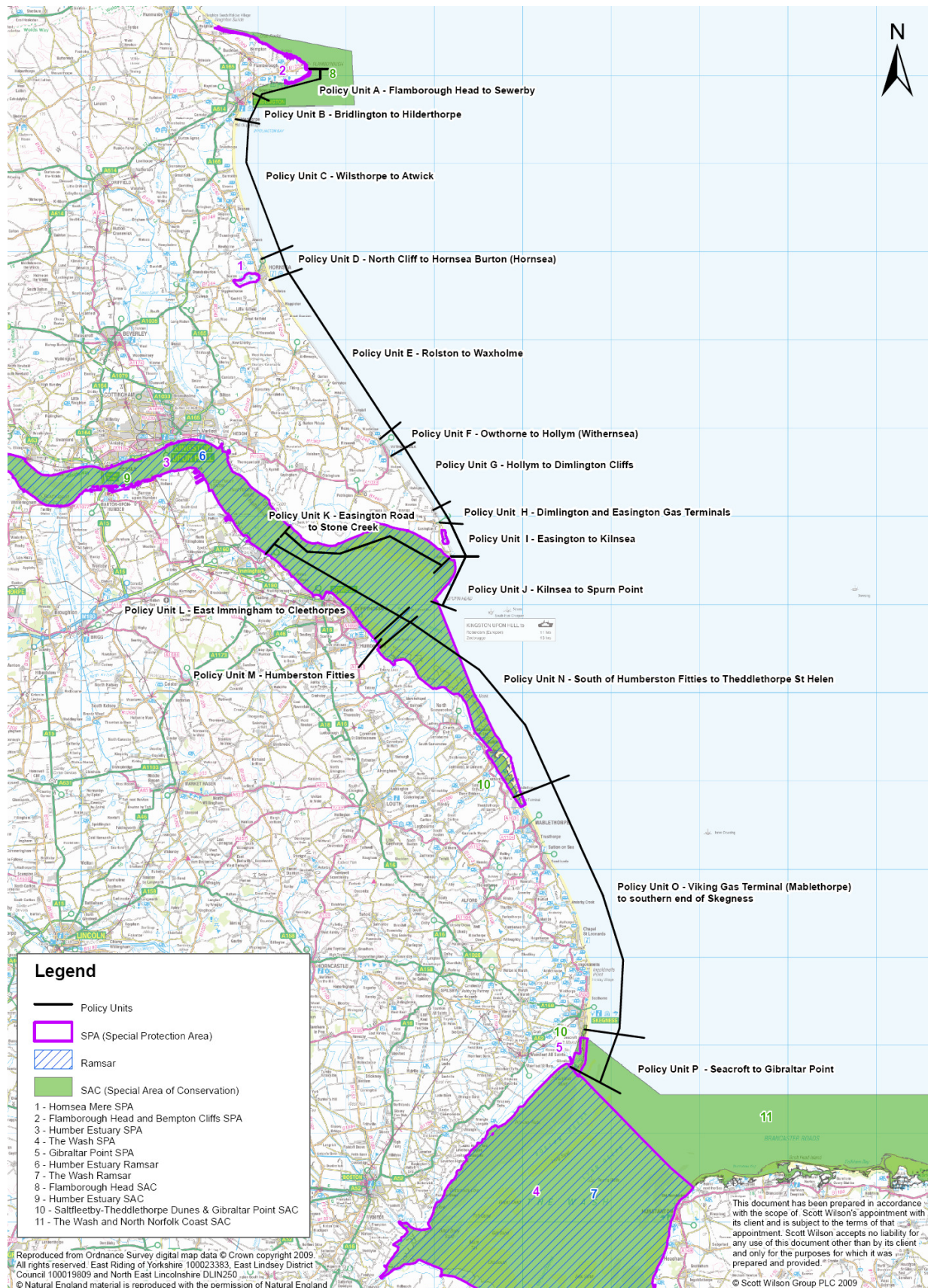
Name	Features of interest	Area (hectares)
Hornsea Mere SPA	<p>This site qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:</p> <p>Over winter;</p> <ul style="list-style-type: none"> Gadwall <i>Anas strepera</i>, 300 individuals representing at least 1.0% of the wintering Northwestern Europe population (5 year peak mean 1991/2 - 1995/6) 	231
Hornsea Mere SSSI	<p>Hornsea Mere is a site of national ornithological importance. It consists of a large shallow eutrophic lake of about 120 hectares (300 acres), together with its associated habitats of reedswamp, fen and carr woodland, representing a relic of the once-extensive marshes and lakes of Holderness.</p>	230
Dimlington Cliffs SSSI	<p>Dimlington is a key site for Quaternary stratigraphy. Organic remains in the Dimlington Silts provide not only a good record of palaeoenvironmental conditions but also a limiting date for the maximum expansion of Late Devensian ice. Dimlington also provides valuable exposures in the Basement Till which includes Scottish and Scandinavian erratics and masses of fossiliferous Bridlington Crag transported from the floor of the North Sea. The site also provides sedimentary evidence for the superimposition of two till units associated with a single ice sheet.</p>	55
The Lagoons SSSI	<p>The site known as the Lagoons is situated on the Holderness coast some 2 kilometres north of Spurn peninsula and south-west of Easington village. It comprises a variety of coastal habitats including saltmarsh, shingle, sand dune, swamp and most significantly, saline lagoons and pools which represent the only extant example in North Humberside of this nationally rare habitat.</p>	68
Spurn NNR	<p>Spurn NNR has sandy beaches and the North Sea on its eastern side, and areas of saltmarsh and extensive mudflats on its western side, the latter attracting thousands of birds. Spurn NNR is owned and managed by the Yorkshire Wildlife Trust.</p>	296
Humber Estuary SAC	<ul style="list-style-type: none"> Estuaries Mudflats and sandflats not covered by seawater at low tide Sandbanks which are slightly covered by sea water all the time Coastal lagoons * Priority feature <i>Salicornia</i> and other annuals colonising mud and sand Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) Embryonic shifting dunes Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ('white dunes') Fixed dunes with herbaceous vegetation ('grey dunes') * Priority feature Dunes with <i>Hippophae rhamnoides</i> Sea lamprey <i>Petromyzon marinus</i> River lamprey <i>Lampetra fluviatilis</i> Grey seal <i>Halichoerus grypus</i> 	36,657

Name	Features of interest	Area (hectares)
Humber Estuary SPA	<p>This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:</p> <p>During the breeding season;</p> <ul style="list-style-type: none"> • Little Tern <i>Sterna albifrons</i> • Marsh Harrier <i>Circus aeruginosus</i> • Bittern <i>Botaurus stellaris</i> • Avocet <i>Recurvirostra avosetta</i> <p>Over winter;</p> <ul style="list-style-type: none"> • Bar-tailed Godwit <i>Limosa lapponica</i> • Bittern <i>Botaurus stellaris</i> • Golden Plover <i>Pluvialis apricaria</i> • Hen Harrier <i>Circus cyaneus</i> • Avocet <i>Recurvirostra avosetta</i> <p>This site also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:</p> <p>On passage;</p> <ul style="list-style-type: none"> • Redshank <i>Tringa totanus</i> • Dunlin <i>Calidris alpina alpina</i> • Red knot <i>Calidris canutus</i> • Black-tailed Godwit <i>Limosa limosa islandica</i> • Ruff <i>Philomachus pugnax</i> <p>Over winter;</p> <ul style="list-style-type: none"> • Dunlin <i>Calidris alpina alpina</i> • Knot <i>Calidris canutus</i> • Redshank <i>Tringa totanus</i> • Shelduck <i>Tadorna tadorna</i> • Black-tailed Godwit <i>Limosa limosa islandica</i> <p>Assemblage qualification: A wetland of international importance.</p> <p>The area qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl: Over winter, the area regularly supports 187,617 individual waterfowl (5 year peak mean 1991/2 - 1995/6)</p>	37,630

Name	Features of interest	Area (hectares)
Humber Estuary Ramsar	<ul style="list-style-type: none"> • Assemblages of international importance and species/populations occurring at levels of international importance <p>In addition to the birds:</p> <ul style="list-style-type: none"> • The site is a representative example of a near-natural estuary with the following component habitats: dune systems and humid dune slacks, estuarine waters, intertidal mud and sand flats, saltmarshes, and coastal brackish/saline lagoons. • The Humber Estuary Ramsar site supports a breeding colony of grey seals <i>Halichoerus grypus</i> at Donna Nook. It is the second largest grey seal colony in England and the furthest south regular breeding site on the east coast. The dune slacks at Saltfleetby-Theddlethorpe on the southern extremity of the Ramsar site are the most north-easterly breeding site in Great Britain of the natterjack toad <i>Bufo calamita</i>. • The Humber Estuary acts as an important migration route for both river lamprey <i>Lampetra fluviatilis</i> and sea lamprey <i>Petromyzon marinus</i> between coastal waters and their spawning areas. 	37,988
Humber Estuary SSSI	<p>The Humber Estuary is a nationally important site with a series of nationally important habitats. These are the estuary itself (with its component habitats of intertidal mudflats and sandflats and coastal saltmarsh) and the associated saline lagoons, sand dunes and standing waters. The site is also of national importance for the geological interest at South Ferriby Cliff (Late Pleistocene sediments) and for the coastal geomorphology of Spurn. The estuary supports nationally important numbers of 22 wintering waterfowl and nine passage waders, and a nationally important assemblage of breeding birds of lowland open waters and their margins. It is also nationally important for a breeding colony of grey seals <i>Halichoerus grypus</i>, river lamprey <i>Lampetra fluviatilis</i> and sea lamprey <i>Petromyzon marinus</i>, a vascular plant assemblage and an invertebrate assemblage.</p>	37,000
Donna Nook NNR	<p>Donna Nook NNR is made up of dunes, slacks, saltmarsh and inter-tidal areas. The area is rich in bird life. In summer, breeding dune birds include red-legged partridge, dunnoek, whitethroat, linnet, skylark, yellowhammer and tree sparrow; while the mudflats provide a winter home for substantial numbers of brent geese, shelduck, twite, lapland bunting, shore lark, knot and dunlin, and a wide variety of other wading birds. In addition, Donna Nook has one of the largest and most accessible breeding colonies of grey seals in the UK. Donna Nook NNR is owned by the Ministry of Defence and managed by the Lincolnshire Wildlife Trust.</p>	341
Saltfleetby – Theddlethorpe Dunes and Gibraltar Point SAC	<ul style="list-style-type: none"> • Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (‘white dunes’) • Fixed dunes with herbaceous vegetation (‘grey dunes’) * Priority feature • Dunes with <i>Hippophae rhamnoides</i> • Humid dune slacks • Embryonic shifting dunes 	960

Name	Features of interest	Area (hectares)
Saltfleetby – Theddlethorpe Dunes SSSI	This nationally important site includes flats, dunes, salt and freshwater marsh which together support an exceptionally rich flora and fauna. There are outstanding assemblages of vascular plants, invertebrates and breeding birds and it is the most north-easterly breeding site in Britain for the Natterjack Toad. The rapid accretion of dunes and saltmarsh make this an important site for research into the processes of coastal development.	952
Saltfleetby – Theddlethorpe NNR	The dunes began forming in the 13th century, and the same processes of wind and tidal action continues dune formation on the site today. The dunes support a variety of flowers and grasses while saltmarsh and freshwater marsh areas are home to a wide variety of insects, amphibians, birds and mammals.	952
Chapel Point – Wolla Bank SSSI	Chapel Point-Wolla Bank is a nationally important geological site for its inter-tidal sediments, which record the evidence of early Holocene sea level change.	40
Sea Bank Clay Pits SSSI	The Sea Bank Clay Pits comprise a series of isolated flooded clay workings of varying size, depth and topography which now support uncommon aquatic plant communities characteristic of the slightly brackish, eutrophic (nutrient-rich) water in addition to extensive reedbeds and a rich marginal wetland flora. The pits were excavated in 1953 to provide material for the repair of the sea wall between Mablethorpe and Chapel St. Leonards on the Lincolnshire Coast. The pits are also important for breeding, wintering and passage birds. They are known to support a rich aquatic invertebrate fauna, notably beetles, including several nationally scarce species and others new to the County.	17
Gibraltar Point SPA	<p>This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:</p> <p>During the breeding season;</p> <ul style="list-style-type: none"> • Little Tern <i>Sterna albifrons</i> <p>Over winter;</p> <ul style="list-style-type: none"> • Bar-tailed Godwit <i>Limosa lapponica</i> <p>This site also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:</p> <p>Over winter;</p> <ul style="list-style-type: none"> • Grey Plover <i>Pluvialis squatarola</i> • Knot <i>Calidris canutus</i> <p>Assemblage qualification: A wetland of international importance.</p> <p>The area qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl: Over winter, the area regularly supports 22,137 individual waterfowl (5 year peak mean 1991/2 - 1995/6)</p>	414

Name	Features of interest	Area (hectares)
Gibraltar Point Ramsar	The area consists of a sand dunes system, freshwater and saltmarsh, extensive intertidal flats, and open water. The vegetation includes sedges (<i>Carex spp</i>), rushes, ferns, crowfoot, reed, sea holly, and sea campion. It supports <i>Pluvialis squatarola</i> (1.2% of the population), <i>Limosa lapponica</i> (0.6% of the population), and <i>Branta bernicla bernicla</i> (0.3% of the population). The site is used for recreation and grazing.	414
Gibraltar Point SSSI	This is a nationally important site due to its sand dunes and other coastal habitats and associated fauna, notably invertebrates and passage and breeding birds. Gibraltar Point is also of great importance for its coastal geomorphology.	581
Gibraltar Point NNR	The NNR forms the north-eastern extremity and entrance to the Wash estuary and has been built by complex tidal and geomorphological processes. Most of the reserve is intertidal flats and saltmarsh. There are areas of freshwater marsh and man-made fresh and salty water meres. Large numbers of migrant and overwintering birds visit the NNR. Gibraltar Point NNR is owned and managed by the Lincolnshire Wildlife Trust.	429



Annex C: Historic environment designations

D4.2 English Heritage is undertaking a Rapid Coastal Zone Assessment to provide increased knowledge of the historic coastal environment. Stage 1 of the project has been completed for the Yorkshire and Lincolnshire areas and this information has informed the SMP. Stage 1 of the Rapid Coastal Zone Assessment for Yorkshire and Lincolnshire can be downloaded from: <http://www.english-heritage.org.uk/server/show/nav.18389>

D4.3 There are a considerable number of historic environment assets along the coastal strip including Scheduled Monuments, Listed Buildings, Parks and Gardens and Conservation Areas. There are no World Heritage Sites or Registered Battlefields within the area covered by the SMP. The historic environment designations are listed below:

- **Scheduled monument:** Scheduled monuments are designated and added to a 'Schedule' by the Secretary of State under powers contained in the Ancient Monuments and Archaeological Areas Act, 1979. Scheduling refers to the legal system for protecting nationally important archaeological sites in England. There are approximately 19,500 scheduled monuments in England.
- **Listed building:** A building or other structure that is officially designated by English Heritage as being of special architectural and historic interest. Listed building status brings the structure under the consideration of the planning system. There are approximately 372,900 listed buildings in England.
- **Registered parks and gardens:** Since the 1980s there has been a national record of historic parks and gardens which make such a rich and varied contribution to our landscape, maintained by English Heritage. There are approximately 1,500 registered parks and gardens.
- **Registered historic battlefield:** There are nearly 50 important English battlefields identified on the Register of Historic Battlefields maintained by English Heritage.
- **World Heritage Site:** There are nearly 900 World Heritage sites across the world, including just under 30 in the UK. World Heritage sites are places of outstanding universal value to all humanity and are of importance for the conservation of mankind's cultural and natural heritage.
- **Conservation area:** Conservation areas are designated by local authorities as any area of special architectural or historic interest whose character or appearance is worth protecting or enhancing. There are over 8,000 conservation areas in England.