Wealden & Rother Core Strategies

Appropriate Assessment

Hydrology Local to the Pevensey Levels

September 2010

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1. Introduction

Purpose of the paper

1.1. Local Planning Authorities are required under Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (European Habitats Directive) and the Conservation (Natural Habitats, & c.) Regulations 1994, as amended, to undertake an Appropriate Assessment (AA) of the implications of any land use plan on a site defined in the Natura 2000 network (also described as European sites). It is Government policy[1] for sites designated under the Convention on Wetlands of International Importance (Ramsar sites) to be treated as having equivalent status to Natura 2000 sites.

1.2. Stage 1 of the AA, 'Screening', was undertaken by Wealden District Council and Rother District Council for their Core Strategies and, based on the precautionary principle, concluded that a significant effect in relation to hydrological impact on the Pevensey Levels could not be ruled out. An Appropriate Assessment is therefore required to determine whether the Core Strategies, either alone or in combination with other projects or plans, will adversely affect the integrity of the Pevensey Levels Ramsar site.

1.3. This document has been prepared jointly by Wealden District Council and Rother District Council and presents the Appropriate Assessment for Wealden and Rother Core Strategies as it applies to hydrological impacts on the Pevensey Levels Ramsar site. In particular, the paper considers the potential for each local authority's Core Strategy (either alone or in combination with other projects or plans) to have a significant effect on the Pevensey Levels Ramsar site and recommends means of avoiding and mitigating against any adverse effects of development on nature conservation interests. This paper will also be used in the preparation of an Appropriate Assessment concerning any planning application, which is considered to have a likely significant impact on the hydrology of the Pevensey Levels.

The Habitats Directive

1.4. The European Habitats Directive[2] sets out the means to protect habitats and species of European importance through the establishment and conservation of a network of sites known as 'Natura 2000' sites. Natura 2000 sites are Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Birds Directive.

1.5. The aim of the Habitats Directive is to "*maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest*" (Habitats Directive, Article 2(2)). The conservation status of a habitat or species can be regarded to be favourable when the following criteria are met:

- The area of habitat is stable or increasing;

[1] Planning Policy Statement 9: Biodiversity & Geological Conservation
[2] EC Directive 92/43/EEC on 'The Conservation of Natural Habitats and of Wild Fauna and Flora'

- The structure and functions of the habitat necessary for its long-term maintenance continue to exist.;
- The population of a species is maintaining itself on a long-term basis;
- The range of a species is stable; and
- There is sufficient habitat to maintain the population.

The Habitats Regulations

1.6. In England the Directive has been transposed into national law by means of the Conservation (Natural Habitats, &c.) Regulations 1994. In October 2005, the European Court of Justice (ECJ) ruled that the UK had failed to correctly transpose the provisions of Articles 6 (3) and (4) of the Habitats Directive into national law. Specifically, the UK had failed to ensure that land use plans are subject to Appropriate Assessment where they might have a significant effect on a Natura 2000 site.

1.7. Following the ECJ ruling, the Conservation (Natural Habitats &c) Regulations 1994 have been amended. It is now required for land use plans and projects, not directly connected with or necessary to the management of the European Site, to be subject to an Appropriate Assessment where it is likely to have a significant effect on a site.

1.8. Under the provisions of the Conservation (Natural Habitats &c) Regulations 1994 as amended it is also necessary for a Local Planning Authority to undertake an appropriate assessment of the implications of development proposed within a planning application. All information necessary for this purpose will need to be supplied, upon request, by the party seeking consent. Any proposed development, which is considered likely to have a significant effect on the Pevensey Levels, will therefore be subject to Appropriate Assessment.

Requirements of Appropriate Assessment

1.9. The purpose of an Appropriate Assessment is to assess the implications of a plan against the conservation objectives of the European site, and to ascertain that the plan would not, even in combination with other plans or projects, adversely affect the integrity of the site.

1.10. The Habitats Directive applies the precautionary principle to protected sites when assessing whether the effects of a plan are significant. This means that a plan can only be permitted after it has been determined that there will be no adverse effect on the integrity of the site(s) in question.

1.11. Where an adverse effect is identified, the Habitats Directive promotes the use of mitigation measures and an examination of alternative options to avoid any potential damaging effects to the site. However, plans may still be permitted if there are no alternatives to them and there are Imperative Reasons of Overriding Public Interest (IROPI) as to why they should go ahead. These reasons can include those of a social or economic nature including human health, safety considerations or important environmental benefits. However, the public interest must be overriding and of long-term gain. In such cases,

compensation would be necessary to ensure the overall integrity of the site network.

2. The Development Plans

2.1 The relevant development plans, for this assessment, for the Wealden and Rother area are:

- The Wealden Core Strategy
- The Rother Core Strategy

Background to the Core Strategies

Wealden

2.2 The Core Strategy is the key strategic document in a compendium of documents, which constitutes the Local Development Framework. It sets out the long-term spatial vision for a local planning authority area, the spatial objectives and strategic policies to deliver that vision.

2.3 In accordance with Planning Policy Statement 12 the Core Strategy should incorporate the transport and housing policies of the RSS and other relevant strategies that have implications for the development and use of land. The Core Strategy will therefore determine the spatial distribution of development within a local authority area. Both the Wealden and Rother Core Strategies will identify the broad location of development, whilst specific site allocations will be contained within separate Site Allocations Development Plan Documents.

2.4 The Wealden Spatial Strategy identified within the Core Strategy directs development to be focused around the existing urban areas with some growth in the villages in line with a settlement hierarchy determined using sustainability criteria and assessed using the Sustainability Appraisal process.

2.5 Within the Pevensey Levels catchment area the Core Strategy up to 2030 is seeking to accommodate around 2860 dwellings focussing on the Hailsham and Hellingly, Polegate, Willingdon and Stone Cross areas. This area is also identified for 25,550 sq m employment floorspace and 6,900 sq m of retail floorspace. These figures include all completions and commitments since 2006.

2.6 A number of smaller settlements are also located within the catchment area including Pevensey, Westham, Hooe, Ninfield, Herstmonceux, Wartling, Boreham Street and Magham Down. The scale of proposed additional housing development to be allocated up to 2030 is as follows: Herstmonceux 70, Ninfield 50 and Boreham Street 10. A map of the Pevensey Levels catchment area in relation to these settlements is included at Appendix 1.

2.7 Growth identified within Wealden in the Core Strategy will be located primarily in urban greenfield locations adjacent to the current built-up area. Additional unidentified growth may also take place under existing local plan policies, until such time they are superseded by the Local Development Framework, within development boundaries.

Rother

2.8 Within Rother, the former South East Plan required that 4,000 dwellings be built in the ‘Sussex Coast Sub-Region’ between 2006 and 2026. Between April

2006 and March 2010, 826 dwellings were built, such that the Core Strategy should plan for a further 3,174 dwellings. Of this requirement, sites for some 2,300 dwellings have already been identified either by the granting of planning permission or by 'saved' Local Plan allocations.

2.9 The Council has not yet taken any decision on future housing levels following revocation of the South East Plan. However, it has previously concluded that higher levels of growth are note appropriate, while the scale of development in Bexhill is heavily contingent upon early construction of the Bexhill Hastings Link Road.

2.10 Given delays in a decision on the Link Road, the above figures may be reasonably be taken as the maximum likely to be pursued through the Core Strategy.

2.11 Bexhill's relationship to the Pevensey Levels is shown on the map at Appendix 1. The main focus of planned growth is by urban extensions principally to the north-east of the town, which are outside the hydrological catchment area of the Pevensey Levels. This will be supplemented over time by expansion onto greenfield sites to the north and west of Bexhill. Only the latter would be in the catchment of the Pevensey Levels. The precise scale and location of these will be determined through preparation of a 'Site Allocations and Development' DPD.

3. Appropriate Assessment Methodology

Stages of Appropriate Assessment

3.1 There are four key stages of the AA process as set out in the European Commission Guidance[3]. Stages 1 and 2 relate to Article 6(3) of the Habitats Regulations and Stages 3 and 4 relate to Article 6(4).

- Stage 1: Screening

  The screening process will determine whether the plan in itself or 'in combination' with other plans and projects, is likely to have a significant adverse effect on a European site. Where insufficient information exists to make a sound judgement then it should be assumed that a significant effect is possible. This is in line with the precautionary principle. If significant effects are likely to occur, Stage 2 Appropriate Assessment is required.

- Stage 2: Appropriate Assessment

  This stage involves determining whether, in view of the site's conservation objectives, the plan, 'in combination' with other plans and projects, would have an adverse effect (or risk of this) on the integrity of the site(s). If not, the plan can proceed.

- Stage 3: Assessment of alternative solutions

  Where it is assessed that there may be an adverse impact (or risk of this) on the integrity of a European site, and it is not possible to mitigate against those effects, then it is necessary to assess alternative ways of implementing the plan.

- Stage 4: Assessment where no alternative solutions exist and where adverse impacts remain

  In exceptional circumstances, where an alternative solution has not been found the plan may commence in light of 'Imperative Reasons of Overriding Public Interest' (IROPI) or, in certain circumstances, where there are human health or safety considerations or important environmental benefits. In such cases compensatory measures must be put in place to offset the negative impacts.

3.2 If it is concluded at the screening stage that there will be no significant impacts, there is no need to carry out subsequent stages.

[3] Assessment of plans and projects significantly affecting Natura 2000 sites – Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC" (November 2001)

Stage 1: Screening

3.3 Both Wealden and Rother carried out screening assessments of their Core Strategies. It was concluded that the Core Strategies could not rule out a significant impact through potential adverse hydrological effects on the Pevensey Levels Ramsar site. An Appropriate Assessment was therefore required. The particular potential adverse hydrological impacts include:

- Increased surface water run-off produced by development;
- Pollutants contained in surface water run-off produced by development;
- Discharge of waste products from waste water treatment works, causing a detrimental impact on the water quality of the Pevensey Levels; and
- Increased water abstraction/ demand produced by additional development.

3.4 This paper considers the likely 'in combination' hydrological impacts of future development on the Pevensey Levels, and presents mitigation and avoidance techniques that can be put in place to avoid adverse impacts on the conservation objectives of the European site. Both Wealden and Rother have taken the decision to work collaboratively on this project. The project has been met with approval from Natural England and the Environment Agency.

Stage 2: Appropriate Assessment Methodology

3.5 The purpose of this assessment is to explore the potential adverse effects of both Wealden and Rother District Councils' Core Strategies and devise suitable and appropriate mitigation where appropriate.

3.6 The steps that were followed for undertaking this assessment with respect to hydrological impacts of development on the Pevensey Levels include:

- Early discussions with Natural England to confirm that the proposed approach to the AA is acceptable, and whether additional information would be needed to complete the analysis;
- Discussions with the Environment Agency and Natural England to discuss the potential impacts of development on the Pevensey Levels arising from the Core Strategies;
- A review of the Pevensey Levels Catchment and the Water Level Management Plan to determine how the Pevensey Levels functions and how the hydrology of the site is managed;
- A review of the current conditions of the Pevensey Levels Ramsar Site;
- Establishing whether future development within the hydrological catchment area of the Pevensey Levels would significantly impact on the conservation objectives of the site;
- A review of how the Pevensey Levels are managed in relation to waste water treatment. This involves considering the discharge consent and waste water capacity of the treatment works to assess the effect of waste water on the Pevensey Levels; and
- Identifying whether avoidance or mitigation would be required and if necessary make appropriate recommendations.

3.7 In evaluating the significance of effects on the Pevensey Levels, Wealden and Rother have used the best available information and collaborated with both the Environment Agency and Natural England during the process.

3.8 The Wealden and Rother Core Strategies will identify broad locations for development rather than allocate specific sites. In the absence of site specific information the precautionary approach has been taken such that if an adverse effect cannot be ruled out, avoidance or mitigation measures must be provided. This is in line with CLG guidance[4] that the level of detail of the assessment, whilst meeting the relevant requirements of the Habitats Regulations, should be 'appropriate' to the level of plan or project that it addresses.

[4] Planning for the protection of European Sites: Appropriate Assessment Guidance for Regional Spatial Strategies and Local Development Documents (August 2006)

4 The Pevensey Levels Ecosystem

4.1. The Pevensey Levels Ramsar site is situated between Eastbourne and Bexhill and is one of the largest and least fragmented lowland wet grassland systems in southeast England. The Pevensey Levels is also designated as a Site of Special Scientific Interest (SSSI) and part of it a National Nature Reserve (NNR).

4.2. General Conservation Objectives for protected sites include:

- To maintain the population of the habitat / species as a viable component
- of the site;
- To maintain the distribution of the habitat / species within the site;
- To maintain the distribution and extent of habitats supporting the species;
- To maintain the structure, function and supporting processes of habitats supporting the species; and
- To ensure that there is no significant disturbance of the species.

4.3. For Ramsar sites the main aims are *to promote the conservation of the wetland, to avoid deterioration of the wetland habitats of Ramsar interest and to avoid significant disturbance of associated species*.

4.4. Natural England, the Government's statutory advisor on nature conservation matters in England, is charged with ensuring promotion of the conservation and wise use of Ramsar sites through management and various other measures.

4.5. Natural England has provided a conservation objective for the Pevensey Levels Ramsar site. The aim is *'to restore (or maintain) the international site features of the Ramsar site to achieve favourable conservation status*'.

4.6. The Ramsar designation of the Pevensey Levels relates to its ditch flora and fauna where the site supports an outstanding assemblage of wetland plants and invertebrates including many British Red Data Book species. In addition, the site also supports 68% of vascular plant species in Great Britain that can be described as aquatic. It is probably the best site in Britain for freshwater molluscs, one of the five best sites for aquatic beetles and supports an outstanding assemblage of dragonflies. One of Britain's largest and rarest spiders, the fen raft spider *Dolomides plantarius* has its stronghold at Pevensey. The site also supports a notable assemblage of breeding and wintering wildfowl including wintering lapwing and snipe and breeding sedge warblers and reed warblers which nest in the scrub and reeds in the ditches respectively.

4.7 The Information Sheet on Ramsar Wetlands for the Pevensey Levels is published by the Joint Nature Conservation Committee. sets out the general ecological features and noteworthy flora and fauna.

4.8 These features include internationally and nationally important species of plant, snail, spider, beetle and dragonfly, amongst others. The Pevensey Levels has an important assemblage of species which can be affected by water quality and water levels.

4.9 Through an Appropriate Assessment of a Site Allocations DPD, the potential direct impacts on these features and suitable mitigation measures will be assessed and secured at this time.

4.10 Wetland sites are both fragile and vulnerable environments and are often subject to hydrological or other changes, which occur both on and off site. This assessment considers both indirect and direct effects of the Core Strategies and also considers the cumulative effects of potential piecemeal development.

4.11 The key environmental conditions of importance in sustaining the site integrity are:

- Unpolluted water;
- Low levels of nutrient enrichment (primarily from surface runoff and hydrological pathways, but also from atmospheric deposition);
- Control of non-native species (e.g. pennywort and *Crassula* sp.);
- Maintenance of appropriate hydrological regime; and
- Control of recreational disturbance.

The Pevensey Levels Catchment Area

4.12 The Pevensey Levels has a large hydrological catchment area extending much beyond the Ramsar site boundary. Three main river systems cut through the Pevensey Levels Ramsar site conveying water from tributaries located in the upland areas to the sea. These include:

- The western system: the Hurst Haven and the Glynleigh Sewer converge at Rickney to form the **Pevensey Haven**;
- The **Wallers Haven**; and
- The **East Stream**.

4.13 The area and surface water inflow to the western river system is less than that f the Wallers Haven. An important contribution to the western system is the Wastewater Treatment Works (WwTW) at Hailsham where treated effluent enters the Hurst Haven. Substantial flows emanating from both Hailsham North and South WwTW allow the western area to remain wet throughout the year.

4.14 The Wallers Haven on the eastern side of the Pevensey Levels is managed as a linear reservoir for public water supply. Summer flows into the eastern system are complicated by the major South East Water abstraction from the Wallers Haven at Hazards Green. The abstraction is dependant on water flow. Although mitigation is designed to reduce the effects of abstraction through the provision of compensation flows provided by abstraction from upstream boreholes, in dry years summer water levels fall to a point where the feeding of water to the ditch system is not possible.

4.15 Given the sensitivities of the Pevensey Levels, the abstraction licence issued to South East Water for public water supply will not be increased. In other words, no additional water can be abstracted for the public water supply above that currently permitted. The current abstraction licence is subject to review under the Review of Consents (RoC) as explained below.

4.16 The Environment Agency are currently progressing a Review of Consents (RoC) for the Pevensey Levels. The purpose of the RoC is to review the current consents to abstract or discharge water into the Pevensey Levels. This will help identify where it is necessary to revoke or amend the consents to protect the ecological features of the Levels. The RoC is broken down into three stages. The first two stages of this review considered over 200 abstraction licences, discharge consents and waste management consents. The third stage, an Appropriate Assessment for the RoC, is currently underway. This will determine if there are any adverse effects from the existing eight abstraction licences, one waste management consent and over 100 discharge consents.

4.17 At this time there are no results from the RoC. It is possible that the results, when available, will show the need to tighten some of the consents. Until the results of the RoC are available, the best available information is the current condition of the Pevensey Levels and the abstraction and discharges operating under the current consents. Taking into account the possibility that some consents could be tightened, it is even more important that new development does not cause existing consents to be exceeded, and where possible kept below their limits.

4.18 The hydrology of the Pevensey Levels, including the catchment area, is shown in Appendix 2.

The Pevensey Levels Drainage Network

4.19 The Pevensey Levels drainage network is complex and comprises pumping stations, water control structures, sluices and channels of different size. The general principal is that groundwater discharge and surface water runoff from the surrounding upland catchment area is carried across the lowland to the sea outfalls via the embanked channels (the three main river systems).

4.20 The water levels of the embanked channels are managed by the operation of a number of large gates located at the downstream end of each of the channels. These gates regulate the amount of water that is either discharged to the sea through tidal flap sluices or retained within the channel.

4.21 The lowland network of ditches has been modified so that some of the channels flow to pumping stations at specific locations, which can pump floodwater up into the embanked channels. In total 62% of the Ramsar site is pump-drained.

4.22 Other ditches are routed to enable water to be fed from the high level channels into the lowland. Water is fed to provide feed water for agriculture, to address the summer water deficit and also for conservation. Summer feeding i.e. the transfer of water around the ditch network, is a central aspect of water level management on the Pevensey Levels.

4.23 There are over 600km of field ditches across the Pevensey Levels. The field ditches represent the main habitat of interest on the site and are the primary focus of the Ramsar and other ecological designations. Private ditches can be either linked or isolated from the feed watercourses or pump drains by operation

or privately owned sluices. There are over 200 water level control structures across the Pevensey Levels.

The Management of the Pevensey Levels

4.24 The biodiversity of the Pevensey Levels is closely linked to its history of water management in the ditch system. It is recognised that water level management is fundamental in helping to restore or maintain the site in favourable condition.

4.25 The Environment Agency has permissive powers, under the Water Resources Act 1991, to manage water levels on all main rivers. It also acts as the Internal Drainage Broad (IDB) across the Pevensey Levels, having permissive powers under the Land Drainage Act 1991, to manage water levels on IDB watercourses. Riparian landowners have overall responsibility for managing watercourses, however, the Environment Agency currently carries out a three year ditch maintenance regime for all main river / IDB ditches. Riparian landowners maintain smaller field ditches.

4.26 Conservation management for the Pevensey Levels has been improved by the extensive application of agri-environment schemes and a study group provides a forum for landowners to discuss conservation issues.

Current Site Conditions

4.27 A condition assessment of the Pevensey Levels was undertaken in 2006 by Natural England. The assessment identified that 67% of the designated area achieves the Public Service Agreement (PSA) target of being in either favourable or unfavourable recovering condition. Reasons why certain units fail to meet the PSA target include poor water quality, invasive species and inappropriate water levels. On many accounts certain units may fail for two or three of these reasons.

<u>Poor water quality</u>

4.28 One of the main areas of concern for the conservation status of the Pevensey Levels is water quality. This is due to the potential impact that poor water quality can have on designated species.

4.29 In total, there are 90 consented discharges into the Pevensey Levels, however, of particular concern is the discharge from the two WwTW at Hailsham. The Hurst Haven waterbody and the stretch downstream of the discharge from Hailsham North are currently meeting good status under the Water Framework Directive criteria for Phosphorus. Notwithstanding this, ecological quality has continued to decline downstream of both WwTW. This is despite the implementation of nutrient stripping techniques.

4.30 According to the Water Framework Directive criteria, the stretch of water upstream of Hailsham South is achieving moderate phosphorus status and the stretch downstream is achieving poor phosphorus status. There is evidence of a correlation between the WwTW and the condition of specific units. In addition, there has also been a consistent observation of depressed ecology on the

Nunningham Stream in the Upper Wallers Haven catchment. It is thought that a potential cause of this may be the private WwTW discharge at Herstmonceux.

4.31 An Ecological Appraisal study of urban rivers was undertaken in 2005 concerning sewage pumping stations running through Hailsham. The report indicates that the tributaries joining the eastern Pevensey Levels are suffering from variable degrees of deterioration in water quality. It shows organic enrichment is a particular problem from the Amberstone Combined Sewer Overflow, Town Farm Estate Pumping Station and Horsebridge Pumping Station. In addition, a survey of the East Stream was undertaken during 2006, which concluded that the Little Common Combined Sewer Overflow was detrimentally affecting the watercourse.

4.32 Water quality can also be affected by the use of nitrates and pesticides in agriculture and horticulture. Sampling upstream of the WwTW indicates that currently, the source of high phosphates concentration may be diffuse rather than point source. Accumulation and release of phosphate within sediment may also contribute to the elevated concentrations of phosphates.

Invasive species

4.33 High nitrate emissions from the WwTW are believed to be the principal reason for the spread and invasiveness of Floating Pennywort. Floating Pennywort is an invasive plant species that clogs ditches and out-competes the designated flora. Furthermore, it cuts off the water from the air and leads to de-oxygenation, which can kill fish and other wildlife.

4.34 In addition to Floating Pennywort, there is an area of the invasive plant species *Crassula* which is slowly spreading along ditches and in scrapes. It is semi-aquatic so the relatively minor increase in water level could provide this plant for the potential for colonisation.

4.35 For the above reasons, parts of the western system fail to meet the PSA target and are considered to be of unfavourable ecological status.

Inappropriate water levels

4.36 Approximately 20% of the Pevensey Levels area fails to meet the PSA target due to inappropriate water level management. The main reasons that cause inappropriate water levels include inappropriate ditch management, poor drainage and inappropriate water level management. Other reasons include inappropriate shrub control, weed control, invasive species and water quality.

Water Level Management Plan

4.37 The Environment Agency has produced a Water Level Management Plan for the Pevensey Levels. The plan provides a means of determining the required water levels and identifies the water level management actions needed to bring the site to favourable condition. In considering the ecological requirements of key species on the Pevensey Levels the Environment Agency has identified the water level management objectives shown in Table 1.

Table 1: Water Level Targets for Pevensey Levels Conservation Interest Features

	Objective	Details
1	Maintain water levels in Main River and IDB watercourse at 0.3m below mean field level throughout the year.	Maintain and enhance ditch habitat for which the site is designated by maintaining water level at 0.3 m below mean field level throughout the year and avoiding significant fluctuations in this level.
2	For the rest of the site, maintain water levels 0.3m below mean field level throughout the year as a minimum.	This may be applicable, for example, to those landowners in Environmental Stewardship "bird options" which requires wetter conditions.
3	Restore winter flooding to the site.	Splash flooding of field surfaces for the benefits of breeding/over wintering waders, wildfowl, and wetland plants (including grassland communities) between autumn and spring. Achieved locally on individual basis as parts of Environmental Stewardship.
4	Restore the functioning of the ditch System.	Encourage landowners to undertake regular clearance of ditches to limit scrub encroachment and provide optimum conditions for designated species.

4.38 It is envisaged the above objectives will be achieved by the operation of main feed sluices, which provide water to about 60% of the site. The project is due to be completed in 2010.

5. The Potential of Future Development to Affect the Pevensey Levels Ecosystem

5.1 Additional new development and increased populations located within the hydrological catchment area of the Pevensey Levels have the potential to impose additional pressure on the conservation status of the Pevensey Levels Ramsar site through:

- Change in hydrological conditions; and
- Deterioration of water quality.

Hydrology

5.2 Hydrology concerns the quantity, duration, rates, frequency and other properties of water flow. In relation to the Pevensey Levels hydrology is central in maintaining specific designated species. The flora and fauna in the Pevensey Levels are not only dependent on the overall maintenance of water levels but also the velocity and volumes at which water is received into the watercourses, which is critical to the success of the ecosystem. The hydrology and consequently the Conservation Objectives of the Pevensey Levels are therefore potentially affected by a number of issues.

Increase in impermeable surfaces

5.3 The development of land involving the covering over of natural geology with impermeable materials and structures can reduce the amount of water being received and stored by the underlying geology. As a result, and without mitigation, there is an increase in the amount of overland flow, which means the amount of water being received in a shorter period of time creates greater volumes and velocities of water in the watercourses. Loss of vegetation in the catchment area of the Pevensey Levels would exacerbate this effect. The impact of development through the loss of permeability is dependant on the type of underlying geology and the topography.

5.4 Existing hard surfaced areas and the current urban drainage systems may also exacerbate the conveyance of water to the watercourses. Increased overland flow may enter the Pevensey Levels watercourses through drainage systems, which provide a direct route to watercourses.

Volume of treated wastewater discharge

5.5 There are a number of WwTW located within the hydrological catchment area of the Pevensey Levels, which directly discharge treated wastewater into the receiving waters. This water maintains the levels in the receiving watercourses, and any increase or reduction in the volume of discharge has the potential to affect the ecosystem of the Pevensey levels. Future compulsory water metering is likely to reduce the amount of water being used per household and could therefore reduce the volume of wastewater discharged via the WwTW. Future development is likely to increase the amount of wastewater for discharge, though considering the requirement for water metering and water conservation measures in new development it is not clear how significant this will be and whether the effects of compulsory water metering will in fact balance

the effects of new development. The quantity and quality of waste discharge from all WWTW are under a consenting regime. Consents are currently being looked at within the Review of Consents.

5.6 The Pevensey Levels water levels are managed through the WLMP which identifies seven hydrological units. Previously a larger number of smaller units could be managed independently but now much larger areas would be affected by a change in water level which would have a greater impact on biodiversity.

Water abstraction

5.7 The Pevensey Levels catchment is home to a major public abstraction point at Hazards Green. It is here where South East Water PLC abstracts water from the Wallers Haven, whilst also augmenting it via a system of upstream boreholes. The upstream boreholes ensure suitable water depths in the main channel.

5.8 Management of water abstraction is essential as the unsustainable abstraction of water, in relation to new development, has the potential to cause ecological problems by reducing river flow and river levels. This can have implications in relation to the geological processes that occur within wetland systems thus affecting soils, habitats and can change species composition.

5.9 The Catchment Abstraction Management Strategy for The Cuckmere and Pevensey Levels identifies the Pevensey Levels as having 'no water available' This means that there is no water available for further abstraction licences at low flows.

Water Quality

5.10 Water quality is governed by not only the quantity and type of contaminants but also the volume and velocity of the water conveying the contaminants. Changes to the water quality in the Pevensey Levels has the potential to affect the Conservation Objectives including maintaining the distribution of habitats and species and maintaining the structure, function and supporting processes of habitats supporting the species.

Contaminants and the aquatic environment

5.11 Chemical contaminants carried by water have the possibility of affecting wetland habitat and impacting upon soils, flora and fauna.

5.12 Pollutants can reach water bodies in a number of ways including:

- Surface water running directly into waterbodies;
- Drainage systems which discharge surface water run-off through pipes into the channel;
- Groundwater pollution (although this is rare as groundwater is generally protected from pollution by the overlying layers of soil and rock); and
- Surface water collected by the sewer system.

5.13 Surface water run-off has the potential to be a major source of water pollution. Pollutants reach wetland areas mainly through run-off whereby water flows over impervious surfaces picking up a number of pollutants generated by human activity. Such pollutants can include sediment from construction sites, toxic metals and petroleum wastes from roadways and industrial or commercial areas, nutrients and bacteria from residential areas and nutrients and pesticides from agriculture and gardening activities.

Water abstraction and the role of water levels and water quality

5.14 Unsustainable abstraction of water has the potential to cause ecological problems by reducing river flow and river levels. This can lead to a concentration of nutrients such as phosphate and nitrate, which can ultimately lead to eutrophication and water quality issues.

Waste water discharge

5.15 Hailsham North WwTW serves approximately one third of Hailsham, those properties located within the north of Hailsham together with Chiddingly, Hellingly and Lower Dicker. Treated waste water from Hailsham North enters the Hurst Haven. Hailsham South WwTW currently serves approximately two thirds Hailsham, those properties located within the south of Hailsham together with Willingdon, Polegate and Jevington. Treated waste water from Hailsham South enters the Horse Eye Sewer, which ultimately enters the Hurst Haven also.

5.16 Both of the WwTW at Hailsham treat wastewater to the highest standards available nationally before the effluent is discharged into the Pevensey Levels. However, in considering the current water quality status of receiving waters there is a risk that increased urbanisation could potentially cause further water quality deterioration.

Likely Significant Effects of New Development

5.17 The direction provided by the Wealden and Rother Core Strategies will result in some development within the hydrological catchment of the Pevensey levels. Therefore it is necessary to assess which of the potential adverse effects of future development is likely to be a significant effect, taking into account the current national and local control on matters affecting the Pevensey Levels.

Surface water run-off / impact on hydrology

5.18 Due to the complexity of wetland habitats it is not possible to predict the exact direct and indirect effects that increased surface water run-off and pollutants from new development may have on the Pevensey Levels or the extent to which the conservation features of the site could be adversely affected by future development.

5.19 Any development, which increases the impermeablilty of land will increase surface water run-off. Development accommodated in the Pevensey Levels catchment area is likely to lead to increased run-off if unmitigated and has the potential to create a change in the hydrology of the Pevensey levels and convey pollutants to its watercourses and drainage network. The creation of additional

surface water run-off is currently controlled to a certain extent through Planning Policy Statement 25 and Building Regulations.

5.20 **Planning Policy Statement 25[5] (PPS25)** sets a general principle where "The surface water drainage arrangements for any development site should be such that the volumes and peak flow rates of surface water leaving a developed site are no greater than rates prior to the proposed development, unless specific off-site arrangements are made and result in the same effect".

5.21 **Building Regulations 2002**[6] also promotes the use of SuDS where there is a requirement for adequate provision to be made for rainwater to be carried from the roof of the building and for paved areas to be adequately drained. The Regulations require rainwater to be discharged to one of the following, listed in order of priority:

1. An adequate soakaway or some other adequate infiltration system; or, where that is not reasonably practicable,
2. a watercourse; or where that is not reasonably practicable,
3. a sewer.

5.22 In addition to the above, the Environment Agency in accordance with the Water Framework Directive[7] will expect to see SuDS incorporated within a proposed development should it result in an increase in surface water run-off.

5.23 The Water Framework Directive suggests that Local Development Documents include policies, which encourage sustainable remediation techniques. The aim of such a policy would be to reduce the likelihood of the contamination of land during the construction period of development or alternatively to remove or render contaminants harmless. This matter could be addressed by way of inclusion within a Development Plan Document and a Land Contamination Report should be submitted with any planning application that is on land that is contaminated or potentially polluting land uses in accordance with PPS23.

5.24 Current controls do allow development to take place without SuDS when it is not reasonably practicable. Whilst the potential for development to take place without SuDS is unquantifiable, based on the precautionary principle it is considered that any additional surface water run off would have a likely significant effect on the Pevensey Levels, with the main area of concern being the conveyance of pollutants.

<u>Waste water discharge / impact on water quality</u>

5.25 The Environment Agency has expressed fundamental concerns with regard to the impact of any new development within the catchment area of Hailsham North and South WwTW due to the relationship between the discharge of effluent and continued decline in ecological quality downstream from them both.

[5] Planning Policy Statement 25 (PPS25) Development and Flood Risk (2006)
[6] Building Regulations 2002. Drainage and Waste Disposal Approved Document H: H3 Rainwater Drainage: http://www.planningportal.gov.uk/uploads/br/BR_PDF_ADH_2002.pdf
[7] Water Framework Directive: River Basin Management Plan, South East River Basin District (Environment Agency December 2009)

5.26 The control of treated waste water discharge is a matter for the Environment Agency and Southern Water where the Environment Agency issues wastewater discharge consents, which are set to meet environmental quality standards in the receiving water. Southern Water is not permitted to discharge effluent in excess of the consented dry weather flow (DWF) or breach the required quality standards.

5.27 The Environment Agency and Southern Water have agreed the capacity in both Hailsham north and south WwTW, as shown in Table 2. The table identifies that there is room to accommodate around an additional 3287[8] dwellings[9] at Hailsham North and Hailsham South WwTW.

5.28 The Environment Agency has advised Southern Water that it will not be permitted to increase the effluent load discharged above that currently consented at both Hailsham WwTW due to environmental constraints. The constraint relates to current wastewater treatment technology where currently it is unable to remove pollutants to levels low enough to meet the water quality objectives of the Pevensey Levels.

5.29 In view of this, it will not be possible to provide further housing and/or business development above the current consented capacity of the Hailsham North and South WwTW unless the location of an alternative site for discharge of treated effluent is identified and in place prior to any development.

5.30 A number of additional WwTW are located within the Pevensey Levels hydrological catchment area. The table below shows the treatment capacity at these smaller WwTW. The smaller waste water treatment works could also be affected by the results of the RoC. There are two ways to mitigate any future tightening of consents. By managing levels of development within these catchments, and the potential to implement treatment technologies that will improve the quality of the discharges, the impact on the Pevensey Levels can be managed.

Table 2: Capacity at Wastewater Treatment Works

Waste water treatment works and associated catchment areas	Extant planning permissions and completions from April 2006 and April 2010 (net dwellings)	Existing treatment works capacity headroom (dwellings)	Consented discharge capacity (dwellings)
Hailsham North	1128	1400	2900
Hailsham South	885	2400	2400
Bodle Street Green	5[10]	0	n/a[11]
Hooe	13[12]	40	281

[8] In addition to dwellings completed since April 2006 and those dwellings part of an extant planning consent as of 1st April 2010
[9] Capacity includes provision for additional business space, but not including water intensive industries
[10] Data for the parish of Warbleton including Bodle Street Green and Rushlake Green, however the waste water treatment works serves only Bodle Street Green
[11] Descriptive consent, very small works
[12] Hooe and Ninfield drain into Hooe WwTW

Waste water treatment works and associated catchment areas	Extant planning permissions and completions from April 2006 and April 2010 (net dwellings)	Existing treatment works capacity headroom (dwellings)	Consented discharge capacity (dwellings)
Lime Park Herstmonceux	0[13]	2	n/a[12]
Lunsford Cross[11]	0	0	9
Wartling	5	5	n/a[12]
Windmill Hill (serves Windmill Hill and Herstmonceux)	37	300	300

[13] Assumes all waste water from Herstmonceux drains to Windmill Hill WwTW

6 Mitigation and Avoidance Techniques

Increased surface water runoff and pollutants from surface water

6.1 Given the potential for significant effects from increased surface water run-off on the Conservation Objectives of the Pevensey Levels Ramsar Site it will be necessary for mitigation measures to be incorporated by way of a specific policy into Site Allocation DPDs to ensure that no adverse effects result.

6.2 For the regulation and remediation of increased surface water run-off / pollutants and to mitigate the loss of natural drainage patterns it is recommended that the relevant DPD include a **policy which requires all new development, that creates impermeable surfaces, within the hydrological catchment area of the Pevensey Levels to incorporate suitable sustainable drainage systems (SuDS).**

6.3 SuDS operate on two main principles:

- Infiltration (slowing and holding back the run-off from a site); and
- Attenuation (allowing natural processes to break down any pollutants)

6.4 All SuDS systems generally fall into one of these categories, or a combination of the two. The benefit is that run-off and pollutants can be dealt with close to the source, rather than transporting it elsewhere, for example, via the sewer system.

6.5 SUDS include a range of different techniques, which are suitable at varying scales within a development site. These include methods such as rainwater harvesting and green roofs, soakaways and swales, ponds and basins. They can be used in various combinations to provide a complete drainage strategy.

6.6 The design of SuDS should be undertaken as part of an overall drainage strategy and design for a development. The underlying ground conditions of a development site will determine the type of SuDS approach that can be best utilised. Therefore, a ground investigation is likely to be required to assess the suitability of using infiltration measures, and using this information to assess the required volume of on-site storage required. It is anticipated for liaison to take place between developers, the Local Planning Authority, the Environment Agency and Southern Water to establish a satisfactory SuDS design methodology, on a site-by-site basis at the pre-planning application stage.[14]

6.7 It is considered that through the inclusion of a policy requiring the incorporation of SuDS in any new development within the hydrological catchment area of the Pevensey Levels that the drainage regime for the Pevensey Levels will not be affected by additional surface water run-off / associated pollutants created by new development.

6.8 It is recommended for the scope of the policy to apply to both greenfield and brownfield sites and to cover **all** new development with any proposed hard surface. In other words any proposed development that would lead to an increased rate and volume of surface water run-off leaving a developed site.

[14] Advice taken from Eastbourne and Wealden Strategic Flood Risk Assessment (Sept 2008)

(This would include a proposed small-scale development such as a house extension as well as large or major developments such as proposed housing or commercial development). Both Natural England and the Environment Agency consider this approach to be acceptable.

Discharge from Hailsham North and South Waste Water Treatment Works

6.9 The Hailsham North and South Waste Water Treatment Works are both currently operating using best available technologies, so the discharges into the Pevensey Levels are at the highest quality possible. The Environment Agency has confirmed that the current discharge consent will not be increased because of the impact on the Pevensey Levels. Both works have not yet reached their consented capacity.

6.10 The RoC is expected to either accept the current consent or recommend that it is tightened. Without the benefit of the results of the consent the best available information is that the current consent is the highest limit to discharge from these works. The RoC gives even more reason not to exceed the current consent.

6.11 Southern Water are currently researching the impacts of alternative discharge locations for the Hailsham North and South WWTW to direct any additional discharge requirement away from the Pevensey Levels, or alternative solution to the all or some of the existing discharge.

6.12 Based on the best available information, and with the RoC in mind, the Core Strategy must not direct levels of development to the Hailsham North and South WwTW that would exceed the current consented capacity.

Water Levels and Abstraction

6.13 South East Water abstract water from Hazards Green in the Wallers Haven for the public water supply to serve existing residents. No increase to this licence will be issued due to the sensitivity of the Pevensey Levels to changes in water levels and the evidence in the CAMS. Therefore South East Water will need to confirm that they can locate sustainable sources of water to supply the new developments.

6.14 Wealden is an area of 'water stress', together with the whole of the South East. For this reason it is necessary for water efficiency measures to be implemented in this area in advance of, and tighter than, forthcoming changes to building regulations.

6.15 For this reason the Environment Agency position is that in the Southern Region, as a *minimum* requirement, homes built before 2016 should achieve internal water use of 105 litres/head/day (as required by Code for Sustainable Homes (CSH) level 3). Where a local authority (or developer) wishes to aim for lower water use this will be supported.

7 Conclusion

7.1 This report has examined the potential impacts that may arise should the Core Strategy seek to locate development within the hydrological catchment area of the Pevensey Levels Ramsar Site.

7.2 The scope of the report was to assess whether the Core Strategies for both Wealden and Rother District Council, either alone, or in combination with other plans and projects, would have an adverse impact on the integrity of the Pevensey Levels Ramsar Site. The hydrological impacts assessed included abstraction, increased surface water run-off and pollutants and discharge of waste products from wastewater treatment works.

7.3 Wetland systems are complex; therefore, it has not been possible to identify the exact adverse effects that may result should new development be located within the hydrological catchment area of the Pevensey Levels. However by implementing appropriate SuDS techniques the amount and quality of surface water runoff can be managed to a greenfield rate and quality. Details of appropriate SuDS techniques for particular sites, to mitigate any impacts on notable species will be considered in more detail through further allocations DPDs.

7.4 It is anticipated that development would create an increase in impermeable surface, which would ultimately result in increased surface water run-off and increased pollutant loads. In turn, this has the potential to significantly affect the hydrology, soil and flora and fauna of the Pevensey Levels, and ultimately affect the Conservation Objectives of the site.

7.5 Within the Appropriate Assessment process, where it is assessed that there may be an adverse impact or a risk of an adverse impact it is necessary to provide a way in which to mitigate or avoid the potential effects. In this case, the mitigation strategy has a direct planning policy implication.

7.6 In consultation with the Environment Agency and Natural England it has been agreed that a suitable way to mitigate and avoid any potential effects of development on the Pevensey Levels would be to provide a specific planning policy within the relevant DPD.

7.7 Any such **policy should require Sustainable Drainage Systems (SuDS) to be incorporated on all development sites that create impermeable surfaces within the hydrological catchment area of the Pevensey Levels** (irrespective of the size and type of development) where such a development will result in an increase in the volume and peak flow rate of surface water than rates prior to the proposed development.

Waste Water Treatment

7.8 The current consent for the Hailsham North and South Waste Water Treatment Works will not be increased. In order for the increased waste water from new development to be within acceptable environmental limits, the discharge must remain within the current consented capacity.

Abstraction

7.9 No further abstraction for public water supply will be permitted in the Pevensey Levels. Therefore the impact of the new demand will not be associated with the Pevensey Levels.

7.10 It can be concluded that, if the recommendations for mitigation are followed the Wealden and Rother District Council Core Strategies will not have an adverse effect on the Pevensey Levels Ramsar site.

8 Further Assessment

8.1 For the Core Strategy, there are three measures that will manage impacts of development on the Pevensey Levels to an acceptable level:

- A commitment to implement SuDS;
- managing levels of development within the current consented capacity of waste water treatment works; and
- implementing water efficiency measures.

8.2 Further assessment work for the Site Allocations DPD will include:

1. The identification of appropriate SuDS techniques to mitigate surface water and water quality concerns
2. Analysis of the results from the Review of Consents
3. Analysis of Waste Water issues and Southern Water's research, should it be available, on a new location for a WwTW if necessary. Impact on water resources and levels will be an important consideration if it is necessary for flows are to be diverted.

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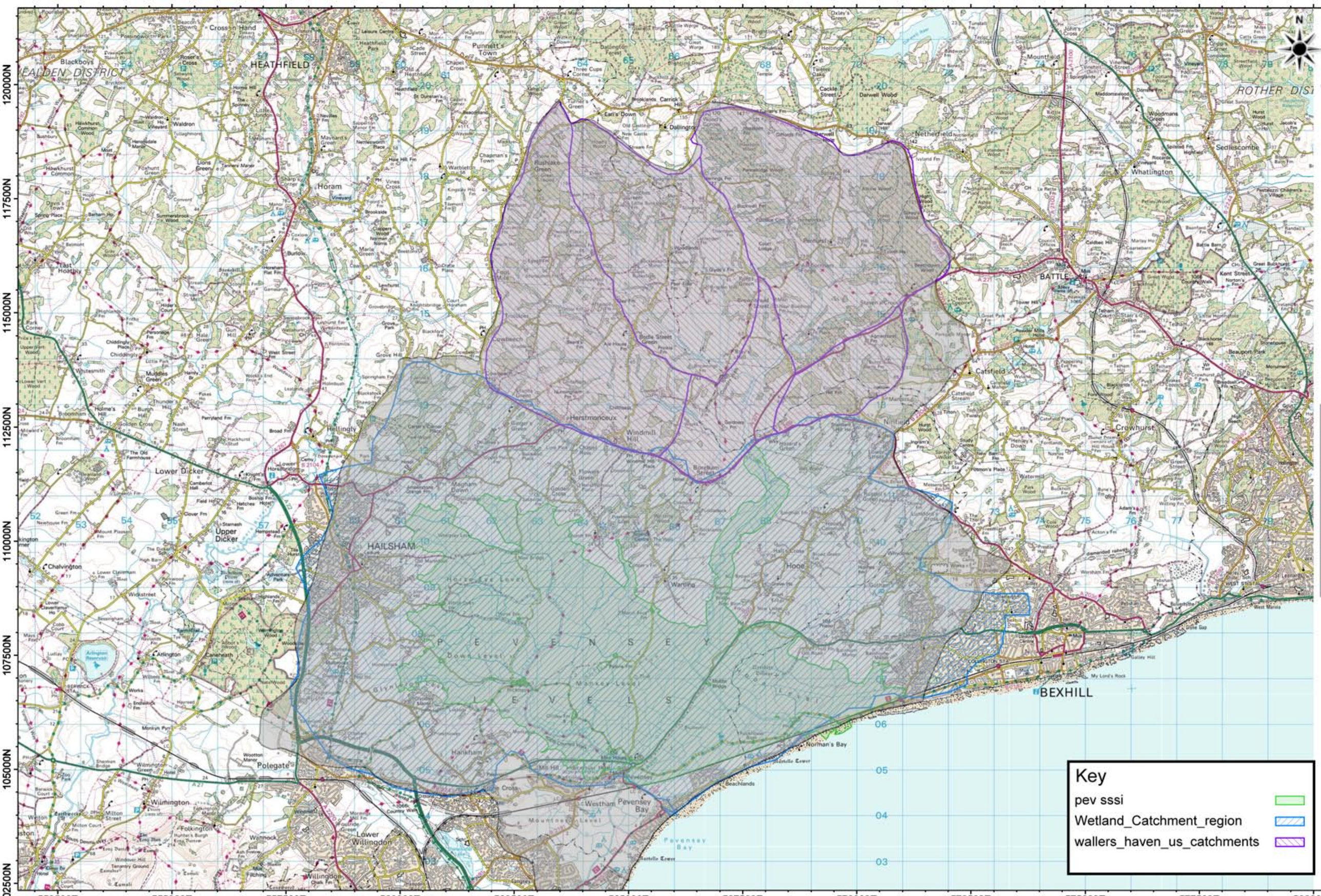
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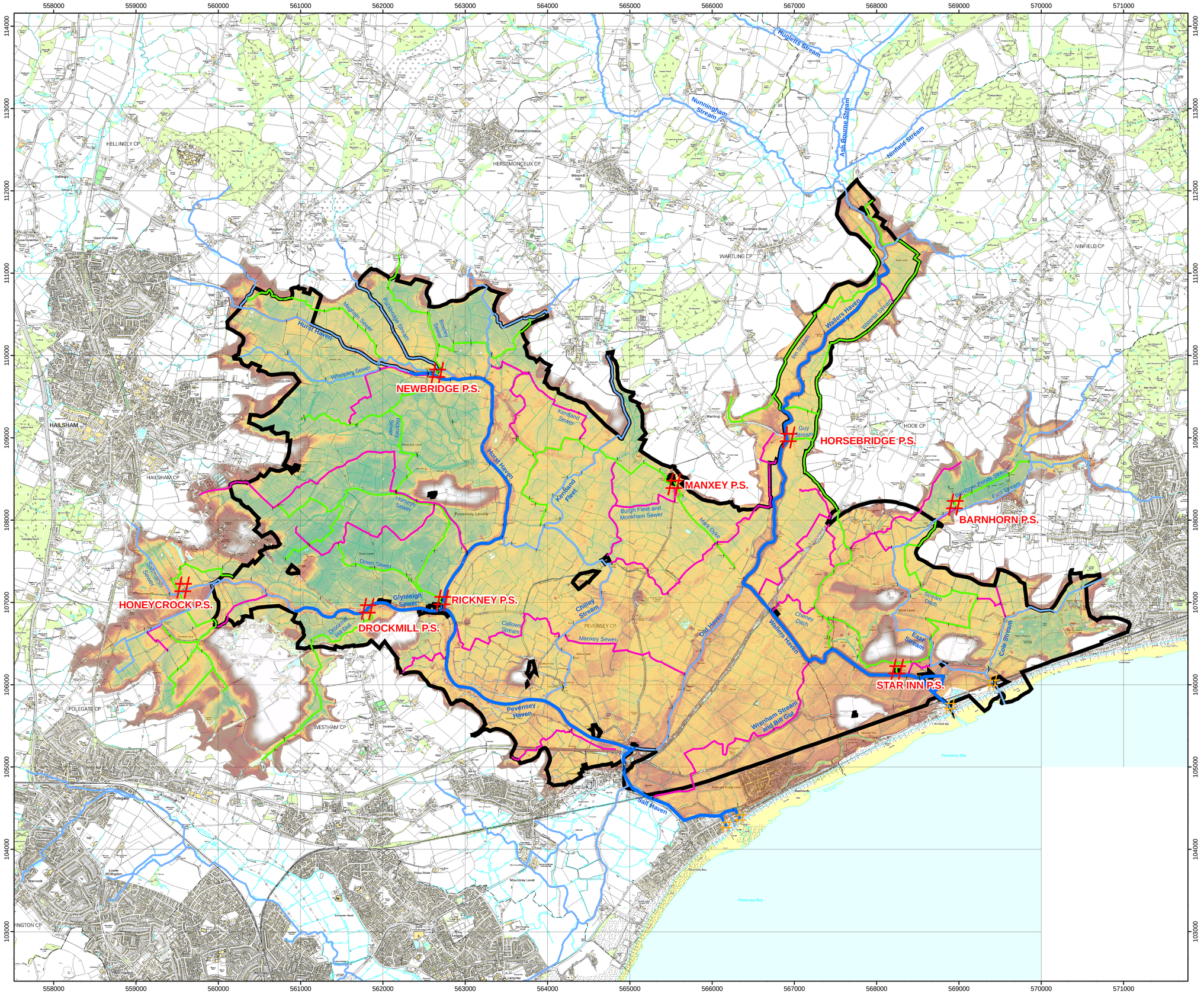
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The Pevensey Levels Water Level Management Plan


120000N
117500N
115000N
112500N
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107500N
105000N
102500N
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555000E
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565000E
567500E
570000E
572500E
575000E
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HEATHFIELD
HAILSHAM
BATTLE
BEXHILL
Horam
Punnett's Town
Netherfield
Whatlington
Sedlescombe
Mountfield
Crowhurst
Catsfield
Herstmonceux
Windmill Hill
Hellingly
Lower Dicker
Upper Dicker
Polegate
Wilmington
Lower Willingdon
Pevensey Bay
Norman's Bay
Hooe
Westham
Dallington
Earl's Down
Burwash
Netherfield
Key
pev sssi
Wetland_Catchment_region
wallers_haven_us_catchments



LEGEND

SSSI Boundary

Pumping Stations

Gates

Tidal flaps

Other structures

Main River watercourse

Type 1 (Embanked channel)

Type 2 (Other Main River)

IDB watercourse

Type 2 (Pumped drain)

Type 3 (Feed watercourse)

Unclassified drainage ditches

Type 4 (Field ditch)

The approximate dimensions of different ditch types are shown below

Type	Description	Width (m)	Depth (m)
1	Embanked channel	15 - 30	3 - 5
2	Other Main River	10 - 15	2 - 3
2	Pumped drain	5 - 8	1 - 3
3	Feed watercourse	5 - 8	1 - 3
4	Field ditch	3 - 4	0.8 -1.2

Topography (LiDAR)

High : 44.171

Low : -1.839



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Environment Agency, 100026380, 2006.

SCALE

0 0.3 0.6 1.2 1.8 2.4 km

PROJECT

Pevensey Levels Water Level Management Plan

MAP 3

Hydrology of the Pevensey Levels

DATE

December 2006

Environment Agency

ATKINS