

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

Appendix K - Water Framework Directive Assessment

Final

December 2010



Prepared for

Humber Estuary Coastal Authorities Group

Revision Schedule

Flamborough Head to Gibraltar Point Shoreline Management Plan Appendix K - Water Framework Directive

December 2010

Rev	Date	Details	Prepared by	Reviewed by	Approved by
CD1	2 November 2009	Consultation Draft	Clare Postlethwaite Consultant Laura Mitchell Engineer	David Dales Director	David Dales Director
F1	20 December 2010	Final	Clare Postlethwaite Consultant Laura Evans Engineer	Dr John Pos Associate	David Dales Director

This document has been prepared in accordance with the scope of Scott Wilson's appointment with its client and is subject to the terms of that appointment. It is addressed to and for the sole and confidential use and reliance of Scott Wilson's client. Scott Wilson accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided. No person other than the client may copy (in whole or in part) use or rely on the contents of this document, without the prior written permission of the Company Secretary of Scott Wilson Ltd. Any advice, opinions, or recommendations within this document should be read and relied upon only in the context of the document as a whole. The contents of this document do not provide legal or tax advice or opinion.

© Scott Wilson Ltd 2010

Scott Wilson
Scott House
Alençon Link
Basingstoke
Hampshire
RG21 7PP

Tel 01256 310 200
Fax 01256 310 201

www.scottwilson.com

Glossary

Term	Definition
Abrasion	Erosion by friction caused by waves.
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.
Angiosperms	Flowering plants.
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.
Beach nourishment	Artificial process of replenishing the beach with material from another source.
Benthic	Region at the lowest level of the sea, including the sediment surface and some sub-surface layers.
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.
Biological Quality Element	Measurable factors that give an indication of the overall health of a waterbody.
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.
Department for Environment, Food and Rural Affairs (Defra)	Government department which is responsible for the environment, for food and farming, and for rural matters.
Diatoms	A common type of phytoplankton (see below) used as an indicator of water quality.
Ecosystem	Organisation of the biological community and the physical environment in a specific geographical area.
Environment Agency	A non-departmental Public Body responsible to the Secretary of State for Environment, Food and Rural Affairs which aims to protect and improve the environment, and to promote sustainable development.
Environmental 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

Term	Definition
	Epoch 3: 2055 to 2105
Episodicity of flows and inundation	The frequency and duration with which plants and animals living on the shoreline are covered by seawater.
Erosion	The process of removing sediment from the cliff or beach.
EU Birds Directive	European legislation on the conservation of birds.
EU Habitats Directive	European legislation on the conservation of habitats.
Foreshore	Zone on the beach between the high water and low water marks.
Freshwater/saltwater interface	The point where a stream or river flows into the sea and freshwater and seawater mix.
Good ecological status	The objective for a surface water body to have biological, structural and chemical characteristics similar to those expected under nearly undisturbed conditions.
Good ecological potential	Those surface waters which are identified as Heavily Modified Water Bodies and Artificial Water Bodies must achieve 'good ecological potential' (good potential is a recognition that changes to morphology may make good ecological status very difficult to meet). In the first cycle of river basin planning good potential may be defined in relation to the mitigation measures required to achieve it.
Groundwater	Water that exists beneath the ground surface in underground streams and aquifers.
Groundwater connectivity	The connection which can exist between groundwater and surface waters.
Intertidal	The area between high and low tide.
Inundation	The horizontal extent of flooding from the sea.
Invertebrate	An animal which does not possess a backbone.
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.
Macroalgae	Seaweeds.
Macroinvertebrate	Invertebrates which are visible to the human eye without the aid of a microscope.
Macrophyte	An aquatic plant that grows in or near water.
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.

Term	Definition
Mitigation	Practical measures taken to offset the impact of a policy.
Mudflat	Low-lying muddy land that is covered at high tide and exposed at low tide.
National nature reserves	A statutory designation by Natural England. 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.
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.
Phytobenthos	Aquatic plants living at or near the bottom of the sea.
Phytoplankton	Microscopic plant-like animals which live in seawater.
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).
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.
Riparian	Related to the bank of a river or stream.
(draft) River Basin Management Plan	The plans for protecting and improving the water environment under the Water Framework Directive, which lay out the environmental targets for waterbodies (see below).
Salinity	The amount of salt dissolved in water.
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 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

Term	Definition
	natural features including flora, fauna and geology.
Source Protection Zone	An area of land around a borehole in which activities are restricted by the Environment Agency, to protect the quality of the abstracted water.
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.
Sub-littoral	The area of the seas between the intertidal zone and the edge of the continental shelf.
Substrate	The material that rests at the bottom of the sea or waterbody, on which plants and animals grow.
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.
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 acting on the rotating earth.
Topography	Describes the level or surface of the land and the features of a landscape.
Turbidity	Cloudiness of water created by stirring up sediment
Water Framework Directive (WFD)	EU water legislation designed to improve and integrate the way water bodies are managed throughout Europe.
RBMP Waterbody	The RBMP dives all watercourses into management units known as waterbodies; the coastline is similarly divided into sections or waterbodies. These may be rivers, lakes, transitional or coastal waters.
Water table	The upper surface of groundwater. Below this level, the soil is saturated with water.

Table of Contents

K1	Introduction.....	6
	Purpose of report.....	6
	Background.....	6
K2	Assessment Methodology.....	15
K3	Stage 1 – Data collection	16
K4	Stage 2 - Definition of WFD features and issues	22
K5	Stage 3 - Assessment of preferred SMP policies against WFD environmental objectives.....	27
K6	Stage 4 - Completion of WFD summary statement	44
K7	Conclusion	54
K8	References	55
	Abbreviations.....	56
	Annex A – Water bodies	57
	Annex B – Figures	63
	Figure 1 – SMP Policy Units.....	64
	Figure 2 – Flood Zones.....	65
	Figure 3 – River Basin Management Plan water bodies	66
	Figure 4 – European designated sites.....	67
	Annex C – Objectives and standards for relevant Natura 2000 sites (from River Basin Management Plans)	68

K1 Introduction

Purpose of report

- K1.1 The HECAG Shoreline Management Plan (SMP) covers the stretch of coastline from Flamborough Head in Yorkshire to Gibraltar Point in Lincolnshire (including the outer Humber Estuary) in order to ensure that the coastal processes, human and environmental issues are assessed on a sufficiently broad scale to allow coherent and sustainable shoreline management policies to be recommended for the next 100 years.
- K1.2 As a part of the SMP, an assessment of the implications of the Water Framework Directive (WFD) Regulations (2003) is required. The requirements of the WFD need to be considered at all stages of the coastal planning process, by reference to the River Basin Management Plans (RBMPs), which are the primary delivery mechanism for the WFD.

Background

- K1.3 This SMP has been developed for the area of coast extending from the northern limit of Flamborough Head, Yorkshire to Gibraltar Point, Lincolnshire, referred to as 'the SMP area'. This area covers a highly dynamic coastline with a great diversity of land use and environments.
- K1.4 There are varied and complicated issues; in summary, the Holderness cliffs (in the northern section of the SMP area) are composed of glacial till (clay) and are actively eroding through repeated landslide activity. Erosion rates are high with average recession of the order of 2 metres per year along much of the cliffline. The cliffline is sub-divided into a series of sub-units by lengths of coast protection works (e.g. at Bridlington, Hornsea, Mappleton, Withernsea and Easington). Further south, the tidal floodplain of the Humber includes some of the most productive agricultural land in the UK as well as major concentrations of industrial and commercial properties. Within the Humber area, there are extensive environmental designations reflecting the ecological importance of the Humber Estuary. Within East Lindsey, coastal defences protect extensive areas of low-lying land which are potentially at risk of tidal flooding. The Environment Agency undertakes the Lincshore scheme which artificially nourishes a 24 kilometre stretch of coastline between Mablethorpe and Skegness. Due to the presence of human settlement at the coastal fringe there are many conflicting local issues and objectives.

Shoreline Management Plans

- K1.5 Long term sustainability underpins the policies of the SMP. To encourage this, the SMP considers management requirements and policy setting for three epochs:
- Epoch 1, short-term (present day – year 2025);
 - Epoch 2, medium-term (year 2025 – 2055 years); and
 - Epoch 3, long-term (year 2055 – 2105).
- K1.6 The generic shoreline management policies considered are those defined by the Department for Environment, Food and Rural Affairs (Defra) in their SMP guidance published in 2006 (References 4 and 5). They are defined as:

-
- No Active Intervention (NAI): a decision not to invest in providing or maintaining defences.
 - Hold the Line (HTL): hold the existing defence line. This policy will cover those situations where work or operations are carried out on the existing defences (such as beach recharge, rebuilding the toe of a structure, building offshore breakwaters and so on). Included in this policy are other policies that involve operations to the back of existing defences (such as building secondary floodwalls) where they form an essential part of maintaining the current coastal defence system.
 - Advance the Line (ATL): advance the existing defence line by building new defences on the seaward side of the original defences. Using this policy should be limited to those policy units where significant land reclamation is considered.
 - Managed Realignment (MR): managed realignment by allowing the shoreline to move backwards, with management to control or limit movement (such as building new defences on the landward side of the original defences).
- K1.7 Where flood risk is an issue, management policies which explicitly address flood risk are also considered to support the headline SMP policy (see main document, Section 1.17). The SMP has considered four CFMP-policies for flood risk management, as given below:
- P2: Reduce existing flood risk management actions, accepting increase of risk over time;
 - P3: Continue with existing or alternative actions to manage flood risk at the current level, accepting that flood risk will increase over time from this baseline;
 - P4: Take further action to sustain the current level of flood risk into the future (responding to the potential increase in risk from climate change); and
 - P5: Take further action to reduce flood risk.
- K1.8 The Flamborough Head to Gibraltar Point SMP divides the study area into 16 Policy Units, shown in Figure 1, each of which has one of the policies outlined above in section K1.6 assigned to it for each of the three epochs. The Policy Units and their associated policies are given below in Table 1.1.

Table 1.1: Shoreline management policies

Policy Unit	Epoch 1 (present day to 2025)	Epoch 2 (2025 – 2055)	Epoch 3 (2055 – 2105)	Comments
Policy Unit A – Flamborough Head to Sewerby	NAI	NAI	NAI	The current policy of No Active Intervention will continue through all epochs. Works may be necessary to maintain the viability of the RNLI Station at South Landing; these will be permitted subject to necessary approvals.
Policy Unit B – Bridlington to Hilderthorpe	HTL (P4)	HTL (P4)	HTL (P4)	The current defence line will be held throughout all epochs, however if the marina development goes ahead, the defence line may be locally realigned seawards of its current position. If monitoring supports it, defence works may need to be considered to manage outflanking and protect the town of Bridlington.
Policy Unit C – Wilsthorpe to Atwick	NAI	NAI	NAI	No Active Intervention will occur through all epochs. However, works may be necessary to maintain the functionality of Barmston Drain. In keeping with existing permissions, the privately owned defences at Ulrome currently protecting caravan parks would not be maintained under this policy and erosion of the shoreline would occur as a result of natural processes.
Policy Unit D – North Cliff to Hornsea Burton (Hornsea)	HTL (P4)	HTL (P4)	HTL (P4)	If monitoring supports it, defence works may need to be considered to manage outflanking to protect the town of Hornsea. It is uncertain in which epoch this may be required.
Policy Unit E – Rolston to Waxholme	NAI with HTL at Mableton	NAI with HTL at Mableton	NAI. HTL at Mableton, but with other options considered subject to monitoring.	The policy of No Active Intervention would continue for the currently undefended sections through all epochs. However, works may be necessary to maintain a sustainable flood defence in the vicinity of Tunstall Drain. At Mableton, the current defence line will be held for epochs 1 and 2 with monitoring of coastal processes undertaken. In the medium-term, assessment of options for maintaining a strategic north-south transport link is likely to be necessary. Monitoring will be undertaken to determine whether continuing to hold the line at Mableton is still sustainable in epoch 3 and options may be considered.

Policy Unit	Epoch 1 (present day to 2025)	Epoch 2 (2025 – 2055)	Epoch 3 (2055 – 2105)	Comments
Policy Unit F – Owthorne to Hollym (Withernsea)	HTL (P4)	HTL (P4)	HTL (P4)	If monitoring supports it, defence works may need to be considered to manage outflanking to protect the town of Withernsea. It is uncertain in which epoch this may be required.
Policy Unit G – Hollym to Dimlington Cliffs	NAI	NAI	NAI	The current policy of No Active Intervention will continue through all epochs. In the medium-term, assessment of options for maintaining a strategic north-south transport link is likely to be necessary.
Policy Unit H – Dimlington and Easington Gas Terminals	HTL for current defences. NAI elsewhere	NAI or HTL for currently defended areas. NAI elsewhere	NAI or HTL for currently defended areas. NAI elsewhere	Management policy will be to continue to protect the Gas Terminals in line with the existing planning permission for the Gas Terminal site and as long as the planning status allows defences. No Active Intervention for currently undefended areas, however management of outflanking may be permitted, subject to necessary approvals to protect the nationally important gas supplies and while there is a strategic need for the site.
Policy Unit I – Easington to Kilnsea	HTL (P3) for current defences. NAI elsewhere	HTL (P3) for current defences. NAI elsewhere	HTL (P3) for current defences. NAI elsewhere	The Policy of No Active Intervention will continue for the currently undefended sections through all epochs. At Easington Lagoons and the Kilnsea flood defence, the line will be held in epoch 1 and the intent of management will be to hold the line in epochs 2 and 3 but other options may be considered subject to monitoring of coastal processes, future studies and dependent on third party decisions. To ensure sustainable flood defences, and meet the requirements of environmental legislation, limited Managed Realignment of defences may occur. Any Managed Realignment of defences will not adversely affect property or known designated and significant historic environment assets. This process will be informed by the Humber Flood Risk Management Strategy.
Policy Unit J – Kilnsea to Spurn Point	MR	MR or NAI	MR or NAI	The intention is to intervene only when necessary to maintain access to the facilities and Spurn Point. The integrity of the barrier will be maintained until it becomes unsustainable to do so.

Policy Unit	Epoch 1 (present day to 2025)	Epoch 2 (2025 – 2055)	Epoch 3 (2055 – 2105)	Comments
Policy Unit K – Easington Road to Stone Creek	HTL (P4)	HTL (P4)	HTL (P4)	The overarching policy is to Hold the Line and maintain the standard of flood protection in all 3 epochs. To ensure sustainable flood defences, and meet the requirements of environmental legislation, limited Managed Realignment of defences may occur. Detailed studies will identify sites which will be in the order of 100 hectares in epochs 1 and 2 combined. Any Managed Realignment of defences will not adversely affect property or known designated and significant historic environment assets. This process will be informed by the Humber Flood Risk Management Strategy.
Policy Unit L – East Immingham to Cleethorpes	HTL (P4)	HTL (P4)	HTL (P4)	The defences will be held in their current position and their function will be maintained.
Policy Unit M – Humberston Fitties	HTL P3 for the front line and P4 for the second line.	HTL P3 for the front line and P4 for the second line.*	HTL P4 for the second line of defence	*The Policy for the Chalet Park will be subject to further policy evaluation.
Policy Unit N – South of Humberston Fitties to Theddlethorpe St Helen	HTL (P4)	HTL (P4)	HTL (P4)	The overarching policy is to Hold the Line and maintain the standard of flood protection in all 3 epochs. To ensure sustainable flood defences, and meet the requirements of current environmental legislation, limited Managed Realignment of defences may occur. Detailed studies will identify sites which will be in the order of 100 hectares of habitat on the south bank of the outer estuary in epochs 1 and 2 combined. Any Managed Realignment of defences will not adversely affect property or known designated and significant historic environment assets and will be informed by the Humber Flood Risk Management Strategy.

Policy Unit	Epoch 1 (present day to 2025)	Epoch 2 (2025 – 2055)	Epoch 3 (2055 – 2105)	Comments
Policy Unit O – Viking Gas Terminal (Mablethorpe) to southern end of Skegness	HTL (P4)	HTL with (P4)	HTL (P4) with localised MR considered where appropriate	The management intent will be to hold the line for all epochs continuing the present day standard of protection against flooding. In epoch 3, localised managed realignment could be considered in appropriate areas to increase defence sustainability. Specific sites have not been identified, but further detailed studies in the future should investigate potential sites.
Policy Unit P – Seacroft to Gibraltar Point	HTL (P4)	HTL (P4)	HTL or MR (P4)	The policies for the long term are conditional. They depend on the results of monitoring and research into climate change, shoreline response and the role of defences.

The Water Framework Directive

- K1.9 The Water Framework Directive (Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy) was passed into UK law in 2003. The overall requirement of the Directive is that all river basins must achieve “good ecological status” by 2015 unless there are grounds for derogation. The WFD will, for the first time, combine water quantity and quality issues together. An integrated approach to the management of all freshwater bodies, groundwaters, estuaries and coastal waters at the river basin level will be adopted. It will effectively supersede all water related legislation which drives the existing licensing and consenting framework in the UK.
- K1.10 The Water Framework Directive requires that Environmental Objectives be set for all water bodies; the River Basin Management Plans (RBMPs) set out the objectives for the water bodies within the study area. The default Environmental Objectives of relevance to the SMP are shown below in Table 1.2.

Table 1.2: Default Environmental Objectives of the WFD

Objectives (Taken from Article 4 of the Directive)	Reference
Member States shall implement the necessary measures to prevent deterioration of the status of all bodies of surface water	4.1 (a)(i)
Member States shall protect, enhance and restore all bodies of surface water, subject to the application of subparagraph (iii) for artificial and heavily modified bodies of water, with the aim of achieving good surface water status by 2015.	4.1 (a)(ii)
Member States shall protect and enhance all artificial and heavily modified Bodies of water, with the aim of achieving good ecological potential and good surface water chemical status by 2015.	4.1 (a)(iii)
Progressively reduce pollution from priority substances and cease or phasing out emissions, discharges and losses of priority hazardous substances.	4.1 (a)(iv)
Prevent Deterioration in Status and prevent or limit input of pollutants to groundwater	Ground Water 4.1 (b)(i)

- K1.11 The aim of these objectives is to achieve ‘good status’ for all water bodies with prevention of any negative changes to the status of water bodies, which could be caused by a deterioration of any of the biological, physico-chemical or hydromorphological Quality Elements listed in Annex V of the WFD. In order to meet the objectives, any activity which has the potential to have an impact on any of the Quality Elements must be assessed. The policies for each water body within the SMP will therefore be considered to ensure there are no future failures in meeting the Environmental Objectives, and any failures that do occur can be defended. In developing shoreline management policies, any opportunities for enhancement should be taken with the aim of having a positive rather than adverse impact on the status of water bodies.
- K1.12 Annex C of the RBMPs sets out the actions through which the Plan will be implemented in order to manage pressures on the water environment and achieve the Plan’s objectives. One of the actions within Annex C of the Humber RBMP refers to the need to respond to pressures on water bodies through physical modification by development of SMPs (alongside Catchment Flood Management Plans and System Asset Management Plans) which will set out where flood risk management and coastal erosion management should continue, be increased or decreased. One of the actions within Annex C of the Anglian RBMP refers to the need for

investigations into the ecological outcomes of measures to mitigate against the effects of flood and coastal erosion risk management activities.

- K1.13 Based on the requirements of the WFD, monitoring is carried out in order to establish an overview of the water status of each river basin district and to classify the status of individual water bodies. For surface waters, the WFD requires three types of monitoring:
- Surveillance – to validate the characterisation pressure and impact assessments and to detect long-term trends;
 - Operational – to help classify those water bodies which are at risk of failing to meet ‘good status’; and
 - Investigate – to ascertain the cause and effects of a failure to meet ‘good status’ where it is not clear.
- K1.14 A review of the first five SMPs to be produced was conducted in February 2009, by a group comprising of the Environment Agency, Royal Haskoning, Halcrow, Natural England, Arun District Council and Scarborough Borough Council. The review was carried out to meet the requirements of Defra, which has tasked the Environment Agency with reviewing all English SMPs by April 2010. The report of the SMP review, ‘Lessons Learnt to Date’ (Reference 1) identified the need for the WFD to be taken into account when setting the objectives for the SMPs, by carrying out a WFD baseline assessment.
- K1.15 The Flamborough Head to Gibraltar Point SMP area lies across two RBMPs; the Humber river basin district (see Reference 7) and the Anglian river basin district (see Reference 8), although only one individual coastal water body is present, GB640402490000 Yorkshire South/Lincolnshire, which stretches across the two RBMP areas and extends 1 nautical mile from the coast.
- K1.16 In addition to this coastal water body, the RBMPs also define numerous inland surface water bodies (including rivers, drains and lakes), transitional water bodies and groundwater bodies, listed in Table A1 of Annex A (see Figure 3 for the locations of the water bodies).

Other legislation

- K1.17 Where sites are protected under European Legislation, such as the Habitats Directive (92/43/EEC) or Birds Directive (79/409/EEC), the WFD also sets standards to ensure compliance with any relevant objectives for these sites. For sites where more than one quality standard applies, compliance with the stricter standard is required.
- K1.18 For the Yorkshire South/Lincolnshire water body, the following internationally and nationally designated sites are present (see Figure 4 for internationally designated sites), for which additional standards will apply:
- Flamborough Head Special Area of Conservation (SAC) designated under the Habitats Directive;
 - Flamborough Head and Bempton Cliffs Special Protection Area (SPA) designated under the Birds Directive;
 - Flamborough Head Site of Special Scientific Interest (SSSI);
 - Skipsea Bail Mere SSSI;

- Withow Gap, Skipsea SSSI;
- Hornsea Mere SPA;
- Hornsea Mere SSSI;
- Dimlington Cliff SSSI;
- The (Easington) Lagoons SSSI;
- Humber Estuary SAC;
- Humber Estuary SPA;
- Humber Estuary Ramsar site designated under the Ramsar Convention on Wetlands;
- Humber Estuary SSSI;
- Saltfleetby – Theddlethorpe Dunes and Gibraltar Point SAC;
- Saltfleetby-Theddlethorpe Dunes SSSI;
- Chapel Point to Wolla Bank SSSI;
- Sea Bank Clay Pits SSSI;
- Gibraltar Point SPA;
- Gibraltar Point Ramsar site; and
- Wash and North Norfolk Coast SAC¹;
- The Wash Ramsar site²; and
- The Wash SPA³.

K1.19 The WFD specifies that areas requiring special protection under other EC Directives and waters used for the abstraction of drinking water are identified as protected areas. Annex D of the RBMPs sets out the objectives and standards for these areas. The objectives and measures for relevant Natura 2000 sites taken from Annex D of the Humber RBMP and Anglian RBMP are reproduced in Annex C.

¹ Outside the boundary of the Flamborough Head to Gibraltar Point SMP

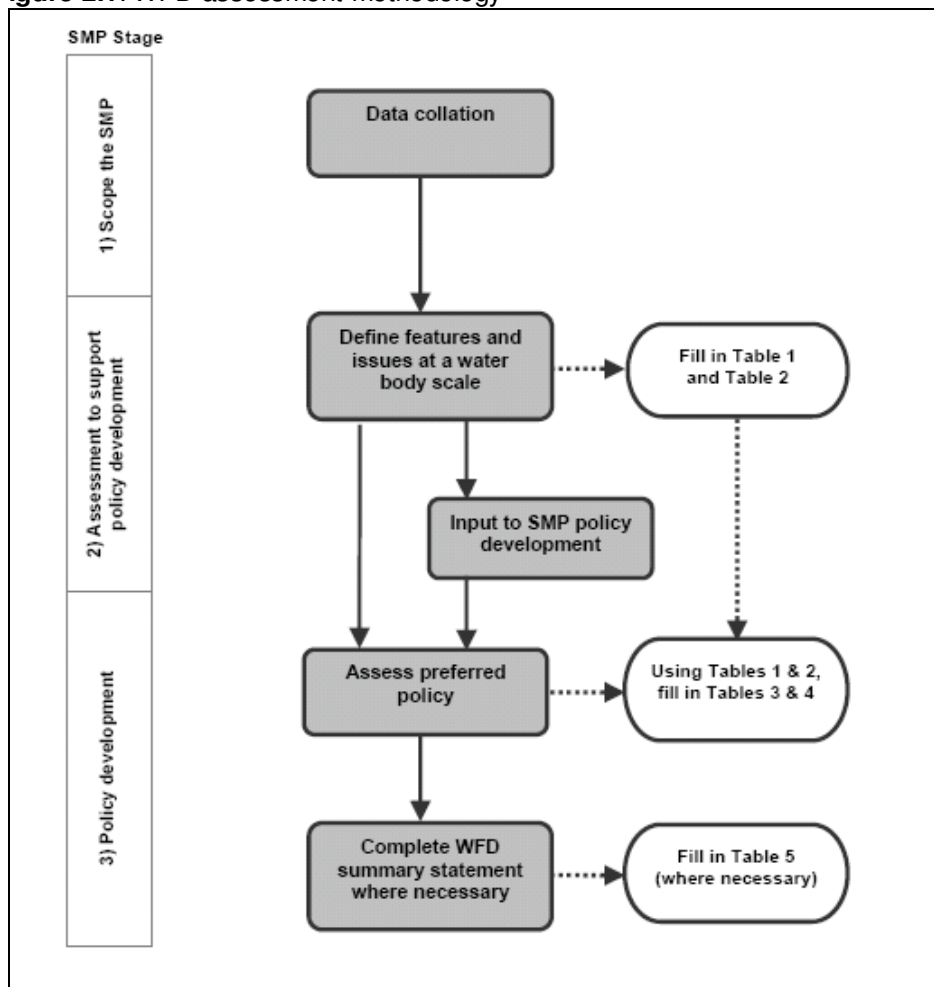
² Outside the boundary of the Flamborough Head to Gibraltar Point SMP

³ Outside the boundary of the Flamborough Head to Gibraltar Point SMP

K2 Assessment Methodology

K2.1 The methodology used for this assessment has been taken from the Environment Agency document 'Assessing shoreline management plans against the requirements of the Water Framework Directive' (Reference 2), as illustrated in Figure 2.1.

Figure 2.1: WFD assessment methodology



K2.2 The methodology breaks the assessment down into four stages:

- data collection;
- definition of WFD features and issues;
- assessment of preferred SMP policies against WFD environmental objectives; and
- completion of WFD summary statement.

K2.3 For clarity, each of the stages will be covered by a separate section of this report.

K3 Stage 1 – Data collection

- K3.1 The first stage of the WFD assessment process is to identify the water bodies present within the study area and then to identify the Biological Quality Elements within the water bodies that may be affected by the SMP.
- K3.2 As identified above in Section K1.15, there is one coastal water body within the study area, GB640402490000 Yorkshire South/Lincolnshire.
- K3.3 There are three transitional water bodies in the study area; two within the Humber Estuary and one at Gibraltar Point. There are three groundwater bodies within the SMP area; two in the Humber RBMP and one in the Anglian RBMP.
- K3.4 There are numerous inland water bodies adjacent to the study area, which should also be assessed according to the methodology (Reference 2), which states ‘you also need to identify all the landward freshwater bodies that potentially could be influenced by SMP policies’. The inland water bodies are listed below by catchment area:
- Hull and East Riding inland water bodies:
 - Hornsea Mere (lake) GB30430244;
 - Danes Dyke to Flamborough Area GB104026067180;
 - Flamborough North Landing Catchment GB104026067170;
 - Flamborough South Landing Catchment GB104026067160;
 - Danes Dyke/Bempton Beck from Source to North Sea (N Sea) GB104026072780;
 - Gypsy Race from Source to N Sea GB104026072790;
 - Carnaby Wilsthorpe Area GB104026066650;
 - Earls Dyke to N Sea GB104026066640;
 - Barmston Sea Drain from Skipsea Drain to N Sea GB104026077780;
 - Barmston Sea Drain / Skipsea Drain to Conf GB104026077770;
 - Steam Dyke Hornsea Mere to N Sea GB104026066620;
 - Lambwath Stream from Source to Foredyke Stream GB104026066860;
 - Humbleton Beck Catchment GB104026066610;
 - Burton Pidsea Drain Lower Catchment GB104026066590;
 - Sands/Keyingham/Roos Dr from Source to Humber GB104026067230 (the Tunstall Drain forms a tributary of this waterbody) ;
 - Winestead Drain from Source to Humber GB104026066570;
 - Nevilles Drain Catchment to N Sea GB104026066540;
 - Fosse Drain Catchment GB104026066530;
 - Easington Drain GB104026066500; and

- Ottringham Drain from Ottringham Gr to Humber GB104026066510.
- Louth, Grimsby and Ancholme inland water bodies:
 - Habrough Marsh Drain GB104029067570;
 - Mawnbridge Drain GB104029067540;
 - Lacby Beck / River Freshney Catchment GB104029067530;
 - Buck Beck from Source to N Sea GB104029062110;
 - Waithe Beck Lower Catchment (to Tetney Lock) GB104029062100;
 - Louth Canal from New Dike to Tetney Lock GB104029062080;
 - Marshchapel Drain GB104029062160;
 - Seven Towns North Eau GB104029062140; and
 - Seven Towns South Eau GB104029062150.
- River Witham inland water bodies:
 - Chapel Pit NR (lake) GB30533132;
 - South Dike GB105029061680;
 - Long Eau GB105029061670;
 - Great Eau GB105029061660;
 - Woldgrift Drain (lower end) GB105029061650;
 - Trusthorpe Pump Drain (upper end) GB105029061640;
 - Trusthorpe Pump Drain (lower end) GB105029061760;
 - Boygrift Drain GB105029061740;
 - Derby Main Drain GB105029061730;
 - Boygrift Drain (upper end) GB105029061720;
 - Willoughby Drain GB105029061710;
 - Ingoldmells Main Drain GB105029061700;
 - Cow Bank Drain GB105030056440; and
 - Tributary of Steeping River GB105030056390.

K3.5 All relevant coastal, inland, groundwater and transitional water bodies have been listed in Table A1 in Annex A. The table includes the current ecological status and WFD objective.

K3.6 Based on the policies summarised in Table 1.1, some of the freshwater bodies can be scoped out at this stage in areas where it is assumed that the proposed management policy of hold the line will ensure there is no change to the current situation. As the SMP is a strategic level document and the mechanisms by which the policy will be implemented have not yet been determined, it is assumed for the purposes of this assessment that the same situation will persist hydrologically inland. At the stage when coastal strategies and defence schemes consider defence design in detail, it should be ensured that the existing level of drainage

persists, thus ensuring that there will be no negative impact on the ecological status of the water body. This will include consideration of the management of the downstream end of rivers and the need to avoid impeding fish passage. However, it should be noted that this is based on a general assumption and in reality, the heightening or strengthening of defences may have an impact on the ecological status of the water body. Any defence scheme should be designed to ensure adverse effects are minimised, based on the aim of the WFD to prevent any deterioration in status of water bodies⁴.

- K3.7 On this basis, the following inland water bodies have been scoped out and will not be considered further as part of this assessment:
- Hull and East Riding inland water bodies:
 - Gypsy Race from Source to N Sea GB104026072790;
 - Steam Dyke Hornsea Mere to N Sea GB104026066620; and
 - Hornsea Mere (lake) GB30430244.
 - Louth, Grimsby and Ancholme inland water bodies:
 - Habrough Marsh Drain GB104029067570;
 - Mawnbridge Drain GB104029067540;
 - Lacby Beck / River Freshney Catchment GB104029067530;
 - Buck Beck from Source to N Sea GB104029062110;
- K3.8 All the remaining Hull and East Riding inland water bodies, Louth Grimsby and Ancholme inland water bodies and River Witham inland water bodies have the potential to be affected by SMP policies and will be assessed against WFD objectives (see Table 5.1).
- K3.9 Within Policy Units I (Easington to Kilnsea), K (Easington to Kilnsea), N (South of Humberston Fitties to Theddlethorpe St Helen), O (Mablethorpe to Skegness) and P (Seacroft to Gibraltar Point), the policy recognises that there may be a requirement to consider localised managed realignment, where appropriate, to increase defence sustainability or to comply with the requirements of the Habitats Regulations. The landward extent of any new defences would be of as minimal scale as possible. For the purposes of this assessment, it has been assumed that localised managed realignment schemes may take place within policy units I, K, N, O or P, however, in reality, before a scheme of this nature is confirmed, significant further studies would be required to confirm whether there are locations where managed realignment would be beneficial and assess the benefits and impacts in detail.
- K3.10 For areas where the proposed policy is hold the line, there is the potential for adverse effects on the ecological status of the coastal water body through, for example, beach narrowing, lowering of the shore platform, coastal squeeze or effects on sediment dynamics further along the coast. Therefore, the coastal water body will be assessed against the WFD objectives. As described above, it is not possible to assess in detail these impacts at this point, as the mechanisms by which the policy will be implemented will not be determined until the production of coastal strategies and defence schemes. Generic impacts of hold the line policies are discussed in this document, however, the detailed impacts should be considered further at such time as the mechanism for coastal defence is agreed. In such cases there may be

⁴ It should be noted that Article 4.7 of the Water Framework Directive is likely to be relevant in instances where water bodies undergo new modifications to their physical characteristics.

-
- overriding public interest to these areas having this preferred policy, which should be included with any future assessment of the ecological impact.
- K3.11 There are three transitional water bodies within the study area. In order to scope out those transitional water bodies that would not be affected by the SMP, the same assumption can be made as in Section K3.6 above. That is, where the proposed management policy of HTL will ensure there is no change to the current situation, the transitional water body will not be considered further as part of this assessment. On this basis, the Northcoates Point Lagoons and Steeping have been scoped out of this assessment but the Lower Humber transitional water body has been included for assessment against the WFD Environmental Objectives.
- K3.12 The RBMPs define groundwater bodies within the study area, which must be assessed against Environmental Objective WFD4 (no changes that will cause failure to meet good groundwater status or result in deterioration in groundwater status). There are three groundwater bodies within the study area. In order to scope out those groundwater bodies that would not be affected by the SMP, the same assumption can be made as in section K3.6 above. That is, where the proposed management policy of HTL will ensure there is no change to the current situation, the groundwater body will not be considered further as part of this assessment.
- K3.13 However, for areas where NAI, MR or ATL is the preferred policy, the potential for impacts on groundwater has been assessed by identifying the groundwater body within the RBMP and comparing this to the extent of groundwater abstraction using the Environment Agency's Source Protection Zones (SPZs) (Reference 3), assuming the extent of SPZ3 to be the total catchment for any particular abstraction.
- K3.14 There are numerous SPZs within the Hull and East Riding Chalk Unit, although these all lie either behind stretches of coast where the preferred policy is HTL or are sufficiently far back from the coast to be unaffected by the likely degree of coastal erosion. On this basis, the Hull and East Riding Chalk Unit has been scoped out of the assessment.
- K3.15 Following a comparison of the SMP policies, the remaining two RBMP groundwater bodies and SPZs, it is indicated that there are two groundwater bodies within the study area that could potentially be affected by the proposed policies of the SMP, Steeping Long Eau Great Eau Chalk Unit (GB40501G401600) and Grimsby Ancholme Louth Chalk Unit (GB40401G401500).

Table 3.1: WFD assessment Table 1 – Biological Quality Elements within water bodies that could be affected by changes to hydromorphology as a result of relevant SMP policies

✓ = Applies to water body

? = Might apply and hence included

Feature	Issue	Water body						
Biological Quality Element	Potential for change in hydromorphological or physical parameter	Yorkshire South/Lincolnshire GB640402490000	Humber Lower transitional water body GB530402609201	Hull and East Riding inland water bodies	Louth, Grimsby and Ancholme inland water bodies	River Witham inland water bodies	Steeping Long Eau Great Eau Chalk Unit GB40501G401600	Grimsby Ancholme Louth Chalk Unit GB40401G401500
Macroalgae	Episodicity (at low end of velocity spectrum)	?	?	?	?	?		
	Salinity							
	Abrasion (associated to velocity)	✓	✓					
Angiosperms	Inundations (tidal regime)	✓	✓	✓	✓	✓		
	Sediment loading	✓	?	✓	✓	✓		
	Land elevation	✓	✓	✓	✓	✓		
	Salinity	✓	✓	✓	✓	✓		
	Abrasion (associated to velocity)	✓	✓	✓	✓	✓		
Benthic/macro invertebrate	Beach water table (TraC)	✓	✓	✓	✓	✓		
	Light							
	Groundwater connectivity	?	?	?	?	?	✓	✓
	Availability of leaf litter/organic debris							
	Connectivity with riparian zone	?	?	✓	✓	✓		

Feature	Issue	Water body						
Biological Quality Element	Potential for change in hydromorphological or physical parameter	Yorkshire South/Lincolnshire GB640402490000	Humber Lower transitional water body GB530402609201	Hull and East Riding inland water bodies	Louth, Grimsby and Ancholme inland water bodies	River Witham inland water bodies	Steeping Long Eau Great Eau Chalk Unit GB40501G401600	Grimsby Ancholme Louth Chalk Unit GB40401G401500
Fish	Heterogeneity of habitat (substrate, provision of shelter)	?	?	✓	✓	✓		
	Continuity for migration routes	?	?					
	Substrate conditions	✓	?	✓	✓	✓		
	Presence of macrophytes	?	?	?	?	?		
	Accessibility to nursery areas (elevation of saltmarsh, connectivity with shoreline/riparian zone)	?	?	✓	✓	✓		

K4 Stage 2 - Definition of WFD features and issues

K4.1 The aim of this stage is to identify which physical parameters are important for the Biological Quality Elements of each water body and may be affected by decisions made within the SMP. The key features for each water body will be identified during this stage and are shown below in Table 4.1. The Environmental Objectives used are defined below:

- WFD1: No changes affecting high status sites;
- WFD2: No changes that will cause failure to meet surface water Good Ecological Status or Potential or result in a deterioration of surface water Ecological Status or Potential;
- WFD3: No changes which will permanently prevent or compromise the Environmental Objectives being met in other water bodies; and
- WFD4: No changes that will cause failure to meet good groundwater status or result in deterioration in groundwater status.

K4.2 Environmental Objective WFD1 is not applicable as there are no High Status Water Bodies within the Flamborough Head to Gibraltar Point SMP area. This objective will therefore not be listed in Table 4.1 below. Environmental Objective WFD3 (no changes which permanently prevent the Environmental Objectives of other water bodies being met) is met by all the proposed SMP policies.

Table 4.1: WFD assessment Table 2 - Features and Issues

Feature		Issue	Water body classification and environmental objectives
Water body (including Policy Units that affect it)	Biological Quality Element	Potential for change in hydro-morphological or physical parameter	
GB6404024900 Yorkshire South/Lincolnshire	Macroalgae	Potential changes to macroalgae through changes in abrasion (associated to velocity).	Classification: Moderate overall potential (Heavily modified water body) Environmental objectives: <ul style="list-style-type: none"> ▪ WFD2: No changes that will cause failure to meet surface water Good Ecological Status or Potential or result in a deterioration of surface water Ecological Status or Potential. ▪ WFD3: No changes which will permanently prevent or compromise the environmental objectives being met in other water bodies. ▪ WFD4: Environmental Objective WFD4 is not applicable for this water body
	Angiosperms	Potential changes to angiosperms through changes in land elevation, inundations (tidal regime), abrasion (associated increased velocities) and, potentially, sediment loading.	
	Benthic/macro invertebrate	Potential changes to benthic/macro invertebrates through changes in the beach water table and groundwater connectivity.	
	Fish	Potential changes to fish through changes in substrate conditions.	
Hull and East Riding inland water bodies	Macroalgae	Potential changes to macroalgae through changes in abrasion (associated to velocity).	Classification: see Annex A for individual water body classifications Environmental objectives: <ul style="list-style-type: none"> ▪ WFD2: No changes that will cause failure to meet surface water Good Ecological Status or Potential or result in a deterioration of surface water Ecological Status or Potential. ▪ WFD3: No changes which will permanently prevent or compromise the environmental objectives being met in other water bodies. ▪ WFD4: Environmental Objective WFD4 is not applicable for this water body
	Angiosperms	Potential changes to angiosperms through changes in land elevation, inundations (tidal regime), abrasion (associated increased velocities) and, potentially, sediment loading.	
	Benthic/macro invertebrate	Potential changes to benthic/macro invertebrates through changes in the beach water table and groundwater connectivity.	
	Fish	Potential changes to fish through changes in substrate conditions.	
River Witham inland water	Macroalgae	Potential changes to macroalgae through changes in abrasion (associated to velocity).	Classification: see Annex A for individual water body classifications

Feature		Issue	Water body classification and environmental objectives
Water body (including Policy Units that affect it)	Biological Quality Element	Potential for change in hydro-morphological or physical parameter	
bodies	Angiosperms	Potential changes to angiosperms through changes in land elevation, inundations (tidal regime), abrasion (associated increased velocities) and, potentially, sediment loading.	Environmental objectives: <ul style="list-style-type: none"> WFD2: No changes that will cause failure to meet surface water Good Ecological Status or Potential or result in a deterioration of surface water Ecological Status or Potential. WFD3: No changes which will permanently prevent or compromise the environmental objectives being met in other water bodies. WFD4: Environmental Objective WFD4 is not applicable for this water body
	Benthic/macro invertebrate	Potential changes to benthic/macro invertebrates through changes in the beach water table and groundwater connectivity.	
	Fish	Potential changes to fish through changes in substrate conditions.	
Steeping Long Eau Great Eau Chalk Unit GB40501G401600	Benthic/macro invertebrate	Potential changes to benthic/macro invertebrates through changes in the beach water table and groundwater connectivity.	Classification: Good Environmental objectives: <ul style="list-style-type: none"> WFD2: No changes that will cause failure to meet surface water Good Ecological Status or Potential or result in a deterioration of surface water Ecological Status or Potential. WFD3: No changes which will permanently prevent or compromise the environmental objectives being met in other water bodies. WFD4: No changes that will cause failure to meet good groundwater status or result in deterioration in groundwater status.
Humber Lower transitional water body GB530402609201	Macroalgae	Potential changes to macroalgae through changes in abrasion (associated to velocity).	Classification: Moderate overall potential (Heavily modified water body) Environmental objectives: <ul style="list-style-type: none"> WFD2: No changes that will cause failure to meet surface water Good Ecological Status or Potential or result in a deterioration of surface
	Angiosperms	Potential changes to angiosperms through changes in land elevation, inundations (tidal regime), abrasion (associated increased velocities) and, potentially, sediment loading.	

Feature		Issue	Water body classification and environmental objectives
Water body (including Policy Units that affect it)	Biological Quality Element	Potential for change in hydro-morphological or physical parameter	
	Benthic/macro invertebrate	Potential changes to benthic/macro invertebrates through changes in the beach water table and groundwater connectivity.	water Ecological Status or Potential. <ul style="list-style-type: none"> WFD3: No changes which will permanently prevent or compromise the environmental objectives being met in other water bodies. WFD4: Environmental Objective WFD4 is not applicable for this water body
	Fish	Potential changes to fish through changes in substrate conditions.	
Grimsby Ancholme Louth Chalk Unit GB40401G4015 00	Benthic/macro invertebrate	Potential changes to benthic/macro invertebrates through changes in the beach water table and groundwater connectivity.	Classification: Poor overall potential Environmental objectives: <ul style="list-style-type: none"> WFD2: No changes that will cause failure to meet surface water Good Ecological Status or Potential or result in a deterioration of surface water Ecological Status or Potential. WFD3: No changes which will permanently prevent or compromise the environmental objectives being met in other water bodies. WFD4: No changes that will cause failure to meet good groundwater status or result in deterioration in groundwater status.
Louth, Grimsby and Ancholme inland water bodies	Macroalgae	Potential changes to macroalgae through changes in abrasion (associated to velocity).	Classification: see Annex A for individual water body classifications Environmental objectives: <ul style="list-style-type: none"> WFD2: No changes that will cause failure to meet surface water Good Ecological Status or Potential or result in a deterioration of surface water Ecological Status or Potential. WFD3: No changes which will permanently
	Angiosperms	Potential changes to angiosperms through changes in land elevation, inundations (tidal regime), abrasion (associated increased velocities) and, potentially, sediment loading.	
	Benthic/macro invertebrate	Potential changes to benthic/macro invertebrates through changes in the beach water table and groundwater connectivity.	

Feature		Issue	Water body classification and environmental objectives
Water body (including Policy Units that affect it)	Biological Quality Element	Potential for change in hydro-morphological or physical parameter	
	Fish	Potential changes to fish through changes in substrate conditions.	prevent or compromise the environmental objectives being met in other water bodies. <ul style="list-style-type: none"> ▪ WFD4: Environmental Objective WFD4 is not applicable for this water body

N.B: There are no High Status Water Bodies within the Flamborough Head to Gibraltar Point SMP area and, hence, Environmental Objective WFD1 is not applicable.

K5 Stage 3 - Assessment of preferred SMP policies against WFD environmental objectives

- K5.1 The full assessment of the SMP policies for each Policy Unit and the potential for impacts under the WFD classification is described in Table 5.1 below. A general set of WFD environmental objectives for all water bodies within the SMP area were identified (based on Article 4 of the Directive given in Table 2.2) and are given below:
- WFD1: No changes affecting high status sites;
 - WFD2: No changes that will cause failure to meet surface water Good Ecological Status or Potential or result in a deterioration of surface water Ecological Status or Potential;
 - WFD3: No changes which will permanently prevent or compromise the Environmental Objectives being met in other water bodies; and
 - WFD4: No changes that will cause failure to meet good groundwater status or result in deterioration in groundwater status.
- K5.2 The Policy Units within the study area which have an SMP Policy of no active intervention (NAI) will have the potential to affect the freshwater bodies which lie behind the coastal areas, although no adverse impact is likely to the freshwater bodies from the natural process of erosion. The units where the SMP policy is NAI are Policy Units A, C, E, G and parts of I, all of which lie along the Holderness coast. Due to the soft underlying geology, largely dominated by clays and glacial tills, the Holderness coastline is eroding rapidly. Some of stretches of the Holderness coast are predicted to retreat by of the order of 100 - 360 metres over the 100 years of the SMP period.
- K5.3 For example, for the Flamborough Head to Sewerby Policy Unit, where the proposed policy is NAI, it is predicted that cliff erosion will continue at an increased rate due to sea level rise, with a net change in cliff line position of the order of 10 - 70 metres by 2105. There will therefore be a possible impact on the Flamborough South Landing Catchment (GB104026067160) as saline intrusion and erosion cause changes to the ecology, geomorphology and biology of the water body. Inland retreat of the coastline, while a natural process, could also potentially affect the saltwater/freshwater interface and result in saltwater intrusion of the freshwater bodies within the study area.
- K5.4 The SMP policy for the stretch of coastline between Kilnsea and Spurn Point is MR, although due to the unique nature of the Spurn barrier, MR does not give a true description of the management intent for this Policy Unit. It is intended that Spurn barrier is allowed to evolve largely naturally with limited intervention to maintain the barrier's integrity and access to Spurn Point as long as this is sustainable. Should this policy prove to become unsustainable in the future in economic, technical or environmental terms, the policy may be reviewed to one of NAI.
- K5.5 The SMP policy for the Humber Estuary (Policy Units K and L) is largely HTL (P4), with the potential for localised areas of limited MR in Policy Unit K to ensure the sustainability of the coastal defences and compliance with applicable environmental legislation. The current standard of protection against flooding will be maintained for assets behind the defences. This approach is shown to be desirable because it provides the potential for adjustments to the alignment of defences, which will be necessary to ensure flood protection can be sustained for the majority of valuable assets in the flood plain. The HTL policy for Policy Unit L (Immingham

-
- to Cleethorpes) will maintain the current level of protection to the significant industry, port and residential areas present in the coastal hinterland.
- K5.6 For Policy Unit M (Humberston Fitties) the line will be held in epoch 1 (at P3 for the front line of defence and P4 for the second line of defence). For subsequent epochs, further studies will confirm the management approach for the front line of defence.
- K5.7 The large and continuous flood cell and significant assets at risk within the floodplain have largely determined the proposed policy of HTL in epochs 1, 2 and 3 in Policy Units N – P (south of Humberston Fitties to Gibraltar Point). However, all three policy units recognise that there may be a requirement to consider localised managed realignment, where appropriate, to increase defence sustainability or to comply with the requirements of the Habitats Regulations. The landward extent of any new defences would be the minimum required to ensure sustainable defences. For the purposes of this assessment, it has been assumed that localised managed realignment schemes may take place within these policy units, however, in reality, before a scheme of this nature is confirmed, significant further studies would be required to confirm whether there are locations where managed realignment would be beneficial and assess the benefits and impacts in detail. Any managed realignment schemes that take place have the potential to impact upon the water bodies within this area.
- K5.8 A summary by water body of the extent to which the Environmental Objectives for the SMP2 policies are met is shown in Table 5.2 (WFD assessment table 4). This Table indicates that completion of a Water Framework Directive Summary Statement is required for the Yorkshire South/ Lincolnshire coastal water body, Louth, Grimsby and Ancholme inland water bodies and River Witham inland water bodies.

Table 5.1: WFD assessment Table 3 – Assessment of SMP Policy against the environmental objectives

Policy Unit		SMP Policy			Assessment of impact (including list of water bodies affected)	Environmental objectives met?			
		2025	2055	2105		WFD 1	WFD 2	WFD 3	WFD 4
A	Flamborough Head to Sewerby	NAI	NAI	NAI	<p>Cliff erosion will continue at enhanced rates, although due to the chalk geology of the cliffs the natural erosion rates will be slower than for the clay cliffs to the south. The scale of the coastal retreat is therefore unlikely to change the location and nature of the saltwater/freshwater interface by a significant amount, which will limit the impact on macroalgae, angiosperms and macroinvertebrates and all change will be due to natural processes. No change in the Ecological Potential is therefore anticipated in epochs 1, 2 or 3 for the Yorkshire South/ Lincolnshire coastal water body or the following inland water bodies within the Hull and East Riding catchment: Danes Dyke to Flamborough Area, Flamborough South Landing Catchment and Danes Dyke/Bempton Beck from Source to North Sea.</p> <p>The Flamborough North Landing Catchment will not be affected by policies defined in this SMP as it is located landward of the maximum extent of erosion predicted over the lifetime of this SMP.</p>	N/A	✓	✓	N/A
B	Bridlington to Hilderthorpe	HTL with P4	HTL with P4	HTL with P4	<p>The policy of HTL for epochs 1, 2 and 3 to sustain the viability of Bridlington as a regional centre may lead to beach narrowing and steepening, with a consequent impact on benthic habitats of the coastal water body.</p> <p>Gypsy Race from Source to N Sea inland water body has been scoped out of this assessment as the HTL policy in this unit will ensure no change to the current hydrological situation inland (see paragraph K3.6 for a fuller explanation).</p>	N/A	x	✓	N/A

Policy Unit		SMP Policy			Assessment of impact (including list of water bodies affected)	Environmental objectives met?			
		2025	2055	2105		WFD 1	WFD 2	WFD 3	WFD 4
C	Wilsthorpe to Atwick	NAI	NAI	NAI	<p>The policy of allowing the undefended glacial till cliffs to continue to erode for epochs 1, 2 and 3 will result in some adverse impacts for property and agricultural land due to erosion. The following inland water bodies within the Hull and East Riding catchment have the potential to be affected by changes caused to the saltwater/freshwater interface that result from erosion: Carnaby Wilsthorpe Area and Earls Dyke to N Sea. This has the potential to impact on the macrophytes, macroinvertebrates and fish of the individual streams, although this change will be entirely due to natural processes and as such, the policy will not result in deterioration of the Ecological Potential of the water bodies.</p> <p>The Barmston Sea Drain/Skipsea Drain to Conf will not be affected by policies defined in this SMP as it is located landward of the maximum extent of erosion predicted over the lifetime of this SMP. The policy allows for provision to be made to maintain the functionality of the Barmston drain, which will maintain the Ecological Potential of the Barmston Sea Drain from Skipsea Drain to N Sea. No change in the Ecological Potential of the Yorkshire South/ Lincolnshire coastal water body is anticipated.</p>	N/A	✓	✓	N/A
D	North Cliff to Hornsea Burton (Hornsea)	HTL with P4	HTL with P4	HTL with P4	<p>The policy of HTL to sustain the viability of Hornsea as a town and seaside resort may lead to beach narrowing and steepening with a consequent impact on benthic habitats of the coastal water body in epochs 1, 2 and 3. In the longer term (epoch 3 and beyond), there is the potential for partial interruption to longshore</p>	N/A	x	✓	N/A

Policy Unit		SMP Policy			Assessment of impact (including list of water bodies affected)	Environmental objectives met?			
		2025	2055	2105		WFD 1	WFD 2	WFD 3	WFD 4
					sediment transport processes which may impact on the evolution of the coastline downdrift. Steam Dyke Hornsea Mere to N Sea and Hornsea Mere inland water bodies have been scoped out of this assessment as the HTL policy in this unit will ensure no change to the current hydrological situation inland (see paragraph K3.6 for a fuller explanation).				
E	Rolston to Waxholme	NAI with HTL at Mappleton	NAI with HTL at Mappleton	NAI. HTL at Mappleton, but with other options considered subject to monitoring.	The policy of allowing the continued erosion of the undefended soft glacial till cliffs for epochs 1, 2 and 3 will result in some adverse impacts for property and agricultural land. The following inland water bodies within the Hull and East Riding catchment have the potential to be affected by changes caused to the saltwater/freshwater interface that result from erosion: Lambwath Stream from Source to Foredyke Stream and Burton Pidsea Drain Lower Catchment. This has the potential to impact on the macrophytes, macroinvertebrates and fish of the individual streams, although this change will be entirely due to natural processes and as such, the policy will not result in deterioration of the Ecological Potential of the water bodies. The Humbleton Beck Catchment and Sands/Keyingham/ Roos Dr will not be affected by policies defined in this SMP as they are located landward of the maximum extent of erosion predicted over the lifetime of this SMP. The policy allows for provision to be made to maintain a sustainable flood defence in the vicinity of Tunstall Drain, which drains inland towards the Humber Estuary and forms a tributary to the	N/A	x	✓	N/A

Policy Unit		SMP Policy			Assessment of impact (including list of water bodies affected)	Environmental objectives met?			
		2025	2055	2105		WFD 1	WFD 2	WFD 3	WFD 4
					<p>Sands/ Keyingham/ Roos Dr water body. This policy will not change the current hydrological situation inland.</p> <p>The defence of the small area of coast adjacent to Mappleton may lead to beach narrowing and steepening with a consequent impact on benthic habitats of the coastal water body. In the longer term (epoch 3 and beyond), if the line continues to be held at Mappleton, there is the potential for partial interruption to longshore sediment transport processes which may impact on the evolution of the coastline downdrift. For this reason, the SMP policy allows for consideration of options at Mappleton in epoch 3.</p>				
F	Owthorne to Hollym (Withersea)	HTL with P4	HTL with P4	HTL with P4	<p>The policy of HTL to maintain Withersea as a viable town and seaside resort may lead to beach narrowing and steepening with a consequent impact on benthic habitats of the coastal water body in epochs 1, 2 and 3. In the longer term (epoch 3 and beyond), there is the potential for partial interruption to longshore sediment transport processes which may impact on the evolution of the coastline downdrift.</p>	N/A	x	✓	N/A
G	Hollym to Dimlington Cliffs	NAI	NAI	NAI	<p>The policy of allowing the undefended glacial till cliffs to continue to erode in epochs 1, 2 and 3 will result in some adverse impacts for property and agricultural land due to erosion. The Nevilles Drain Catchment to N Sea inland water body, within the Hull and East Riding catchment, has the potential to be affected by changes caused to the saltwater/freshwater interface that result from erosion. This has the potential to impact on the macrophytes, macroinvertebrates and fish,</p>	N/A	✓	✓	N/A

Policy Unit		SMP Policy			Assessment of impact (including list of water bodies affected)	Environmental objectives met?			
		2025	2055	2105		WFD 1	WFD 2	WFD 3	WFD 4
					although this change will be entirely due to natural processes and as such, the policy will not result in a deterioration of the Ecological Potential of the water body. No change in the Ecological Potential of the Yorkshire South/ Lincolnshire coastal water body is anticipated.				
H	Dimlington and Easington Gas Terminals	HTL for current defences. NAI elsewhere	NAI or HTL for currently defended areas. NAI elsewhere	NAI or HTL for currently defended areas. NAI elsewhere	The short term policy of HTL may lead to beach narrowing and steepening, with a consequent impact on benthic habitats of the coastal water body in epoch 1. However beyond epoch 1, the impact depends upon future decisions in regard to protection of the site.	N/A	x	✓	N/A
I	Easington to Kilnsea	HTL (P3) for current defences. NAI elsewhere	HTL (P3) for current defences. NAI elsewhere	HTL (P3) for current defences. NAI elsewhere	The policy of HTL for current defences in epochs 1, 2 and 3 may lead to beach narrowing and steepening, with a consequent impact on benthic habitats of the coastal water body and the saline lagoon. To ensure sustainable flood defences, and meet the requirements of environmental legislation, limited Managed Realignment of defences may occur, which will mitigate impacts on the coastal water body. There are no inland water bodies within this policy unit so this policy will not have an effect on any inland water bodies.	N/A	x	✓	x
J	Kilnsea to Spurn Point	MR	MR or NAI	MR or NAI	There are no inland water bodies to be affected by this SMP policy due to the physical formation of Spurn Head and the policy will allow for natural processes to continue, with no impact on the Ecological potential of the coastal water body or Humber. Some limited intervention may be required in order to maintain access, although this	N/A	✓	✓	N/A

Policy Unit		SMP Policy			Assessment of impact (including list of water bodies affected)	Environmental objectives met?			
		2025	2055	2105		WFD 1	WFD 2	WFD 3	WFD 4
					is not considered to have the potential to be significant. The SMP policy therefore meets the WFD Environmental Objectives.				
K	Easington Road to Stone Creek	HTL with P4	HTL with P4	HTL with P4	The policy of HTL in epochs 1, 2 and 3 may lead to coastal squeeze, with a consequent impact on benthic habitats of the transitional water body. To ensure sustainable flood defences, and meet the requirements of environmental legislation, limited Managed Realignment of defences may occur, which will mitigate impacts on the transitional water body. MR may be required in order to comply with the requirements of the Habitats Regulations and this has the potential to impact on the macrophytes, macroinvertebrates and fish of the following inland water bodies within the Hull and East Riding catchment, through changes to the saltwater/freshwater interface: Fosse Drain Catchment, Easington Drain, Ottringham Drain from Ottringham Gr to Humber and Winestead Drain from Source to Humber. The nature and status of these four water bodies are similar and hence at this strategic level of assessment, the impact on the water bodies has been considered to be similar. There is the potential for deterioration in the status/potential of these inland water bodies if any managed realignment scheme(s) affect one or more inland water bodies. Since the details of future potential managed realignment schemes are not known at this stage, it is not possible to identify which, if any inland water bodies would be affected. These details will be determined at the strategy/scheme stage.	N/A	x	✓	N/A

Policy Unit		SMP Policy			Assessment of impact (including list of water bodies affected)	Environmental objectives met?			
		2025	2055	2105		WFD 1	WFD 2	WFD 3	WFD 4
L	East Immingham to Cleethorpes	HTL with P4	HTL with P4	HTL with P4	This Policy Unit contains the ports of Grimsby and Immingham and the town of Cleethorpes. The policy of HTL is therefore intended to sustain the viability of these towns. Coastal squeeze will result in epochs 1, 2 and 3, with a consequent impact on benthic habitats of the transitional water body. Habrough Marsh Drain, Mawnbridge Drain, Lacby Beck / River Freshney Catchment and Buck Beck from Source to N Sea inland water bodies have been scoped out of this assessment as the HTL policy in this unit will ensure no change to the current hydrological situation inland (see paragraph K3.6 for a fuller explanation).	N/A	x	✓	N/A
M	Humberston Fitties	HTL with P3 for the front line and P4 for the second line.	HTL with P3 for the front line and P4 for the second line. The policy for the chalet park will be subject to further policy evaluation	HTL P4 for the second line of defence	The policy of HTL is likely to result in beach narrowing and steepening in epochs 1 and 2, with a consequent impact on the benthic habitats of the transitional water body. Beyond epoch 2, the impact depends upon future decisions in regard to the front line of defence.	N/A	x	✓	N/A
N	South of Humberston Fitties to Theddlethorpe St Helens	HTL with P4	HTL with P4	HTL with P4	This section of coast is accreting, although the foreshore is steepening and the policy of HTL should therefore not require active management or intervention in the short and medium term, at least. In order to ensure sustainable defences and compliance with the Habitats Regulations, limited MR of defences may occur. This has the potential to impact on macrophytes, macroinvertebrates	N/A	x	✓	N/A

Policy Unit	SMP Policy			Assessment of impact (including list of water bodies affected)	Environmental objectives met?			
	2025	2055	2105		WFD 1	WFD 2	WFD 3	WFD 4
				<p>and fish of the following inland water bodies within the Louth, Grimsby and Ancholme catchment and River Witham catchment, through changes to the saltwater/freshwater interface: Waithe Beck Lower Catchment, Louth Canal from New Dike to Tetney Lock, Marshchapel Drain, Seven Towns North Eau, Seven Towns South Eau, South Dike, Long Eau and Great Eau. The nature and status of these eight water bodies are similar and hence at this strategic level of assessment, the impact on the water bodies has been considered to be similar. There is the potential for deterioration in the status/potential of these inland water bodies if any managed realignment scheme(s) affect one or more inland water bodies. Since the details of future potential managed realignment schemes are not known at this stage, it is not possible to identify which, if any inland water bodies would be affected. These details will be determined at the strategy/scheme stage.</p> <p>The inland retreat of the freshwater/saltwater interface also has the potential to impact on the beach water table and groundwater connectivity. However, as discussed in paragraph K3.13, groundwater has only been considered in relation to the presence of Source Protection Zones, as designated around drinking water abstraction points in order to protect the purity of supply. While the extent of any potential localised defence realignment is not currently known, the landward extent would be of as minimal scale as possible. It is considered that it would be unacceptable that any localised defence realignment would be of</p>				

Policy Unit	SMP Policy			Assessment of impact (including list of water bodies affected)	Environmental objectives met?			
	2025	2055	2105		WFD 1	WFD 2	WFD 3	WFD 4
				such landward extent to affect the inland SPZs and there will therefore be no impact on benthic/macroinvertebrate assemblages as a result of any potential localised defence realignment.				
○ Viking Gas Terminal to southern end of Skegness	HTL with P4	HTL with P4	HTL P4 with localised MR considered, where appropriate	The HTL policy in epochs 1, 2 and 3 may lead to beach narrowing and steepening with a consequent impact on the benthic habitats of the coastal water body. However, it is proposed that MR is considered, where appropriate in epoch 3, with defences realigned locally to form a more sustainable coastal defence. This would mitigate the negative impact on the coastal water body. While the extent of any potential localised realignment has not yet been determined and the landward extent of any new defences would be of as minimal scale as possible, this has the potential to impact on the macrophytes, macroinvertebrates and fish of the following inland water bodies within the River Witham catchment, through changes to the saltwater/freshwater interface: Woldgrift Drain (lower end), Trusthorpe Pump Drain (upper end), Trusthorpe Pump Drain (lower end), Boygrift Drain, Anderby Main Drain, Boygrift Drain (upper end) Chapel Pit NR, Willoughby Drain and Ingoldmells Main Drain. The nature and status of these nine water bodies are similar and hence at this strategic level of assessment, the impact on the water bodies has been considered to be similar. There is the potential for deterioration in the status/potential of these inland water bodies if any managed realignment scheme(s) affect one or more inland water bodies. Since the details of	N/A	x	✓	✓

Policy Unit	SMP Policy			Assessment of impact (including list of water bodies affected)	Environmental objectives met?				
	2025	2055	2105		WFD 1	WFD 2	WFD 3	WFD 4	
				<p>future potential managed realignment schemes are not known at this stage, it is not possible to identify which, if any inland water bodies would be affected. These details will be determined at the strategy/scheme stage.</p> <p>The inland retreat of the freshwater/saltwater interface also has the potential to impact on the beach water table and groundwater connectivity. However, as discussed in paragraph K3.13, groundwater has only been considered in relation to the presence of Source Protection Zones, as designated around drinking water abstraction points in order to protect the purity of supply. While the extent of any potential localised defence realignment is not currently known, the landward extent would be of as minimal scale as possible. It is considered that it would be unacceptable that any localised defence realignment would be of such landward extent to affect the inland SPZs and there will therefore be no impact on benthic/macrobenthic assemblages as a result of any potential localised defence realignment in epoch 3.</p>					
P	Seacroft to Gibraltar Point	HTL with P4	HTL with P4	HTL with P4	<p>This section of coast is accreting and the policy of HTL in epochs 1 and 2 should not require active management or intervention, hence there is not anticipated to be any change in the Ecological Potential of the Yorkshire South/ Lincolnshire coastal water body. The policy for the long-term is conditional; if coastal squeeze begins to occur, limited MR may be required in order to comply with the requirements of the Habitats Regulations; this would mitigate the impact on the coastal water</p>	N/A	x	✓	N/A

Policy Unit	SMP Policy			Assessment of impact (including list of water bodies affected)	Environmental objectives met?			
	2025	2055	2105		WFD 1	WFD 2	WFD 3	WFD 4
				<p>body. This has the potential to impact on the macrophytes, macroinvertebrates and fish of the following inland water bodies within the River Witham catchment, through changes to the saltwater/freshwater interface: Cow Bank Drain and Tributary of Steeping River. The nature and status of these two water bodies are similar and hence at this strategic level of assessment, the impact on the water bodies has been considered to be similar. There is the potential for deterioration in the status/potential of these inland water bodies if any managed realignment scheme(s) affect one or more inland water bodies. Since the details of future potential managed realignment schemes are not known at this stage, it is not possible to identify which, if any inland water bodies would be affected. These details will be determined at the strategy/scheme stage. The inland retreat of the freshwater/saltwater interface also has the potential to impact on the beach water table and groundwater connectivity. However, as discussed in paragraph K3.13, groundwater has only been considered in relation to the presence of Source Protection Zones, as designated around drinking water abstraction points in order to protect the purity of supply. While the extent of any potential localised defence realignment is not currently known, the landward extent would be of as minimal scale as possible. It is considered that it would be unacceptable that any localised defence realignment would be of such landward extent to affect the inland SPZs and there will therefore be no impact on</p>				

Policy Unit	SMP Policy			Assessment of impact (including list of water bodies affected)	Environmental objectives met?			
	2025	2055	2105		WFD 1	WFD 2	WFD 3	WFD 4
				benthic/macrobenthic assemblages as a result of any potential localised defence realignment in epoch 3.				
<p>Key: NAI – No active intervention HTL - Hold the line ATL – Advance the line MR – Managed realignment HR – hold the line on a realigned position P3: Continue at existing activity level, accepting gradual increase in risk over time due to future changes P4: Increase activity level to sustain existing level of flood risk into the future, compensating for future changes</p>								

Table 5.2: WFD assessment table 4 - Summary of achievement (or otherwise) of environmental objectives for each water body in the SMP area

Water Body (and related SMP Policy Units)	Environmental objectives met?	WFD Summary Statement required?
GB640402490000 Yorkshire South/Lincolnshire	<p>There are no High Status Water Bodies within the SMP area and, hence, Environmental Objective WFD1 is not applicable.</p> <p>The SMP policy for all management areas does not meet objective WFD2 as the proposed HTL policy in Policy Units B, D, F and H as well as the short stretch of HTL policy in Policy Units E and I may result in impacts on the benthic habitats of the coastal water body as well as having an impact on its physical characteristics. The SMP policy for all management areas meets objective WFD3.</p> <p>There are no Groundwater Bodies within the SMP area that would be affected by SMP policies and, hence, Environmental Objective WFD4 is not applicable.</p>	Yes – it is likely that WFD2 may not be met by the proposed SMP policies.
<p>Hull and East Riding catchment:</p> <ul style="list-style-type: none"> • Hornsea Mere; • Danes Dyke to Flamborough Area; • Flamborough North Landing Catchment; • Flamborough South Landing Catchment; • Danes Dyke/Bempton Beck from Source to North Sea (N Sea); • Gypsy Race from Source to N Sea; • Carnaby Wilsthorpe Area; • Earls Dyke to N Sea; • Barmston Sea Drain from Skipsea Drain to N Sea; • Barmston Sea Drain / Skipsea Drain to Conf; • Steam Dyke Hornsea Mere to N Sea; • Lambwath Stream from Source to Foredyke Stream; • Humbleton Beck Catchment; • Burton Pidsea Drain Lower Catchment; • Sands/Keyingham/ Roos Dr from Source to Humber; • Nevilles Drain Catchment to N Sea. <p>Louth, Grimsby and Ancholme</p>	<p>There are no High Status Water Bodies within the SMP area and, hence, Environmental Objective WFD1 is not applicable.</p> <p>The SMP policy for all management areas meets objective WFD2.</p> <p>The SMP policy for all management areas meets objective WFD3.</p> <p>There are no Groundwater Bodies within the SMP area that would be affected by SMP policies and, hence, Environmental Objective WFD4 is not applicable.</p>	No – WFD summary statement not needed as the Environmental Objectives will be met by the proposed SMP policies.

<p>catchment:</p> <ul style="list-style-type: none"> • Habrough Marsh Drain; • Mawnbridge Drain; • Lacby Beck / River Freshney Catchment; • Buck Beck from Source to N Sea. 		
<p>Hull and East Riding catchment:</p> <ul style="list-style-type: none"> • Winestead Drain from Source to Humber; • Fosse Drain Catchment; • Easington Drain; • Ottringham Drain from Ottringham Gr to Humber <p>Louth, Grimsby and Ancholme catchment:</p> <ul style="list-style-type: none"> • Waithe Beck Lower Catchment (to Tetney Lock); • Louth Canal from New Dike to Tetney Lock; • Marshchapel Drain; • Seven Towns North Eau; • Seven Towns South Eau <p>River Witham catchment:</p> <ul style="list-style-type: none"> • Chapel Pit NR (lake); • South Dike; • Long Eau; • Great Eau; • Woldgrift Drain (lower end); • Trusthorpe Pump Drain (upper end); • Trusthorpe Pump Drain (lower end); • Boygrift Drain; • Anderby Main Drain; • Boygrift Drain (upper end); • Willoughby Drain; • Ingoldmells Main Drain; • Cow Bank Drain; • Tributary of Steeping River 	<p>There are no High Status Water Bodies within the SMP area and, hence, Environmental Objective WFD1 is not applicable. The SMP policy for all management areas may not meet objective WFD2 as the potential localised managed realignment of the coastal defences in Policy Units K, N, O and P may cause saline intrusion into inland waterways, leading to a reduction in Ecological potential. The SMP policy for all management areas meets objective WFD3. There are no Groundwater Bodies within the SMP area that would be affected by SMP policies and, hence, Environmental Objective WFD4 is not applicable.</p>	<p>Yes – it is possible that WFD2 may not be met by the proposed SMP policies.</p>
<p>Steeping Long Eau Great Eau Chalk Unit GB40501G401600</p>	<p>There are no High Status Water Bodies within the SMP area and, hence, Environmental Objective WFD1 is not applicable. The SMP policy for all management areas meets objective WFD2. The SMP policy for all management areas meets objective WFD3. It is considered that it would be unacceptable that any localised defence realignment would be of such landward extent to affect the inland</p>	<p>No – WFD summary statement not needed as the Environmental Objectives will be met by the proposed SMP policies.</p>

	SPZs and therefore the SMP policy meets objective WFD4.	
Humber Lower transitional water body GB530402609201	<p>There are no High Status Water Bodies within the SMP area and, hence, Environmental Objective WFD1 is not applicable.</p> <p>The SMP policy for all management areas does not meet objective WFD2 as the proposed HTL policy in Policy Units K, L, M, and N may result in impacts on the benthic habitats of the coastal water body as well as having an impact on its physical characteristics.</p> <p>The SMP policy for all management areas meets objective WFD3.</p> <p>There are no Groundwater Bodies within the SMP area that would be affected by SMP policies and, hence, Environmental Objective WFD4 is not applicable.</p>	Yes – it is likely that WFD2 may not be met by the proposed SMP policies.
Grimsby Ancholme Louth Chalk Unit GB40401G401500	<p>There are no High Status Water Bodies within the SMP area and, hence, Environmental Objective WFD1 is not applicable.</p> <p>The SMP policy for all management areas meets objective WFD2.</p> <p>The SMP policy for all management areas meets objective WFD3.</p> <p>It is considered that it would be unacceptable that any localised defence realignment would be of such landward extent to affect the inland SPZs and therefore the SMP policy meets objective WFD4.</p>	No – WFD summary statement not needed as the Environmental Objectives will be met by the proposed SMP policies.
Hull & East Riding Chalk GB40401G700700	<p>There are no High Status Water Bodies within the SMP area and, hence, Environmental Objective WFD1 is not applicable.</p> <p>The SMP policy for all management areas meets objective WFD2.</p> <p>The SMP policy for all management areas meets objective WFD3.</p>	No – WFD summary statement not needed as the Environmental Objectives will be met by the proposed SMP policies.

K6 Stage 4 - Completion of WFD summary statement

- K6.1 For the water bodies where a potential adverse impact has been identified, a WFD summary statement is required; namely for the Yorkshire South/Lincolnshire coastal water body, Humber Lower transitional water body and some of the inland water bodies within the Hull and East Riding catchment, Louth, Grimsby and Ancholme catchment, and Witham catchment. The purpose of the summary statement is to note areas where the assessment has concluded that WFD targets cannot be met and where these issues need to be taken into account in subsequent stages where the delivery mechanism of the SMP policies are determined and coastal defences are designed.
- K6.2 The WFD summary statements for the Yorkshire South/Lincolnshire coastal water body, Humber Lower transitional water body and some of the inland water bodies within the Hull and East Riding catchment, Louth, Grimsby and Ancholme catchment, and Witham catchment are shown below in Table 6.1.

Table 6.1: WFD assessment Table 5 - Water Framework Directive summary statement

Water body (including Policy Units that affect it)	Water Framework Directive Summary Statement checklist	A brief description of decision making and reference to further documentation within the SMP
GB640402490000 Yorkshire South/Lincolnshire	<p>Mitigation measures: have all practicable mitigation measures been incorporated into the preferred SMP policies that affect this water body in order to mitigate the adverse impacts on the status of the water body? If not, then list mitigation measures that could be required.</p>	<p>This water body has the potential to be affected by all policies within this SMP; the assessment has identified that based on the preferred policies, there is the potential for negative impact on the status of the coastal water body in the northern area of the frontage due to policy units with a HTL policy. Monitoring of cliff recession and beach profiles along the Holderness cliffs should continue. In addition, within policy units N, O and P, the overarching policy of HTL could result in negative impacts on the coastal water body through beach narrowing and steepening with a consequent impact on benthic habitats. In mitigation, these policy units have allowed for the possibility of localised managed realignment, where appropriate. At the stage when coastal strategies and defence schemes consider design of coastal defences in detail, it should be ensured that impacts on the coastal water body are considered to ensure no negative impact on its ecological status.</p>
	<p>Overriding public interest: can it be shown that the reasons for selecting the preferred SMP policies are Reasons of Overriding Public Interest (ROPI) and/or the benefits to the environment and to society of achieving the environmental objectives are outweighed by the benefits of the preferred SMP policies to human health, to the maintenance of health and safety or to sustainable development?</p>	<p>The policy of HTL is essential in Policy Units B, D and F to continue to protect people and property and sustain the viability of communities within Holderness' coastal towns of Bridlington, Hornsea and Withernsea. These towns are regionally important and not holding the line within these areas would have a significant effect on the local and regional economy, have an enormous impact on tourism and would have the potential to negatively impact key community services including the rail network, RNLi and coastguard stations, sewage treatment works, hospitals, key transport routes etc. The policy of HTL is required for a small section of Policy Unit E in order to sustain the community at Mappleton and maintain the vital transport link between the towns and villages along the Holderness coast. The policy of HTL for the Dimlington and Easington Gas Terminals in Policy Unit H is essential to continue to protect this large industrial site which is of national strategic importance since it supplies 20 -</p>

Water body (including Policy Units that affect it)	Water Framework Directive Summary Statement checklist	A brief description of decision making and reference to further documentation within the SMP
		<p>25% of the UK's natural gas.</p> <p>The HTL policy for the East Lindsey coastline (Policy Units N, O and P) is necessary in order to protect the large and continuous flood cell within Lincolnshire which includes the two principal towns of Mablethorpe and Skegness (with their associated community infrastructure such as road transport links, hospitals, rail network, coastguard stations etc) as well as smaller towns and settlements. This policy will sustain the viability of these communities and allow the continuation of the current tourism-based land-use along much of this frontage which is vital to the regional economy in this area. The policy is also necessary in order to protect the significant area of high grade agricultural land at risk within this flood cell which is of regional and potentially national importance for food supply and future food security.</p> <p>Further detailed information about the economic viability of all the preferred policies is provided in Appendix H of the SMP (Economic Appraisal).</p>
	<p>Better environmental options: have other significantly better options for the SMP policies been considered? Can it be demonstrated that those better environmental policy options which were discounted were done so on the grounds of being either technically unfeasible or disproportionately costly?</p>	<p>All shoreline management policy options have been considered during development of the SMP. The assessment has identified that based on the preferred policies, there is not anticipated to be a negative impact on the ecological status of the coastal water body for the majority of the frontage.</p> <p>For the frontages of Bridlington, Hornsea and Withernsea, NAI or MR could be argued to be better options environmentally as these policies would mitigate coastal squeeze through the creation of new benthic habitat which would potentially improve the potential of the coastal water body, however, it was agreed that NAI or MR were not appropriate on the basis that:</p> <ul style="list-style-type: none"> • Managed realignment would involve the loss of the coastal strip of these towns including significant key infrastructure which it was considered would very significantly impact the viability of these towns; • The environmental benefits of managed realignment in this circumstance are largely unproven as it is not clear that

Water body (including Policy Units that affect it)	Water Framework Directive Summary Statement checklist	A brief description of decision making and reference to further documentation within the SMP
		<p>realignment of these frontages would result in a significant change in sediment transport processes along the Holderness coast (which is the main driver for managed realignment within this area);</p> <ul style="list-style-type: none"> The existing defences have considerable remaining life and do not currently require realignment on engineering grounds; <p>Within Policy Units N, O and P, these policy units have allowed for the possibility of localised managed realignment, where appropriate which mitigates the impact of the overarching HTL policy on the coastal water body within these policy units, thereby potentially improving the potential of the coastal water body.</p>
	<p>Effect on other water bodies: Can it be demonstrated that the preferred SMP policies do not permanently exclude or compromise the achievement of the objectives of the Directive in water bodies within the same River Basin District that are outside of the SMP area?</p>	<p>This assessment has included all landward water bodies that have the potential to be impacted by the SMP policies; the adjacent coastal water bodies will not be affected by the proposed SMP policies.</p>
	<p>Other issues: Can it be shown that there are no other over-riding issues that should be considered (such as designated sites, recommendations of the Appropriate Assessment)?</p>	<p>The Yorkshire South/Lincolnshire coastal water body includes the following designated sites:</p> <ul style="list-style-type: none"> Flamborough Head Special Area of Conservation (SAC) designated under the Habitats Directive; Flamborough Head and Bempton Cliffs Special Protection Area (SPA) designated under the Birds Directive; Flamborough Head Site of Special Scientific Interest (SSSI); Withow Gap SSSI; Dimlington Cliff SSSI; The (Easington) Lagoons SSSI; Humber Estuary SAC; Humber Estuary SPA;

Water body (including Policy Units that affect it)	Water Framework Directive Summary Statement checklist	A brief description of decision making and reference to further documentation within the SMP
		<ul style="list-style-type: none"> • Humber Estuary Ramsar site designated under the Ramsar Convention on Wetlands; • Humber Estuary SSSI; • Saltfleetby – Theddlethorpe Dunes and Gibraltar Point SAC; • Saltfleetby-Theddlethorpe Dunes SSSI; • Chapel Point to Wolla Bank SSSI; • Gibraltar Point SPA; and • Gibraltar Point Ramsar site. <p>Based on the preferred policies, it is anticipated that there will be a negative impact on the Chapel Point to Wolla Bank SSSI within Policy Unit O which has the potential to be affected in epoch 3 by the preferred policy of HTL but with consideration of MR, in areas where appropriate, to increase defence sustainability. Further assessment should be carried out of the impacts on the Chapel Point to Wolla Bank SSSI, when more information is available about whether localised realignment of defences will be undertaken within Policy Unit O and details of any such scheme.</p> <p>The Habitat Regulations Assessment undertaken for this SMP has assessed impacts on European sites resulting from the policies, based on the requirements of the Habitats Regulations.</p> <p>The Habitat Regulations Assessment has identified the potential for adverse impacts on internationally designated sites due to coastal squeeze and sediment budget issues. There is the potential for the Humber Estuary Special Area of Conservation, Humber Estuary Special Protection Area, Humber Estuary Ramsar site, Saltfleetby-Theddlethorpe Dunes & Gibraltar Point Special Area of Conservation and Gibraltar Point Special Protection Area to be adversely affected. Requirements for monitoring and possible mitigation are addressed within the policies and will be taken forward within the SMP Action Plan.</p>
Hull and East Riding catchment:	Mitigation measures: have all practicable mitigation measures been incorporated into	Based on Table 5.1 (WFD Assessment Table 3), it has been identified that within Policy Units K and N, although the overarching

Water body (including Policy Units that affect it)	Water Framework Directive Summary Statement checklist	A brief description of decision making and reference to further documentation within the SMP
<ul style="list-style-type: none"> • Winestead Drain from Source to Humber; • Fosse Drain Catchment; • Easington Drain; • Ottringham Drain from Ottringham Gr to Humber <p>Louth, Grimsby and Ancholme catchment:</p> <ul style="list-style-type: none"> • Waithe Beck Lower Catchment (to Tetney Lock); • Louth Canal from New Dike to Tetney Lock; • Marshchapel Drain; • Seven Towns North Eau; • Seven Towns South Eau 	<p>the preferred SMP policies that affect this water body in order to mitigate the adverse impacts on the status of the water body? If not, then list mitigation measures that could be required.</p>	<p>policy is to hold the line in all 3 epochs, limited managed realignment of defences may occur to ensure sustainable defences and meet the requirements of environmental legislation. In Policy Unit O, although the preferred policy for all epochs is HTL, in the longer term (epoch 3), accelerating sea level rise could begin to cause problems for defence sustainability as coastal squeeze increases. Within Policy Unit P, the policies in epoch 3 are conditional and depend upon the results of monitoring and research into climate change, shoreline response and the role of defences. It has been identified that coastal squeeze may occur in epoch 3 which would have an adverse impact on the coastal water body. As mitigation, it has been identified that within Policy Units K, N, O and P, managed realignment could be considered locally, in areas where appropriate, to increase defence sustainability and meet the requirements of environmental legislation.</p> <p>The SMP Action Plan will identify the need for further studies at a future point to monitor management inputs required to defend the coastline (which will depend on the rate of future sea level rise and increased storminess) and consider potential localised managed realignment sites where appropriate within Policy Units K, N, O and P and assess the benefits and impacts of any potential managed realignment scheme.</p>
<p>River Witham catchment:</p> <ul style="list-style-type: none"> • Chapel Pit NR (lake); • South Dike; • Long Eau; • Great Eau; • Woldgrift Drain (lower end); • Trusthorpe Pump Drain (upper end); • Trusthorpe Pump Drain (lower end); • Boygrift Drain; • Anderby Main Drain; 	<p>Overriding public interest: can it be shown that the reasons for selecting the preferred SMP policies are Reasons of Overriding Public Interest (ROPI) and/or the benefits to the environment and to society of achieving the environmental objectives are outweighed by the benefits of the preferred SMP policies to human health, to the maintenance of health and safety or to sustainable development?</p>	<p>It is anticipated that accelerating sea level rise could make it increasingly practically difficult to continue the policy of HTL in policy Units K, N and O and so although the preferred policy is HTL in all epochs, there is a recommendation to consider localised managed realignment, where appropriate, in epoch 3 to increase defence sustainability and meet the requirements of environmental legislation. In Policy Unit P, there is the potential that coastal squeeze may occur in epoch 3, so there may be a need to consider managed realignment. Further studies will be required at a future date to confirm whether there are locations where managed realignment would be beneficial and assess the benefits and impacts in detail.</p>
	<p>Better environmental options: have other</p>	<p>Within Policy Units K, N, O and P, there is the potential for negative</p>

Water body (including Policy Units that affect it)	Water Framework Directive Summary Statement checklist	A brief description of decision making and reference to further documentation within the SMP
<ul style="list-style-type: none"> • Boygriff Drain (upper end); • Willoughby Drain; • Ingoldmells Main Drain; • Cow Bank Drain; • Tributary of Steeping River 	<p>significantly better options for the SMP policies been considered? Can it be demonstrated that those better environmental policy options which were discounted were done so on the grounds of being either technically unfeasible or disproportionately costly?</p> <p>Effect on other water bodies: Can it be demonstrated that the preferred SMP policies do not permanently exclude or compromise the achievement of the objectives of the Directive in water bodies within the same River Basin District that are outside of the SMP area?</p> <p>Other issues: Can it be shown that there are no other over-riding issues that should be considered (such as designated sites, recommendations of the Appropriate Assessment)?</p>	<p>ecological impacts which may result in deterioration in the status/potential of the identified inland water bodies resulting from the recommendation to consider localised MR, where appropriate, in epoch 3. Since the details of future potential managed realignment schemes are not known at this stage, it is not possible to identify which, if any of the identified inland water bodies would be affected. These details will be determined at the strategy/scheme stage. Localised MR is a sustainable option and mitigates the negative impacts on the coastal water body of the HTL policy. However, further studies will be required at some point in the future to confirm whether there are locations where managed realignment would be beneficial and assess the benefits and impacts in detail. The potential for decline in status/potential of one or more of the inland water bodies does not outweigh the beneficial effect of managed realignment which will potentially improve the status/potential of the coastal and transitional water bodies.</p> <p>This assessment has included all landward water bodies that have the potential to be impacted by the SMP policies; the adjacent coastal water bodies will not be affected by the proposed SMP policies.</p> <p>Policy Units K, N O and P include the following designated sites:</p> <ul style="list-style-type: none"> • Humber Estuary SAC; • Humber Estuary SPA; • Humber Estuary Ramsar site; • Humber Estuary SSSI; • Sea Bank Clay Pits SSSI; • Chapel Point to Wolla Bank SSSI; • Gibraltar Point SPA; and

Water body (including Policy Units that affect it)	Water Framework Directive Summary Statement checklist	A brief description of decision making and reference to further documentation within the SMP
		<ul style="list-style-type: none"> • Saltfleetby-Theddlethorpe Dunes & Gibraltar Point SAC. <p>Sea Bank Clay Pit is designated for its breeding bird population, Chapel Point-Wolla Bank for its inter-tidal sediments, which record the evidence of early Holocene sea level change. Both these designated sites may be affected if any localised MR schemes were implemented, although as the extent and method of any potential realignment will be decided at a future date, it is not possible to assess the extent of the impact. Further assessment should therefore be carried out, when more information is available about whether localised realignment of defences will be undertaken within Policy Unit O and details of any such scheme.</p> <p>The Habitat Regulations Assessment has identified the potential for adverse impacts on internationally designated sites due to coastal squeeze and sediment budget issues. There is the potential for the Humber Estuary SAC, SPA and Ramsar site as well as the Saltfleetby-Theddlethorpe Dunes & Gibraltar Point Special Area of Conservation and Gibraltar Point Special Protection Area to be adversely affected; managed realignment would mitigate negative impacts on these sites. Requirements for monitoring and possible mitigation are addressed within the policies and will be taken forward within the SMP Action Plan.</p>
Humber Lower transitional water body GB530402609201	<p>Mitigation measures: have all practicable mitigation measures been incorporated into the preferred SMP policies that affect this water body in order to mitigate the adverse impacts on the status of the water body? If not, then list mitigation measures that could be required.</p>	<p>The Humber Lower transitional water body could potentially be affected by the policy of HTL in Policy Units K, L and M (north and south banks of the Humber). Defences will prevent erosion and will be maintained and upgraded to continue the present standard of protection against flooding despite sea level rise. Significant upgrades and defence maintenance is likely to be required as the foreshore will continue to lower and defences will come under increasing pressure.</p> <p>This policy could impact on the transitional water body through coastal squeeze and associated beach narrowing and steeping. In mitigation, the SMP policies allow for limited managed realignment of defences within some of the policy units within the Humber Estuary. This process will be informed by the Humber Flood Risk Management Strategy, which has identified sites where managed</p>

Water body (including Policy Units that affect it)	Water Framework Directive Summary Statement checklist	A brief description of decision making and reference to further documentation within the SMP
	<p>Overriding public interest: can it be shown that the reasons for selecting the preferred SMP policies are Reasons of Overriding Public Interest (ROPI) and/or the benefits to the environment and to society of achieving the environmental objectives are outweighed by the benefits of the preferred SMP policies to human health, to the maintenance of health and safety or to sustainable development?</p>	<p>realignment may take place.</p> <p>The policy of HTL is essential to maintain the standard of defences to protect people and property within the floodplain, including the valuable infrastructure at the ports of Immingham and Grimsby as well as the substantial residential areas of Grimsby and Cleethorpes; to allow the function of these areas to be impacted would have a huge impact on the local, and possibly national, economy.</p>
	<p>Better environmental options: have other significantly better options for the SMP policies been considered? Can it be demonstrated that those better environmental policy options which were discounted were done so on the grounds of being either technically unfeasible or disproportionately costly?</p>	<p>As discussed above, the ports of Immingham and Grimsby are of national importance and no options were considered to be suitable for this Policy Unit. The impact of allowing the coast to retreat at this point could also be damaging to the environment due to the significant infrastructure and potentially contaminated industrial land at these locations which would be exposed to the sea.</p>
	<p>Effect on other water bodies: Can it be demonstrated that the preferred SMP policies do not permanently exclude or compromise the achievement of the objectives of the Directive in water bodies within the same River Basin District that are outside of the SMP area?</p>	<p>This assessment has included all adjacent water bodies that have the potential to be impacted by the SMP policies; the assessment has concluded that the preferred SMP policies do not permanently exclude or compromise the achievement of the objectives of the Directive in water bodies within the same River Basin District that are outside of the SMP area.</p>
	<p>Other issues: Can it be shown that there are no other over-riding issues that should be considered (such as designated sites, recommendations of the Appropriate Assessment)?</p>	<p>The Humber Lower transitional water body lies within the Humber Estuary SAC, SPA and Ramsar site. A Habitat Regulations Assessment has been carried out to meet the requirements of the Habitats Regulations.</p> <p>The Habitat Regulations Assessment has identified the potential for adverse impacts on internationally designated sites due to coastal squeeze and sediment budget issues. There is the potential for the Humber Estuary Special Area of Conservation, Humber Estuary Special Protection Area and Humber Estuary Ramsar site to be</p>



Water body (including Policy Units that affect it)	Water Framework Directive Summary Statement checklist	A brief description of decision making and reference to further documentation within the SMP
		adversely affected. Requirements for monitoring and possible mitigation are addressed within the policies and will be taken forward within the SMP Action Plan.

K7 Conclusion

- K7.1 Adverse impacts leading to the potential failure of WFD Environmental Objectives of the Yorkshire South/Lincolnshire coastal water body have been identified in Policy Units B (Bridlington), D (Hornsea), E (Rolston to Waxholme), F (Withernsea), H (Dimlington and Easington Gas Terminals), I (Easington to Kilnsea), M (Humberston Fitties), N (south of Humberston Fitties to Theddlethorpe St Helens), O (Viking Gas Terminal (Mablethorpe) to southern end of Skegness) and P (Seacroft to Gibraltar Point). This relates to policies of HTL in Bridlington, Hornsea, Mappleton, Withernsea, Easington, Kilnsea and the Lincolnshire coastline which could lead to coastal squeeze and beach narrowing and steepening with a consequent impact on benthic habitats of the coastal water body. There is also the possibility in the longer term (epoch 3 and beyond) for partial interruption to longshore sediment transport processes which may impact on the evolution of the coastline downdrift.
- K7.2 Adverse impacts leading to the potential failure of WFD Environmental Objectives of the Humber Lower transitional water body have been identified in Policy Units K (Easington Road to Stone Creek), L (Immingham to Cleethorpes) and M (Humberston Fitties). This relates to policies of HTL on the north and south banks of the Humber.
- K7.3 It is anticipated that any localised managed realignment of the coastline (within Policy Units K, N, O or P) would change the saltwater/freshwater interface (if realignment occurs), which could impact on one or more of the inland water bodies within these policy units. As the extent and nature of any possible retreat has not yet been decided it is not possible to fully assess the extent of the impact and further assessment should be carried out at a later date when further information is available. It is considered that the potential for decline in status/potential of one or more of the inland water bodies does not outweigh the beneficial effect of managed realignment which will potentially improve the status/potential of the coastal and transitional water bodies.
- K7.4 Requirements for monitoring and possible mitigation are addressed within the policies and will be taken forward within the SMP Action Plan.
- K7.5 Future assessment should particularly focus on the possible impacts on the Sea Bank Clay Pits and Chapel Point to Wolla Bank SSSIs, although it should be noted that this SSSI is a geological site and adverse impacts on Ecological Potential are therefore likely to be limited.

K8 References

- Reference 1: Lessons learnt to Date, SMP Quality Review Group, February 2009-07-09
- Reference 2: Assessing shoreline management plans against the requirements of the Water Framework Directive, Environment Agency, 2009.
- Reference 3: 'What's in my backyard?' www.environment-agency.gov.uk
- Reference 4: Defra, 2006. *Shoreline management plan guidance Volume 1: Aims and requirements*. London: Department for Environment, Food and Rural Affairs.
- Reference 5: Defra, 2006. *Shoreline management plan guidance Volume 2: Procedures*. London: Department for Environment, Food and Rural Affairs.
- Reference 6: <http://www.wfduk.org/>
- Reference 7: River Basin Management Plan: Humber River Basin District – Document submitted to Secretary of State for approval (December 2009)
- Reference 8: River Basin Management Plan: Anglian River Basin District – Document submitted to Secretary of State for approval (December 2009)

Abbreviations

AA	Appropriate Assessment
ATL	Advance the Line
BQE	Biological Quality Element
RBMP	River Basin Management Plan
GWB	Groundwater Body
HECAG	Humber Estuary Coastal Authorities Group
HTL	Hold the Line
MR	Managed Realignment
NAI	No Active Intervention
SAC	Special Area of Conservation
SPA	Special Protection Area
SMP	Shoreline Management Plan
SSSI	Site of Special Scientific Interest
SPZ	Source Protection Zone
WFD	Water Framework Directive
IROPI	Imperative Reasons of Overriding Public Interest

Annex A – Water bodies

Table A1: Relevant water bodies within SMP study area

River Basin Management Plan	Water body	Water body category	Current overall potential	RBMP status objective (overall)
Humber River Basin Management Plan/ Anglian River Basin Management Plan	Yorkshire South / Lincolnshire GB640402490000	Coastal	Moderate potential (ecological quality)	Good by 2027
Humber River Basin Management Plan	Hull and East Riding Chalk GB40401G700700	Groundwater	Poor	Good by 2027
Humber River Basin Management Plan	Grimsby Ancholme Louth Chalk Unit GB40401G401500	Groundwater	Poor	Good by 2027
Humber River Basin Management Plan	Humber Lower GB530402609201	Transitional	Moderate	Good by 2027
Humber River Basin Management Plan	Northcoates Point Lagoon GB560402917500	Transitional	Moderate	Good by 2027
Humber River Basin Management Plan	Hornsea Mere GB30430244	Lake	Poor	Good by 2015
Humber River Basin Management Plan (Hull and East Riding catchment)	Danes Dyke to Flamborough Area GB104026067180	River	Moderate	Good by 2027
Humber River Basin Management Plan (Hull and East Riding catchment)	Flamborough North Landing Catchment GB104026067170	River	Moderate	Good by 2027
Humber River Basin Management Plan (Hull and East Riding catchment)	Flamborough South Landing Catchment GB104026067160	River	Moderate	Good by 2027

River Basin Management Plan	Water body	Water body category	Current overall potential	RBMP status objective (overall)
Humber River Basin Management Plan (Hull and East Riding catchment)	Danes Dyke/Bempton Beck from Source to North Sea GB104026072780	River	Moderate	Good by 2027
Humber River Basin Management Plan (Hull and East Riding catchment)	Gypsy Race from Source to N Sea GB104026072790	River	Poor	Good by 2027
Humber River Basin Management Plan (Hull and East Riding catchment)	Carnaby Wilsthorpe Area GB104026066650	River	Moderate	Good by 2027
Humber River Basin Management Plan (Hull and East Riding catchment)	Earls Dyke to N Sea GB104026066640	River	Bad	Good by 2015
Humber River Basin Management Plan (Hull and East Riding catchment)	Barmston Sea Drain from Skipsea Drain to N Sea GB104026077780	River	Moderate	Good by 2027
Humber River Basin Management Plan (Hull and East Riding catchment)	Barmston Sea Drain / Skipsea Drain to Conf GB104026077770	River	Bad	Good by 2027
Humber River Basin Management Plan (Hull and East Riding catchment)	Steam Dyke Hornsea Mere to N Sea GB104026066620	River	Moderate	Good by 2027
Humber River Basin Management Plan (Hull and East Riding catchment)	Lambwath Stream from Source to Foredyke Stream GB104026066860	River	Moderate	Good by 2027

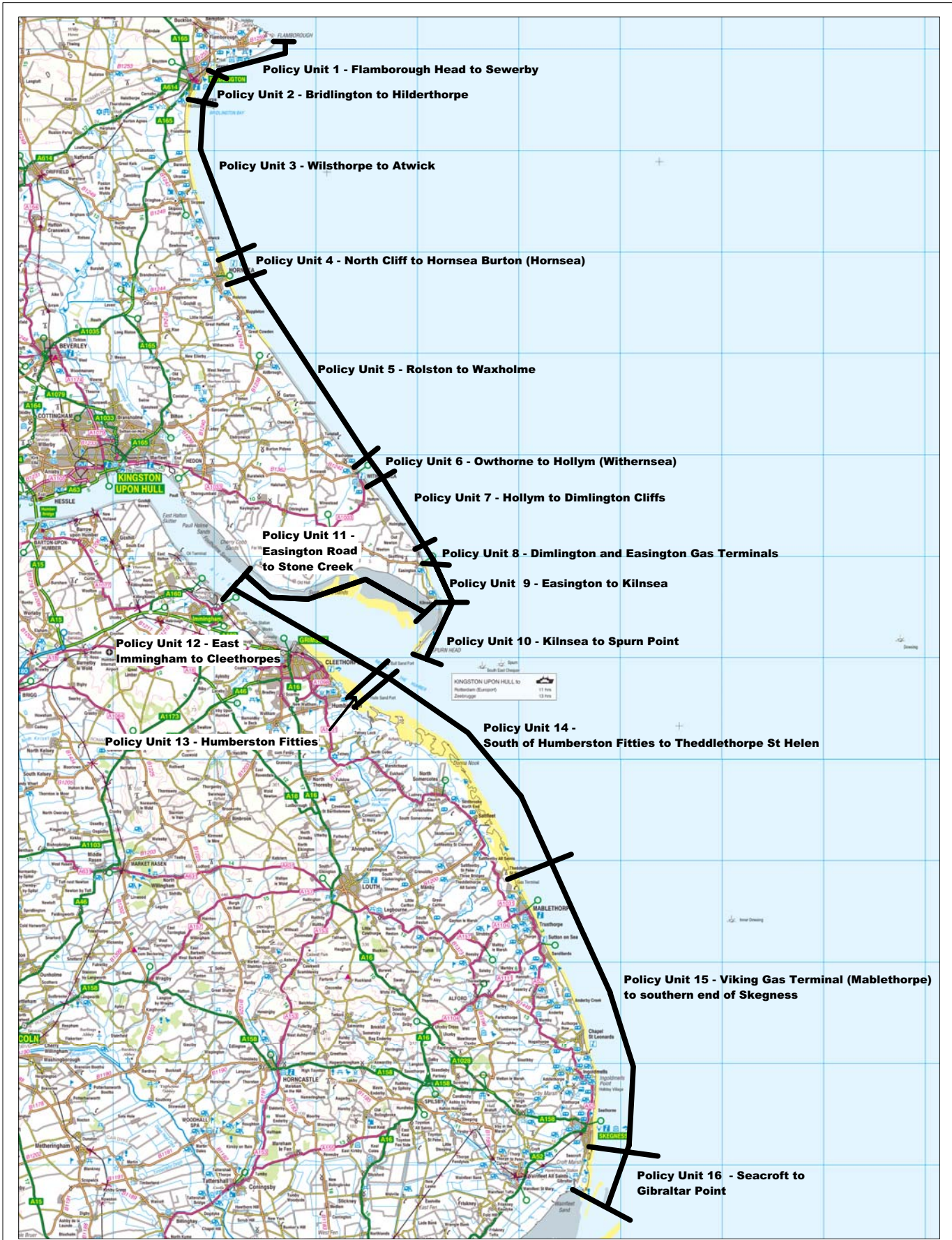
River Basin Management Plan	Water body	Water body category	Current overall potential	RBMP status objective (overall)
Humber River Basin Management Plan (Hull and East Riding catchment)	Humbleton Beck Catchment GB104026066610	River	Moderate	Good by 2015
Humber River Basin Management Plan (Hull and East Riding catchment)	Burton Pidsea Drain Lower Catchment GB104026066590	River	Moderate	Good by 2027
Humber River Basin Management Plan (Hull and East Riding catchment)	Sands/Keyingham/Roos Dr from Source to Humber GB104026067230	River	Moderate	Good by 2027
Humber River Basin Management Plan (Hull and East Riding catchment)	Winestead Drain from Source to Humber GB104026066570	River	Moderate	Good by 2027
Humber River Basin Management Plan (Hull and East Riding catchment)	Nevilles Drain Catchment to N Sea GB104026066540	River	Moderate	Good by 2027
Humber River Basin Management Plan (Hull and East Riding catchment)	Fosse Drain Catchment GB104026066530	River	Moderate	Good by 2027
Humber River Basin Management Plan (Hull and East Riding catchment)	Easington Drain GB104026066500	River	Moderate	Good by 2027
Humber River Basin Management Plan (Hull and East Riding catchment)	Ottringham Drain from Ottringham Gr to Humber GB104026066510	River	Moderate	Good by 2027

River Basin Management Plan	Water body	Water body category	Current overall potential	RBMP status objective (overall)
Humber River Basin Management Plan (Louth, Grimsby and Ancholme catchment)	Habrough Marsh Drain GB104029067570	River	Moderate	Good by 2027
Humber River Basin Management Plan (Louth, Grimsby and Ancholme catchment)	Mawnbridge Drain GB104029067540	River	Moderate	Good by 2027
Humber River Basin Management Plan (Louth, Grimsby and Ancholme catchment)	Lacby Beck / River Freshney Catchment GB104029067530	River	Poor	Good by 2027
Humber River Basin Management Plan (Louth, Grimsby and Ancholme catchment)	Buck Beck from Source to N Sea GB104029062110	River	Moderate	Good by 2027
Humber River Basin Management Plan (Louth, Grimsby and Ancholme catchment)	Waithe Beck Lower Catchment (to Tetney Lock) GB104029062100	River	Moderate	Good by 2027
Humber River Basin Management Plan (Louth, Grimsby and Ancholme catchment)	Louth Canal from New Dike to Tetney Lock GB104029062080	River	Moderate	Good by 2027
Humber River Basin Management Plan (Louth, Grimsby and Ancholme catchment)	Marshchapel Drain GB104029062160	River	Moderate	Good by 2027
Humber River Basin Management Plan (Louth, Grimsby and Ancholme catchment)	Seven Towns North Eau GB104029062140	River	Good	Good by 2015

River Basin Management Plan	Water body	Water body category	Current overall potential	RBMP status objective (overall)
Humber River Basin Management Plan (Louth, Grimsby and Ancholme catchment)	Seven Towns South Eau GB104029062150	River	Good	Good by 2015
Anglian River Basin Management Plan	Steeping Long Eau Great Eau Chalk Unit GB40501G401600	Groundwater	Good	Good by 2015
Anglian River Basin Management Plan	Steeping GB530503016300	Transitional	Moderate	Good by 2027
Anglian River Basin Management Plan (River Witham Catchment)	Chapel Pit NR GB30533132	Lake	Good	Good by 2015
Anglian River Basin Management Plan (River Witham Catchment)	South Dike GB105029061680	River	Moderate	Good by 2027
Anglian River Basin Management Plan (River Witham Catchment)	Long Eau GB105029061670	River	Poor	Good by 2027
Anglian River Basin Management Plan (River Witham Catchment)	Great Eau GB105029061660	River	Moderate	Good by 2027
Anglian River Basin Management Plan (River Witham Catchment)	Woldgrift Drain (lower end) GB105029061650	River	Moderate	Good by 2027
Anglian River Basin Management Plan (River Witham Catchment)	Trusthorpe Pump Drain (upper end) GB105029061640	River	Good	Good by 2015
Anglian River Basin Management Plan (River Witham Catchment)	Trusthorpe Pump Drain (lower end) GB105029061760	River	Good	Good by 2015

River Basin Management Plan	Water body	Water body category	Current overall potential	RBMP status objective (overall)
Anglian River Basin Management Plan (River Witham Catchment)	Boygrift Drain GB105029061740	River	Good	Good by 2015
Anglian River Basin Management Plan (River Witham Catchment)	Anderby Main Drain GB105029061730	River	Good	Good by 2015
Anglian River Basin Management Plan (River Witham Catchment)	Boygrift Drain (upper end) GB105029061720	River	Good	Good by 2015
Anglian River Basin Management Plan (River Witham Catchment)	Willoughby Drain GB105029061710	River	Moderate	Good by 2027
Anglian River Basin Management Plan (River Witham Catchment)	Ingoldmells Main Drain GB105029061700	River	Good	Good by 2015
Anglian River Basin Management Plan (River Witham Catchment)	Cow Bank Drain GB105030056440	River	Good	Good by 2015
Anglian River Basin Management Plan (River Witham Catchment)	Tributary of Steeping River GB105030056390	River	Good	Good by 2015

Annex B – Figures



Project:

HECAG SMP WFD ASSESSMENT

Title:

Policy Units

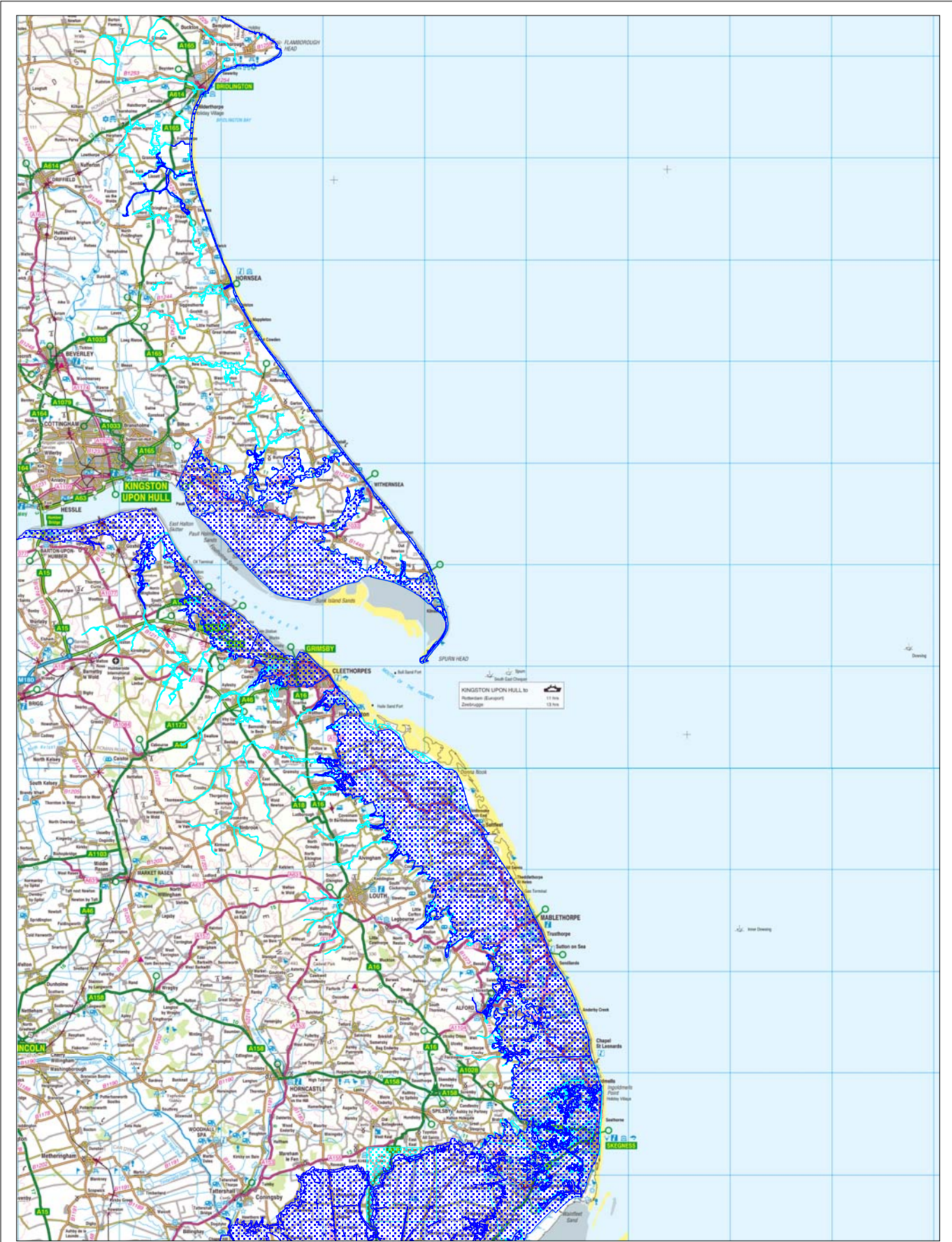
FIGURE 1

Scale: 1:520,000

Drw HJ	App JDP	Chk LM
Rev 0	Date 14/08/09	




www.scottwilson.com



Project:
**HECAG SMP
 WFD ASSESSMENT**

Title:
Flood Zones

Notes

 Tidal Flood Zone 2


 Tidal Flood Zone 3

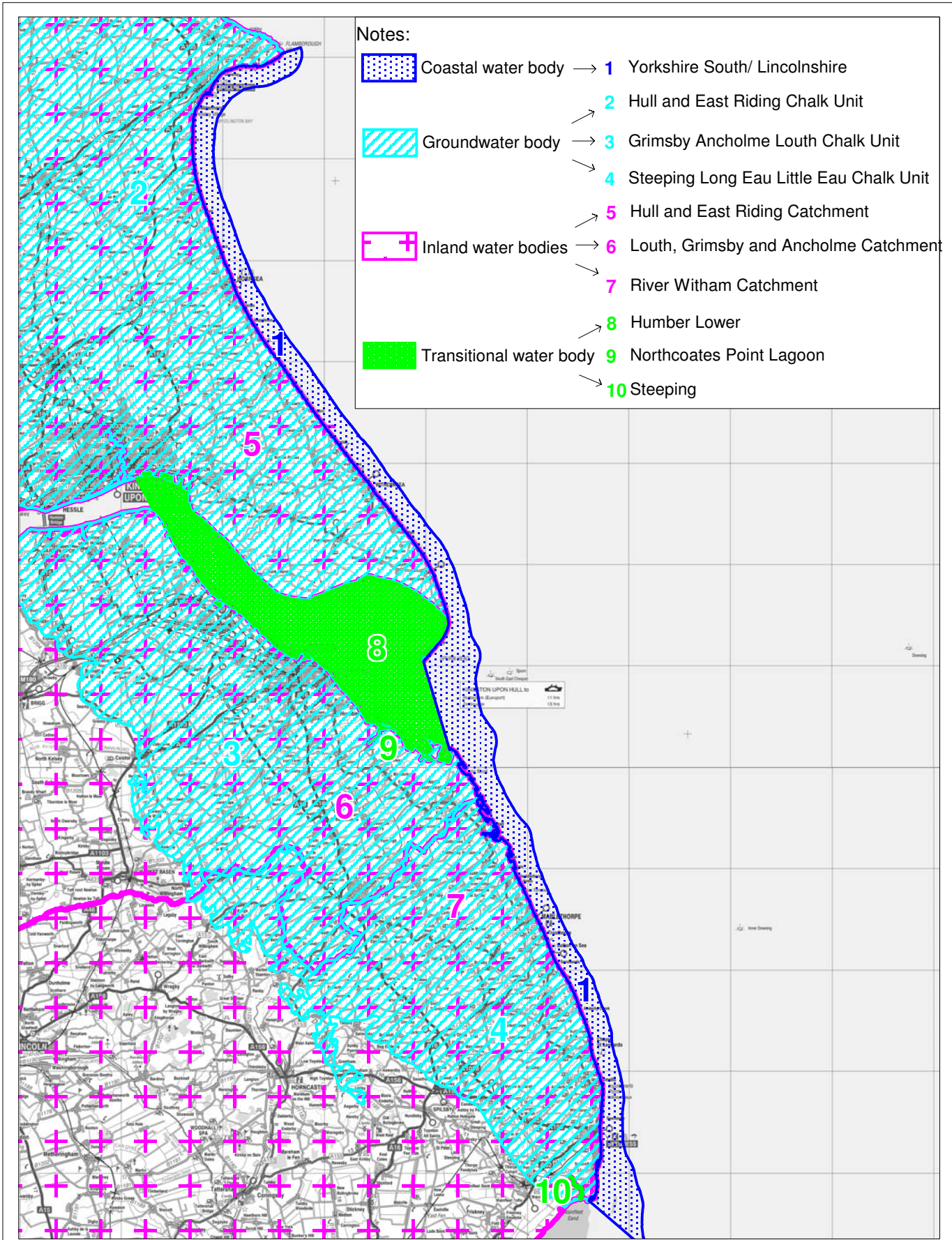
FIGURE 2

Scale: 1:520,000

Drw HJ	App JDF	Chk LM
Rev 0	Date 14/08/09	



www.scottwilson.com



Project:

HECAG SMP WATER FRAMEWORK DIRECTIVE ASSESSMENT

Title:

River Basin Management Plan Water Bodies

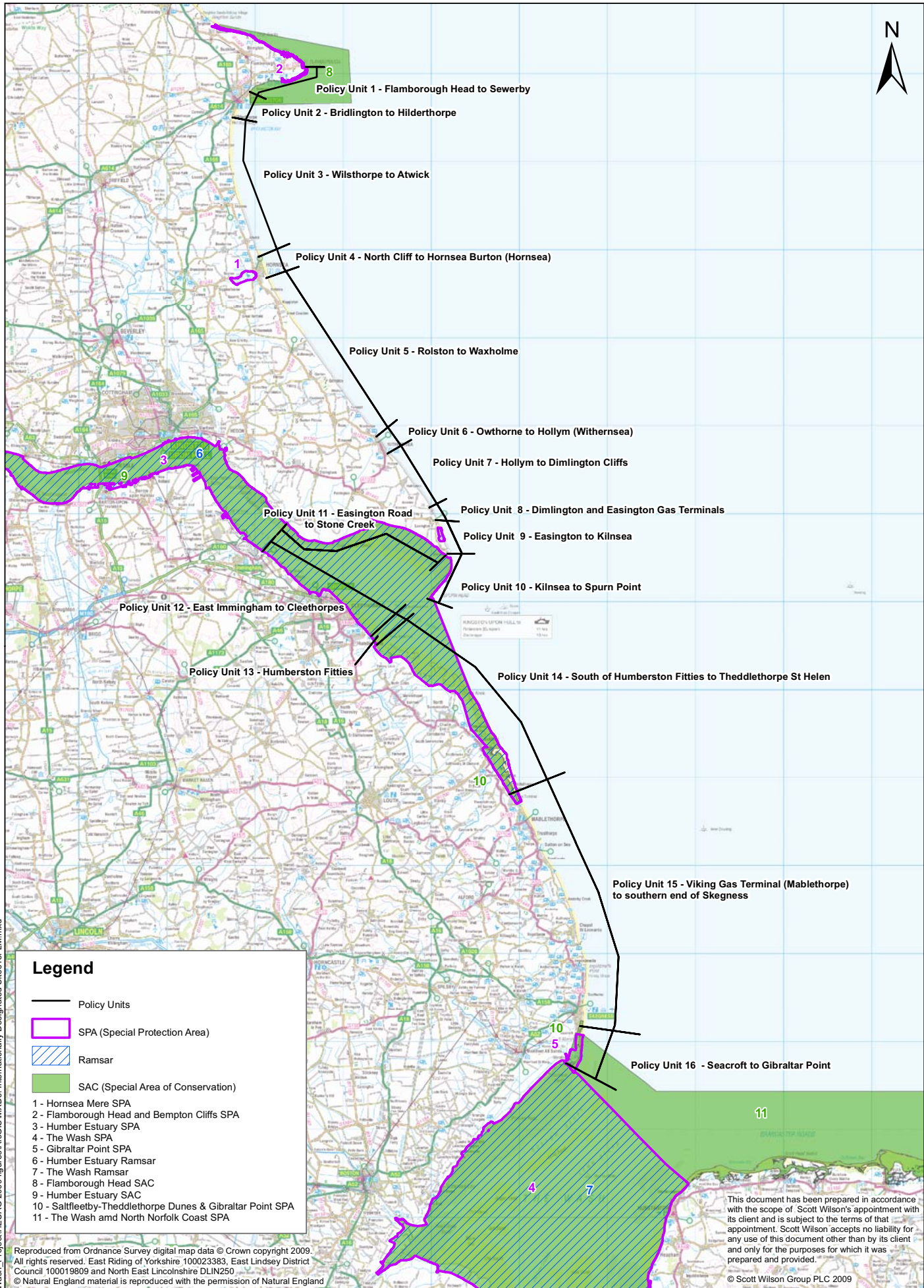
FIGURE 3

Scale: 1:520,000

Drw	App	Chk
LM	DD	DD
Rev 0	Date 26/08/09	



www.scottwilson.com



File location: K:\D17146_EN03_Wash_Project\HECAG 2009 figures\ArcSIS\MXD\Internationally Designated Sites for LM.mxd

Reproduced from Ordnance Survey digital map data © Crown copyright 2009.
 All rights reserved. East Riding of Yorkshire 100023383, East Lindsey District Council 100013803 and North East Lincolnshire DLIN250
 © Natural England material is reproduced with the permission of Natural England

This document has been prepared in accordance with the scope of Scott Wilson's appointment with its client and is subject to the terms of that appointment. Scott Wilson accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided.
 © Scott Wilson Group PLC 2009

Project Title		FIGURE 4		
HECAG SMP WFD ASSESSMENT		Scale at A4: 1:400,000		
Drawing Title	Drw:	App:	Rev:	
INTERNATIONALLY DESIGNATED WILDLIFE SITES IN RELATION TO EACH POLICY UNIT	AH	JR	0	
	Chk:	Date:	Date:	
		14/08/09	14/08/09	



www.scottwilson.com

Annex C – Objectives and standards for relevant Natura 2000 sites (from River Basin Management Plans)

N2K Protected Area in Humber River Basin District (Flamborough Head SAC)

Protected Area name Flamborough Head SAC	Protected Area designation Habitats Directive (Council Directive 92/43/EEC): http://www.jncc.gov.uk/page-1374 Detailed site information: http://www.natureonthemap.org.uk/ http://www.hull.ac.uk/coastalobs/flamborough/conservation/index.htm	Is the Protected Area meeting its environmental objectives as required by Article 4 (1c)? If not, date for achieving environmental objectives If extended, justification provided at end of this table	Y
----------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---

Overall objective for Protected Area:

Favourable Conservation Status (to protect and, where necessary, improve the water or water-dependent environment to the extent necessary to maintain at or improve to Favourable Conservation Status the water-dependent habitats and species for which the Protected Area is designated)

Water-dependent habitats or species for which the Protected Area was designated (interest features):

Reefs (H1170); Sea caves (H8330); Vegetated sea cliffs (H1230)

Waterbody ID:

GB104026067160; GB104026067170; GB104026067180; GB104026072780; GB104027067780; GB640402490000; GB650301500003

Reason for feature/s not meeting objective		Measures proposed to maintain at, or improve to, Favourable Conservation Status		Measure to be made operational no later than
Attribute	Reason	Measure	Organisation responsible	
Ecology / Morphology	Fisheries	Byelaw/Management Plan	North East Sea Fisheries Committee	2012

N2K Protected Area in Humber River Basin District (Flamborough Head & Bempton Cliffs SPA)

Protected Area name Flamborough Head & Bempton Cliffs SPA	Protected Area designation Habitats Directive (Council Directive 92/43/EEC): http://www.jncc.gov.uk/page-1374 Detailed site information: http://www.natureonthemap.org.uk/	Is the Protected Area meeting its environmental objectives as required by Article 4 (1c)? If not, date for achieving environmental objectives If extended, justification provided at end of this table	Y
---------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---

Overall objective for Protected Area:

Favourable Conservation Status (to protect and, where necessary, improve the water or water-dependent environment to the extent necessary to maintain at or improve to Favourable Conservation Status the water-dependent habitats and species for which the Protected Area is designated)

Water-dependent habitats or species for which the Protected Area was designated (interest features):

Kittiwake

Waterbody ID:

GB104026067160; GB104026067170; GB104027067780; GB640402490000; GB650301500003

Reason for feature/s not meeting objective		Measures proposed to maintain at, or improve to, Favourable Conservation Status		Measure to be made operational no later than
Attribute	Reason	Measure	Organisation responsible	
Fisheries	Fisheries By-catch	Byelaw and other management measures	Environment Agency	2012

N2K Protected Area in Humber River Basin District (Hornsea Mere SPA)

Protected Area name Hornsea Mere SPA	Protected Area designation Habitats Directive (Council Directive 92/43/EEC): http://www.jncc.gov.uk/page-1374 Detailed site information: http://www.natureonthemap.org.uk/	Is the Protected Area meeting its environmental objectives as required by Article 4 (1c)? If not, date for achieving environmental objectives	N 2015
If extended, justification provided at end of this table			

Overall objective for Protected Area:

Favourable Conservation Status (to protect and, where necessary, improve the water or water-dependent environment to the extent necessary to maintain at or improve to Favourable Conservation Status the water-dependent habitats and species for which the Protected Area is designated)

Water-dependent habitats or species for which the Protected Area was designated (interest features):

Gadwall; Mute swan

Waterbody ID:

GB104026066620; GB30430244

Reason for feature/s not meeting objective		Measures proposed to maintain at, or improve to, Favourable Conservation Status		Measure to be made operational no later than
Attribute	Reason	Measure	Organisation responsible	
Water Quality	- Water pollution - agriculture/run off	Develop pollution action plan (evaluate impacts and apply appropriate solution, eg CSF, WPZ or control of discharges)	Natural England	2012
Water Quality	- Water pollution - agriculture/run off	Develop pollution action plan (evaluate impacts and apply appropriate solution, eg CSF, WPZ or control of discharges)	Environment Agency	2012

N2K Protected Area in Humber River Basin District (Humber Estuary SAC)

Protected Area name Humber Estuary SAC	Protected Area designation Habitats Directive (Council Directive 92/43/EEC): http://www.jncc.gov.uk/page-1374 Detailed site information: http://www.natureonthemap.org.uk/ http://www.humberems.co.uk/	Is the Protected Area meeting its environmental objectives as required by Article 4 (1c)? If not, date for achieving environmental objectives	N 2015
If extended, justification provided at end of this table			

Overall objective for Protected Area:

Favourable Conservation Status (to protect and, where necessary, improve the water or water-dependent environment to the extent necessary to maintain at or improve to Favourable Conservation Status the water-dependent habitats and species for which the Protected Area is designated)

Water-dependent habitats or species for which the Protected Area was designated (interest features):

Atlantic salt meadows (H1330); Dune grassland (H2130); Dunes with sea buckthorn (H2160); Estuaries (H1130); Glasswort and other annuals colonising mud and sand (H1310); Grey seal (S1364); Intertidal mudflats and sandflats (H1140); Lagoons (H1150); River lamprey (S1099); Sea lamprey (S1095); Shifting dunes (H2110); Shifting dunes with marram grass (H2120); Subtidal sandbanks (H1110)

Waterbody ID:

GB104026066500; GB104026066510; GB104026066530; GB104026066570; GB104026066740; GB104026066800; GB104026067210; GB104027063400; GB104029064310; GB104029062110; GB104029062150; GB104029062160; GB104029067520; GB104029067540; GB104029067570; GB104029067580; GB104029067620; GB104029067640; GB104029067650; GB104029067660; GB204027064270; GB640402490000

Reason for feature/s not meeting objective		Measures proposed to maintain at, or improve to, Favourable Conservation Status		Measure to be made operational no later than
Attribute	Reason	Measure	Organisation responsible	
Impacts on River Lamprey	- Entrainment / Impingement	Abstraction licence - revoke or amend	Environment Agency	2012
Impacts on River Lamprey	- Extraction (By-Catch)	Develop management plan through additional controls under the Marine and Coastal Access Bill	Defra	2012
Morphology	- Coastal Squeeze	Flood risk management	Environment Agency	2012
Water Quality	- Water Pollution – Diffuse	Investigation	Natural England	2012
Water Quality	- Water Pollution - Discharge	Discharge/PPC consent	Environment Agency, Water companies, Industry	2012

N2K Protected Area in Humber River Basin District (Humber Estuary SPA)

Protected Area name Humber Estuary SPA	Protected Area designation Habitats Directive (Council Directive 92/43/EEC): http://www.jncc.gov.uk/page-1374 Detailed site information: http://www.natureonthemap.org.uk/ http://www.humberems.co.uk/	Is the Protected Area meeting its environmental objectives as required by Article 4 (1c)? If not, date for achieving environmental objectives If extended, justification provided at end of this table	N 2015
--------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------

Overall objective for Protected Area:

Favourable Conservation Status (to protect and, where necessary, improve the water or water-dependent environment to the extent necessary to maintain at or improve to Favourable Conservation Status the water-dependent habitats and species for which the Protected Area is designated)

Water-dependent habitats or species for which the Protected Area was designated (interest features):

Avocet; Bar-tailed godwit; Bittern; Black-tailed godwit; Dunlin; Golden plover; Hen harrier; Knot; Little tern; Marsh harrier; Redshank; Ruff; Shelduck; Waterfowl assemblage

Waterbody ID:

GB104026066500; GB104026066510; GB104026066530; GB104026066570; GB104026066740; GB104026066800; GB104026067210; GB104027063400; GB104028064310; GB104029062110; GB104029062150; GB104029062160; GB104029067520; GB104029067540; GB104029067570; GB104029067580; GB104029067620; GB104029067640; GB104029067650; GB104029067660; GB204027064270; GB530402609201; GB530402609202; GB530402609203; GB560402916600; GB560402916700; GB560402917500; GB640402490000

Reason for feature/s not meeting objective		Measures proposed to maintain at, or improve to, Favourable Conservation Status		Measure to be made operational no later than
Attribute	Reason	Measure	Organisation responsible	
Water Quality	- Water Pollution	Discharge/PPC consent	Environment Agency, Industry	2012

N2K Protected Area in Anglian River Basin District (Saltfleetby-Theddlethorpe Dunes and Gibraltar Point SAC)

Protected Area name Saltfleetby-Theddlethorpe Dunes and Gibraltar Point SAC	Protected Area designation Habitats Directive (Council Directive 92/43/EEC): http://www.jncc.gov.uk/page-1374 Detailed site information: http://www.natureonthemap.org.uk/	Is the Protected Area meeting its environmental objectives as required by Article 4 (1c)? If not, date for achieving environmental objectives If extended, justification provided at end of this table	Y
---------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---

Overall objective for Protected Area:

Favourable Conservation Status (to protect and, where necessary, improve the water or water-dependent environment to the extent necessary to maintain at or improve to Favourable Conservation Status the water-dependent habitats and species for which the Protected Area is designated)

Water-dependent habitats or species for which the Protected Area was designated (interest features):

Dune grassland (H2130); Dunes with sea buckthorn (H2160); Humid dune slacks (H2190); Shifting dunes (H2110); Shifting dunes with marram grass (H2120)

Waterbody ID:

GB530503016300; GB640402490000; GB640523160000

Reason for feature/s not meeting objective		Measures proposed to maintain at, or improve to, Favourable Conservation Status		Measure to be made operational no later than
Attribute	Reason	Measure	Organisation responsible	

N2K Protected Area in Anglian River Basin District (Gibraltar Point SPA)

Protected Area name Gibraltar Point SPA	Protected Area designation Habitats Directive (Council Directive 92/43/EEC): http://www.jncc.gov.uk/page-1374 Detailed site information: http://www.natureonthemap.org.uk/ http://www.esfic.co.uk/ems/pages/ems.htm	Is the Protected Area meeting its environmental objectives as required by Article 4 (1c)? If not, date for achieving environmental objectives If extended, justification provided at end of this table	Y
---------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---

Overall objective for Protected Area:

Favourable Conservation Status (to protect and, where necessary, improve the water or water-dependent environment to the extent necessary to maintain at or improve to Favourable Conservation Status the water-dependent habitats and species for which the Protected Area is designated)

Water-dependent habitats or species for which the Protected Area was designated (interest features):

Bar-tailed godwit; Grey plover; Little tern; Sanderling

Waterbody ID:

GB105030056390; GB530503016300; GB640402490000; GB640523160000

Reason for feature/s not meeting objective		Measures proposed to maintain at, or improve to, Favourable Conservation Status		Measure to be made operational no later than
Attribute	Reason	Measure	Organisation responsible	

N2K Protected Area in Anglian River Basin District (The Wash SPA)

Protected Area name The Wash SPA	Protected Area designation Habitats Directive (Council Directive 92/43/EEC): http://www.jncc.gov.uk/page-1374 Detailed site information: http://www.natureonthemap.org.uk/ http://www.esfic.co.uk/ems/pages/ems.htm	Is the Protected Area meeting its environmental objectives as required by Article 4 (1c)? If not, date for achieving environmental objectives If extended, justification provided at end of this table	N 2015
--------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------

Overall objective for Protected Area:

Favourable Conservation Status (to protect and, where necessary, improve the water or water-dependent environment to the extent necessary to maintain at or improve to Favourable Conservation Status the water-dependent habitats and species for which the Protected Area is designated)

Water-dependent habitats or species for which the Protected Area was designated (interest features):

Bar-tailed godwit; Bewicks swan; Common tern; Curlew; Dark-bellied brent goose; Dunlin; Grey plover; Knot; Little tern; Oystercatcher; Pink-footed goose; Pintail; Redshank; Sanderling; Shelduck; Turnstone; Waterfowl assemblage; Whooper swan

Waterbody ID:

GB105030056270; GB105030056370; GB105031050760; GB105031055490; GB105031055500; GB105031055540; GB105031055550; GB105033053470; GB105033053480; GB530503000100; GB530503016300; GB530503100400; GB530503200200; GB530503300300; GB530503311300; GB560503316700; GB640523160000

Reason for feature/s not meeting objective		Measures proposed to maintain at, or improve to, Favourable Conservation Status		Measure to be made operational no later than
Attribute	Reason	Measure	Organisation responsible	
Morphology	Inappropriate Coastal Management	Local authority planning permission	Local Authority	2012
Morphology/ecology	Inappropriate Fisheries	Management agreement/modify consent	Natural England, Industry	2012
Water Quality/Hydromorphology	Unknown	Investigation	Natural England, Environment Agency, Local Authority	2012

N2K Protected Area in Anglian River Basin District (The Wash & North Norfolk Coast SAC)

Protected Area name The Wash & North Norfolk Coast SAC	Protected Area designation Habitats Directive (Council Directive 92/43/EEC): http://www.jncc.gov.uk/page-1374	Is the Protected Area meeting its environmental objectives as required by Article 4 (1c)?	N
	Detailed site information: http://www.natureonthemap.org.uk/ http://www.esfc.co.uk/ems/pages/ems.htm	If not, date for achieving environmental objectives	2015
If extended, justification provided at end of this table			

Overall objective for Protected Area:

Favourable Conservation Status (to protect and, where necessary, improve the water or water-dependent environment to the extent necessary to maintain at or improve to Favourable Conservation Status the water-dependent habitats and species for which the Protected Area is designated)

Water-dependent habitats or species for which the Protected Area was designated (interest features):

Atlantic salt meadows (H1330); Common seal (S1365); Glasswort and other annuals colonising mud and sand (H1310); Intertidal mudflats and sandflats (H1140); Lagoons (H1150); Mediterranean saltmarsh scrub (H1420); Otter (S1355); Reefs (H1170); Shallow inlets and bays (H1160); Subtidal sandbanks (H1110)

Waterbody ID:

GB105030056270; GB105030056370; GB105030056390; GB105031050760; GB105031055490; GB105031055500; GB105031055540; GB105031055550; GB105033053470; GB105033053480; GB105034055750; GB105034055780; GB105034055830; GB640402490000; GB640503300000; GB640523160000

Reason for feature/s not meeting objective		Measures proposed to maintain at, or improve to, Favourable Conservation Status		Measure to be made operational no later than
Attribute	Reason	Measure	Organisation responsible	
Ecology / Morphology	- Inappropriate fisheries	Management agreement/modify consent	Natural England, Industry	2012
Morphology	- Coastal Squeeze	SMP2 Investigation	Natural England	2012
Morphology	- Fisheries	Byelaw	Sea Fisheries Committee	2012
Morphology	- Significant decline in moult counts	Investigation	Natural England	2012
Water Quality / Hydromorphology	- Unknown	Investigation on Lagoons	Natural England, Environment Agency, Local authority	2012