



Rampion Offshore Wind Farm



ES Section 23 – Surface Water Hydrology and Flood Risk - Appendix 23.1

RSK Environment Ltd

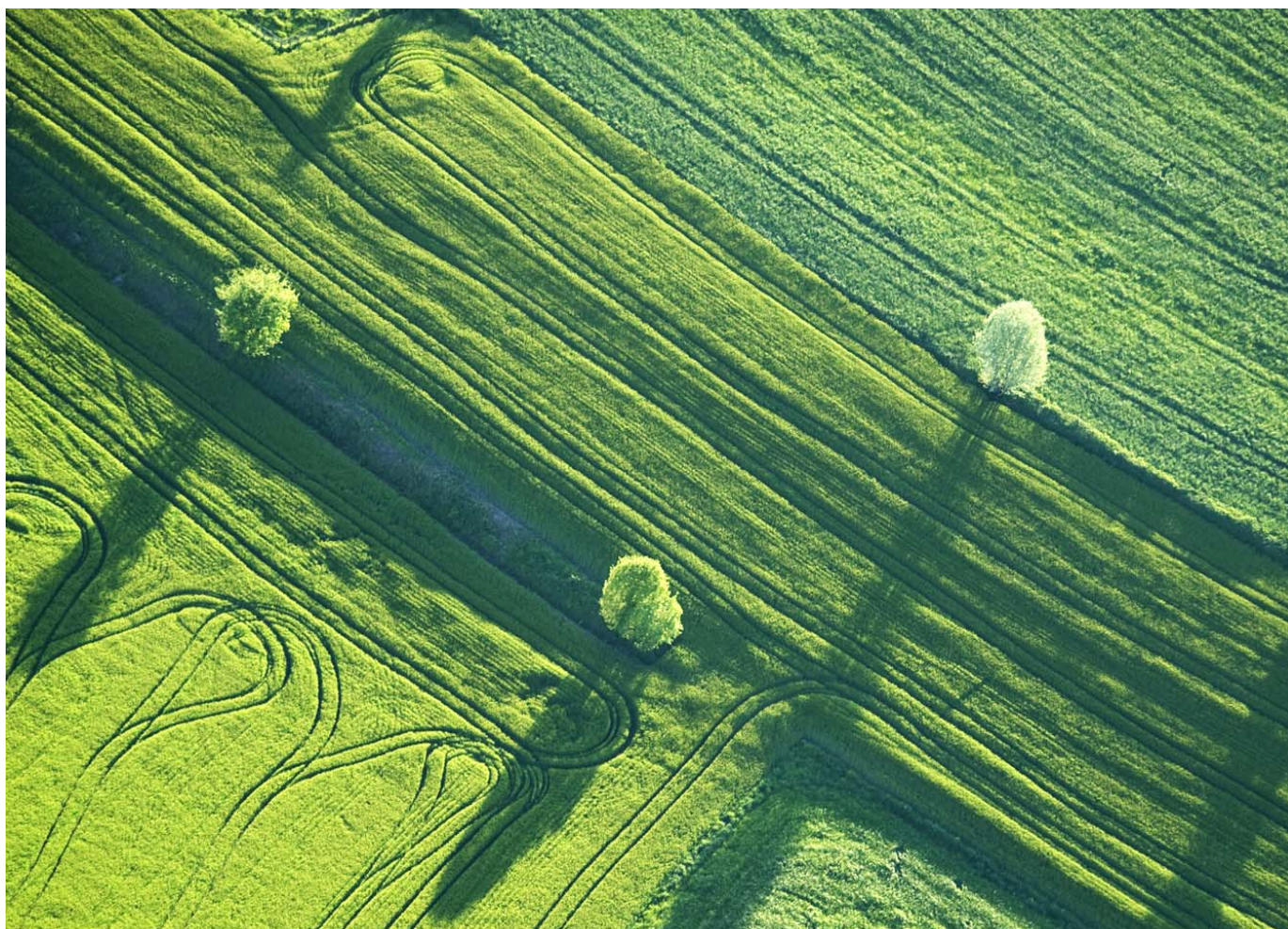
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E.ON Climate & Renewables UK Rampion Offshore Wind Limited



E.ON

Flood Risk Assessment

Rampion Wind Farm Proposed Onshore Cable Route

41318 FRA R1 (3)

NOVEMBER 2012

RSK



RSK GENERAL NOTES

Project No.: 41318- FRA R1 (3)

Title: Rampion Onshore Cable Route Flood Risk Assessment

Client: E.ON

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Author C Whittingham

Signature 

Date: 27/11/12

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Signature 

Date: 27/11/12

Project manager K Barlow

Signature 

Date: 27/11/12

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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK LDE

E.ON

Rampion Cable Route Flood Risk Assessment

41318- FRA R1 (3)

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1 INTRODUCTION

RSK Environment Ltd has been commissioned by E.On to undertake a flood risk assessment for the proposed onshore cable routing between a landfall near Worthing and a substation located near to Bolney, West Sussex. This report assesses the flood risk associated with the development of the proposed onshore cable route and is included as an addendum to the hydrology chapter of the Environmental Statement.

The publication of the National Planning Policy Framework (NPPF, Ref. 1) has revoked PPS 25 (Ref. 2) amongst others on 27th April 2012. The Technical Guidance to the National Planning Policy Framework (April 2012)(Ref.3) includes flood risk guidance and retains key elements of PPS 25 (Ref. 2) including the Sequential and Exception Tests, climate change allowances and development classifications. The information contained in this new technical guidance along with the NPPF when combined with guidance contained in the Communities and Local Government "Planning Policy Statement 25: Development and Flood Risk Practice Guide", Dec 2009 (Ref. 4) and the British Standard BS 8533-2011 "Assessing and managing flood risk in development Code of practice" (Ref. 5) will form the basis of any on-going RSK flood risk documentation.

This FRA was prepared based on PPS25 and the accompanying guidance documentation as well as the BS. As a result, the publication of the NPPF containing much of the main criteria for assessing flood risk will not alter the conclusions or recommendations of this report.

The comments given in this report and the opinions expressed are subject to RSK Group Service Constraints provided in **Appendix A**.

2 CONTEXT AND SCOPE OF WORKS

A key element of project development is to prepare a Flood Risk Assessment to establish the risk associated with the proposed development and to propose suitable mitigation, if required to reduce the risk to a more acceptable level.

Although officially revoked and replaced by the NPPF the scope of work relating to a flood risk assessment is based on the guidance provided in PPS 25 (Ref. 2) and the accompanying guidance published by the Communities and Local Government Office (Ref. 4) and comprise of the following elements:

- To obtain information on the hydrology and hydrological regime in and around the site.
- To obtain the views of the Environment Agency including scope, location and impacts.
- To determine the extent of new flooding provision and the influence on the site.
- To review site surface water drainage based on the proposed route. To determine the extent of infrastructure required.
- To review information and other studies to determine the existing site conditions.
- To assess the impact on the site from global warming effects and anticipated increases in rainfall.
- Preparation of a report including calculations and summaries of the source information and elements reviewed.

3 SITE DESCRIPTION

3.1 Cable Routing

A cable route will be installed from the cable joint between the offshore and onshore cables to the substation location at Bolney (**Figure 1**). Four circuits will be installed along the route and each circuit will comprise of three single core XLPE insulated copper cables as well as associated communications cables. Ducting will be put into the ground prior to the installation of the cables. The ducts will primarily be installed in trenches, which will be backfilled before the cable is installed. At regular intervals along the ducted route there will be a joint bay in order that the cables may be pulled through the ducts and connected to the previous installed cable.

It is expected the when installing the cable using a trenching method that each of the circuits will have to placed approximately 3m apart, therefore a permanent 15m wide easement strip is being sought with all the landowners. In addition to the permanent easement strip and additional area of land up to 15m wide will be required to enable the installation of the ducting and cables, this land will be used to place spoil and to track vehicles.

At various points along the route there will be a requirement to install temporary site compounds which will provide site facilities for the workforce as well as to provide a secure area for site equipment.

Where it is not possible to install the ducting in open cut trenches the cable will have to be installed using trenchless techniques, this is typically required to install ducting under obstacles e.g. river or rail crossings. This will require the use of specialist equipment to install ducting without the need for digging a trench along the whole cable route.

To install ducting using trenchless techniques will require additional land at the point where the ducting is installed and where it rises on the other side of the obstacle. The working width will be extended at these locations.

3.2 Onshore Substation

An onshore substation will be required to transform the voltage from the transmission voltage up to the connection voltage of 400kV. A new substation will be constructed in the vicinity of the existing national grid substation at Bolney. This assessment has not considered the flood risk associated with the proposed substation (See Flood Risk Assessment prepared for the proposed substation 41318.FRA.R2).

4 SOURCE OF FLOOD RISK

In accordance with NPPF (Ref. 1) and advice from the Environment Agency, a prediction of the flood sources and levels is required along with the effects of climate change from the present for the design life of the development (in this case assumed to be 100 years). To consider these effects of climate change, NPPF Technical Guidance Table 5 recommends consideration of a 30% increase in rainfall intensity and 20% increase in peak river flows over this timeframe.

The flood risk elements that need to be considered for any site are defined in BS 8533 as the "Forms of Flooding" and are listed as:

- Flooding from Rivers (fluvial flood risk)
- Flooding from the Sea (tidal flood risk)
- Flooding from the Land
- Flooding from Groundwater
- Flooding from Sewers (sewer and drain exceedance, pumping station failure etc)
- Flooding from Reservoirs, Canals and other Artificial Structures

The following section reviews each of these in respect of the proposed cable route.

4.1 Environment Agency Flood Zone

The Environment Agency has available on their website flood zone maps for much of England and Wales. The latest Environment Agency floodzone map (**Figure 1**) indicates that the proposed cable route will cross all Flood Zones.

4.2 Fluvial Flood Risk

Flooding from rivers occurs when water levels rise higher than bank levels, causing floodwater to spill across adjacent land (floodplain). The main reasons that water levels can rise in rivers are:

- intense or prolonged rainfall causing runoff rates and flow to increase in rivers, exceeding the capacity the channel. This can be exacerbated by wet antecedent conditions and where there are significant contributions of groundwater;
- constrictions in the river channel causing flood water to backup;
- blockage of structures or the river channel causing flood water to backup;
- high water levels and/or locked flood (tide) gates preventing discharge at the outlet of the river.

The proposed cable route will inevitably cross a number of watercourses and associated floodplains. The cable route will not be impacted by or cause an impact on this source of flooding. Once constructed the route will not impede existing flood flow routes or impact on the volumetric attenuation of functional floodplains.

4.3 Tidal Flood Risk

Flooding from the sea occurs when water levels in the sea rise above ground levels of coastal land. This can occur:

- during normal high tides - where land floods on a regular basis;
- when there are extreme atmospheric effects such as storm surges;
- when wind action causes water levels of the sea to rise.

Flooding from the sea is a natural and regular occurrence in estuarine environments and coastal marshlands. All low-lying ground along the coastline of West Sussex is at risk. Where development has encroached on the coastal floodplain, flood defences have been constructed to prevent flooding from the sea.

The onset of flooding from the sea can be extremely rapid. Deep fast flowing flood water can be extremely hazardous. The severity of flooding will depend on tide levels, wind and wave conditions and topography.

The coastline of West Sussex is heavily populated and the area of low lying land which is at risk of flooding is mostly protected by sea defences. However, these defences can be overtopped or can breach, which can cause extensive flooding of the land with significant flood depths and high velocities. Flooding from sea is thus hazardous to life, property and the environment. Significant rebuild is required after severe flood events. Flooding from sea can also last a long time in areas where gravity drainage to the sea is hindered by flood defences.

Extreme water levels have been determined along the West Sussex coastline:

AEP (%)	Shoreham (m AOD)	Brighton (m AOD)
10	3.94	4.1
2	4.14	4.3
1	4.22	4.4
0.5	4.3	4.5

Tidal flooding may occur at the landfall location, however the cable route will not be impacted by or cause an impact on this source of flooding.

4.4 Flooding From the Land

Flooding from land occurs when intense, often short duration rainfall is unable to soak into the ground or enter drainage systems. It is made worse when soils are saturated so that they cannot accept any more water. The excess water then ponds in low points, overflows or concentrates in minor drainage lines that are usually dry. This type of flooding is usually short lived and associated with heavy downpours of rain. Often there is limited warning before this type of localised flooding occurs. Surface water runoff can cause localised flooding in natural valleys as normally dry areas become inundated and in natural low spots where water may collect.

Drainage basins or catchments vary in size and shape, which has a direct effect on the amount of surface runoff. The amount of runoff is also a function of geology, slope, climate, rainfall, saturation, soil type and vegetation. Geological considerations include rock and soil types and characteristics, as well as degree of weathering. Porous material (sand, gravel, and soluble rock) absorbs water more readily than fine-grained, dense clay or unfractured rock and has a lower

runoff potential. Poorly drained material has a higher runoff potential and is more likely to cause flooding.

Flooding from this source may occur in localised pockets, however the cable route will not be impacted by or cause an impact on this source of flooding.

4.5 Sewer Exceedance

Flooding from sewers occurs when rainfall exceeds the capacity of networks or when there is an infrastructure failure.

Although there may be issues with sewer flooding along the cable route, the cable route will not be impacted by or cause an impact on this source of flooding.

4.6 Groundwater Flooding

Groundwater flooding is caused by the natural emergence at the ground surface, of water originating from underlying permeable sediments or rocks (aquifers). The groundwater may emerge as one or more point discharges (springs) or as diffuse discharge/seepage over an extended area. Groundwater flooding tends to be more persistent than other sources of flooding, typically lasting for weeks or months rather than for hours or days.

Groundwater flooding does not generally pose a significant risk to life due to the slow rate at which the water level rises; however, it can cause significant damage to property, especially in urban areas.

Due to the type of development proposed, it is not thought that groundwater flooding will impact on the cable route.

4.7 Flooding from Reservoirs, Canals and other Artificial Structures

The Environment Agency has recently published flood risk mapping as a result of potential failure of reservoirs. This map shows that the site is not in an area at risk of flooding from this source. There are no other known structures in the vicinity of the cable route, which could pose a flood risk to the route.

The cable route is not thought to be at risk from this source.

4.8 Flood Defences

A number of flood defences are present over the length of the study area. The main river flood defences in West Sussex typically consist of

- Raised barriers such as walls or embankments;
- Online storage areas which act to reduce flood peaks;

- Diversion of flows from high-risk areas, or increasing channel capacity to carry greater flow through high risk areas (e.g. widening, deepening and straightening of channels); and
- Other structures that modify the natural flow of rivers, including weirs, sluices, culverts and bridge crossings and bank protection works.

The main raised defence structures in West Sussex are earth embankments that run along the Rivers Adur and Arun. The embankments run along the middle and lower reaches and protect against river and sea flooding. On the Adur there are secondary defences known as counterbanks, which are at right angles to the river. The purpose of this is to restrict flooding to a smaller, more confined area if the raised flood embankments are overtopped. There are also several small earth embankments around Selsey.

The Environment Agency and LPA carry out annual inspections of flood defence assets and update the National Flood and Coastal Defence database (NFCDD). The data from these inspections is used to inform the owner of their duty to maintain assets to an appropriate level.

The management of the river and coastal defences and assets within West Sussex is divided between a number of different parties. The Environment Agency is responsible for the majority of the tidal and river defences and has a supervisory duty over all flood defences given under the Environment Act 1995.

The coastal frontage between Sea Lane Ferring and Western Road, Lancing is managed by Worthing Borough Council under its permissive powers as the Coast Protection Authority given by the Coast Protection Act 1949. This excludes the coastline between Ferring, Sea Lane and the Borough Boundary (approx. 250m) for which the Council is only the landowner.

4.9 Historic Flood Events

There have been many recorded flooding incidents across West Sussex. Two of the largest events occurred in 1974 and 2000 where widespread flooding was observed across the County. River flooding affects many of the watercourses, in particular the Lavant through Chichester and the Adur through Steyning, Upper Beeding, Shoreham and surrounding villages. **Appendix B** summarises the known historic flood events.

The coastline from Selsey to Beachy Head has been protected from flooding for a long period of time using various flood defences. These defences now provide protection to high density, urban developments in low-lying areas along the coast. The removal / failure of these defences would result in erosion of the beach and extensive flooding.

Flooding from Brighton Marina to River Arun is mainly due to overtopping of coastal defences due to wave action. The Coastal Defence Strategies identify that the coastline is mostly at risk of coastal erosion rather than flooding, as water tends to only overtop the existing defences during severe storm events. Locations that have experienced wave overtopping during storms are Aldrington, where houses are located on the beach crest, and Portslade-by-Sea.

4.10 Groundwater Source Protection Zones (SPZ)

Groundwater Source Protection Zones (SPZs) are zones designated by the Environment Agency to protect groundwater around registered abstraction points from contamination; **Figure 2** shows the location of the Source Protection Zones. The proposed cable route crosses a

number of SPZ 3 near Upper Beeding. A SPZ 3 is defined as the area around a source within which all groundwater recharge is presumed to be discharged at the source. In confined aquifers, the source catchment may be displaced some distance from the source. For heavily exploited aquifers, the final Source Protection Zone can be defined as the whole aquifer recharge area where the ratio of groundwater abstraction to aquifer recharge (average recharge multiplied by outcrop area) is >0.75 .

The majority of the route is not located within a SPZ.

4.11 Surrounding Geology

Much of West Sussex is underlain by chalk. The chalk strata of the South Downs are overlain by generally shallow and well-drained chalk or lime dominated topsoils that are often very shallow and can sustain very little vegetation. Rain can easily infiltrate this geology through large fissures into the underlying chalk aquifers and is released slowly through springs further downstream. A characteristic of the South Downs is the spring line along the escarpment. Rain soaks through the shallow soils of the Downs into the chalk and will eventually emerge at the base of the scarp slope as springs.

The River Adur catchments are underlain by chalk. Streams respond to seasonal groundwater variations and groundwater flooding occurs in the broad chalk valleys. The deeper soils in the chalk valley bottom have a large storage capacity. Large areas of the county have relatively impermeable soils, the parent material of which is the dominant bedrock of the Weald, Sandstone. This bedrock weathers quickly in geological terms, leaving clay-rich soils, which generate a large amount of runoff quickly. The upper River Ouse, the upper River Adur and the Sussex Rifes are underlain by impermeable geology.

4.12 Impact of Flooding to the Development

Due to the type of cabling used, a flood event should not have an adverse impact on the function of the infrastructure and should remain operational during a flood event.

5 MITIGATION MEASURES

Small trenches will be dug for the laying of electric cables linking the landfall site to the substation. These small trenches could act as drainage channels for surface water runoff or lead to the drainage of the near surface water table water. Where trenches are constructed on slopes the flow of water could lead to the erosion of soils, which could enter watercourses. These potential effects would be particularly noticeable during wet weather periods. Mitigation measures are therefore required to avoid damage to soil drainage or soil erosion during this short-term activity.

The cables in the grid connection corridor will predominately be buried in underground trenches. It is proposed to cross all major watercourses via directional drilling, the exact method will be agreed with the Environment Agency before construction.

Stream crossings can be identified along the route as those that permanently contain flowing waters throughout the year and as such they differ from drainage ditches around farmland. The cable route haul road will traverse across the stream using a temporary bridge, which will lie within the working width. The exact methodology to achieve an open trench across each stream and the temporary bridge arrangements required will be decided by the works contractor. The required cover underneath the streambed determines the profile of the trench running through the stream, surrounding stream bank profiles and minimum bend radii of the ducting trefoil.

The Environment Agency will be consulted during the detailed design phase to determine the most appropriate method for each crossing and the appropriate method statements will be prepared. A number of factors will affect the choice of crossing method including: depth of water; available space; duration of works; bed conditions; accessibility; and potential ingress of water. The default crossing method of watercourses will be trenching, but mini-HDD may also be employed in certain cases.

Open cut crossings can either be wet or dry. One dry technique involves damming the watercourse upstream and downstream of the crossing, thus creating a dry area where the cable will cross. Water is then pumped from where it has been impounded upstream and discharged downstream of the crossing area. In the wet open cut technique, construction takes place within flowing water. The cable trench is typically constructed across the watercourse by equipment operating from either the banks laid in the river to maintain flow and provide an equipment crossover from one bank to the other. After excavation of the trench, a section of ducting will be placed into the trench.

Timing of the works is important – periods of low flow will be chosen wherever practicable. This will result in a quicker deposition from the water column of any sediment released.

The effects of trenching could result in an increase of surface runoff causing water contaminated with elevated suspended solids to enter nearby watercourses. All effects would be particularly noticeable in wet periods. Mitigation measures are therefore required to avoid damage to soil drainage or soil erosion during this short-term activity. Where the cable crosses watercourses there is the potential of pollution to watercourses from disturbed sediments. Mitigation measures will need to address these effects.

Mitigation measures associated with the cable trenches in the cable route corridor will include:

- a suitable stand-off applied to all watercourses (8m for main rivers);
- soil movement undertaken with reference to best practice guidelines;
- limited sections of the trench line excavated at any one time; and

- any dewatering to have appropriate treatment and disposal.

Measures will be taken to safeguard both groundwater and aquifers through the implementation of appropriate site design and drilling techniques.

Should dewatering of the trenches be required, this will involve pumping the water into settlement tanks prior to discharge to a local watercourse, with the approval of the Environment Agency. All existing ditches and field drains in close proximity to the working area will be maintained and kept free from potential obstruction.

6 CONCLUSIONS AND RECOMMENDATIONS

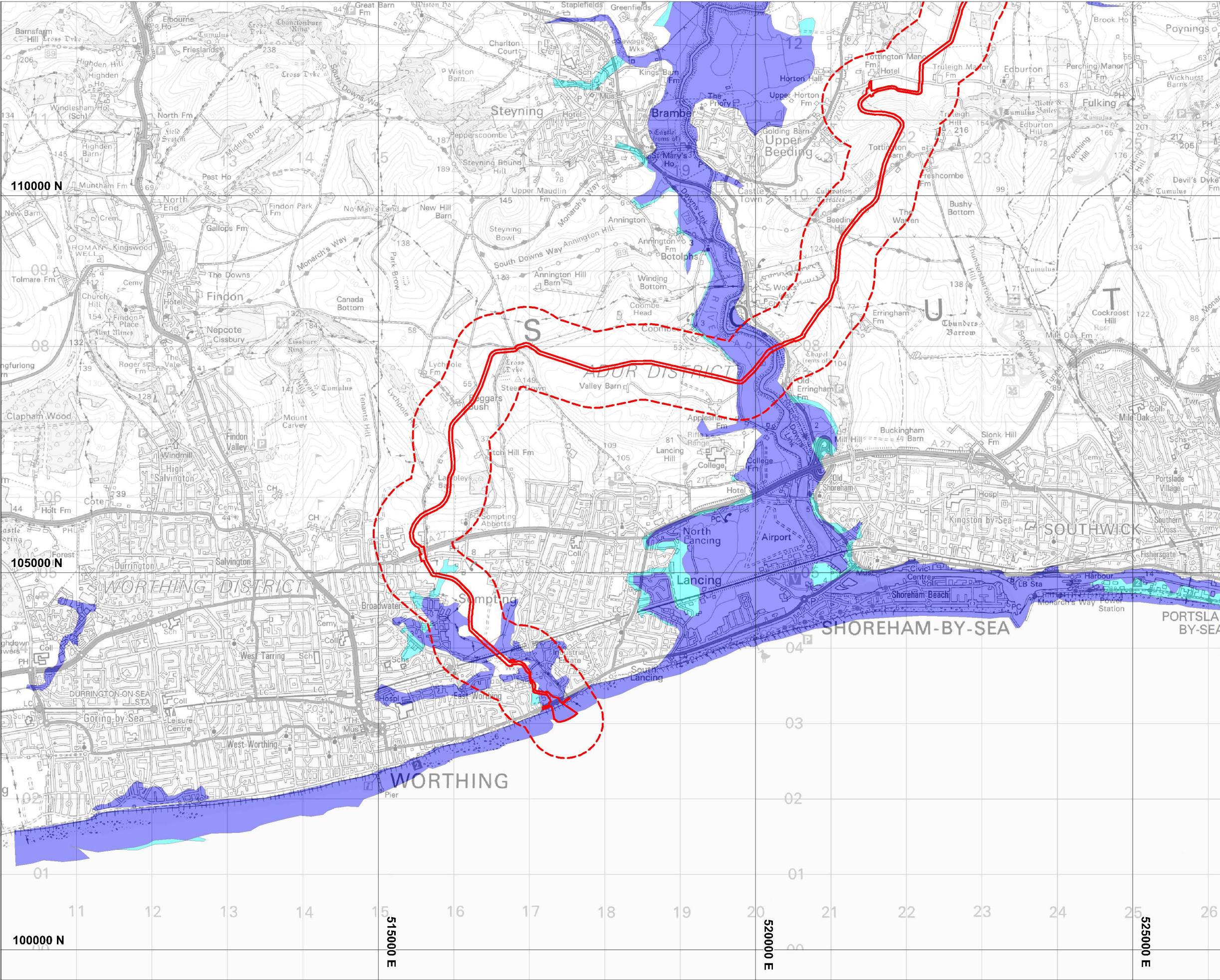
A flood risk assessment for the proposed onshore cable route confirms that the proposed development meets the requirements of PPS 25 in relation to flood risk to the development and the impact posed by development.

The proposed mitigation measures incorporated into this report will ensure that the installation of a cable route will pose little threat to the existing hydrology of the area. There will be no impact on the hydrology of the watercourses along the proposed route once complete.

7 REFERENCES

1. Communities and Local Government “National Planning Policy Framework” NPPF, Mar 2012.
2. Communities and Local Government “Planning Policy Statement – Development and Flood Risk” PPS 25, Mar 2010.
3. Communities and Local Government “Technical Guidance to the National Planning Policy Framework”, Mar 2012.
4. DEFRA “Interim Code of Practice for Sustainable Drainage Systems” National SUDS Working Group, July 2004.
5. BS 8533-2011 Assessing and managing flood risk in development Code of practice, Nov 2011.

FIGURES



Legend :

- Development Area
- Study Area
- Flood Zone 2
- Flood Zone 3



04	26.11.12	New Development Area	AJ	CW	KB
03	18.10.12	New Route	DL	CW	KB
02	02.04.12	Third Draft	AJ	CW	KB
01	24.10.11	Second Draft	AJ	CW	KB
Rev	Date	Description	Drn	Chk	App

Rampion Offshore Wind Farm



Title :
Figure 1 - Flood Zones
(Map 1 of 2)

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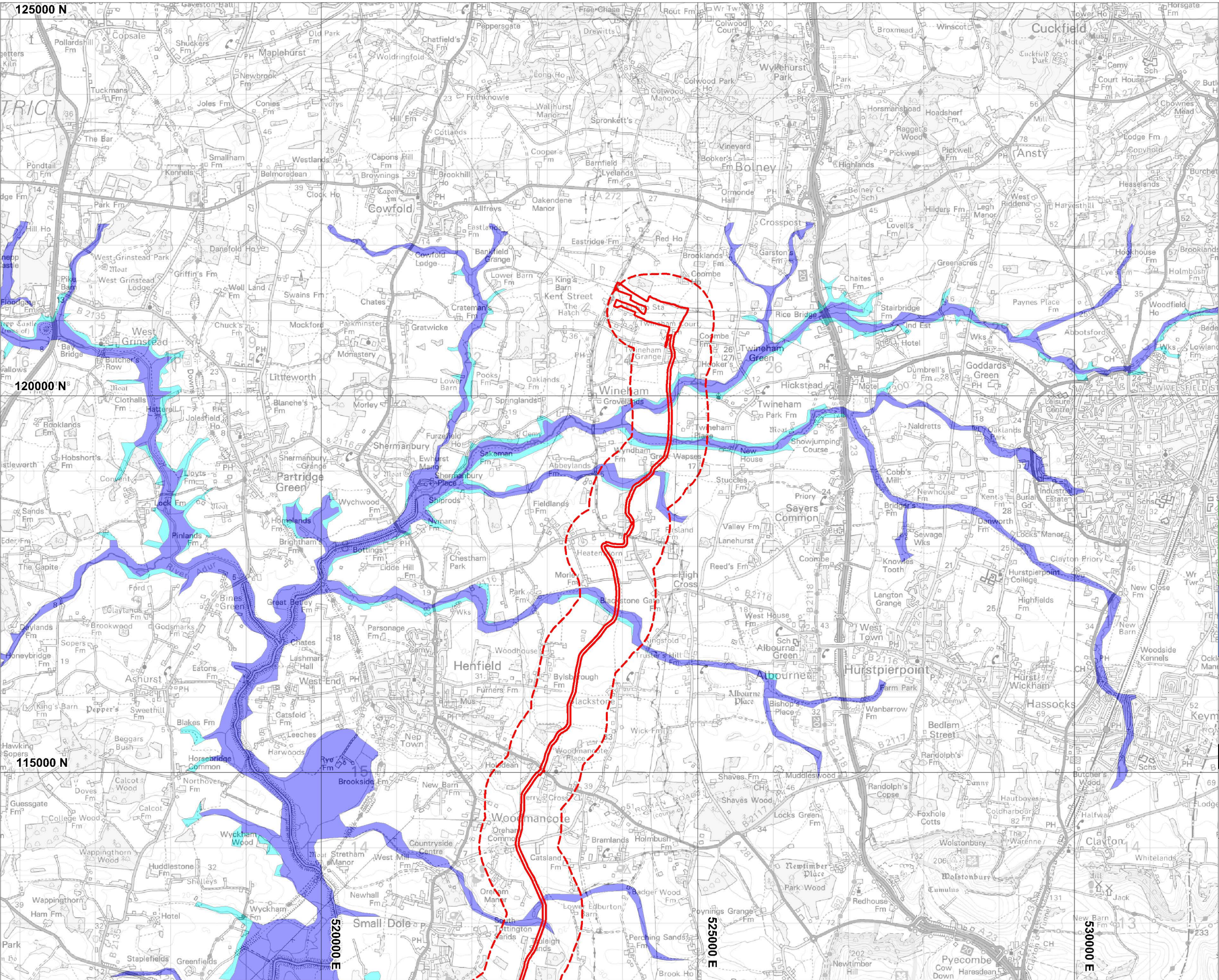
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Legend :

- Development Area
- Study Area
- Flood Zone 2
- Flood Zone 3



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03	18.10.12	New Route	DL	CW	KB
02	02.04.12	Third Draft	AJ	CW	KB
01	24.10.11	Second Draft	AJ	CW	KB
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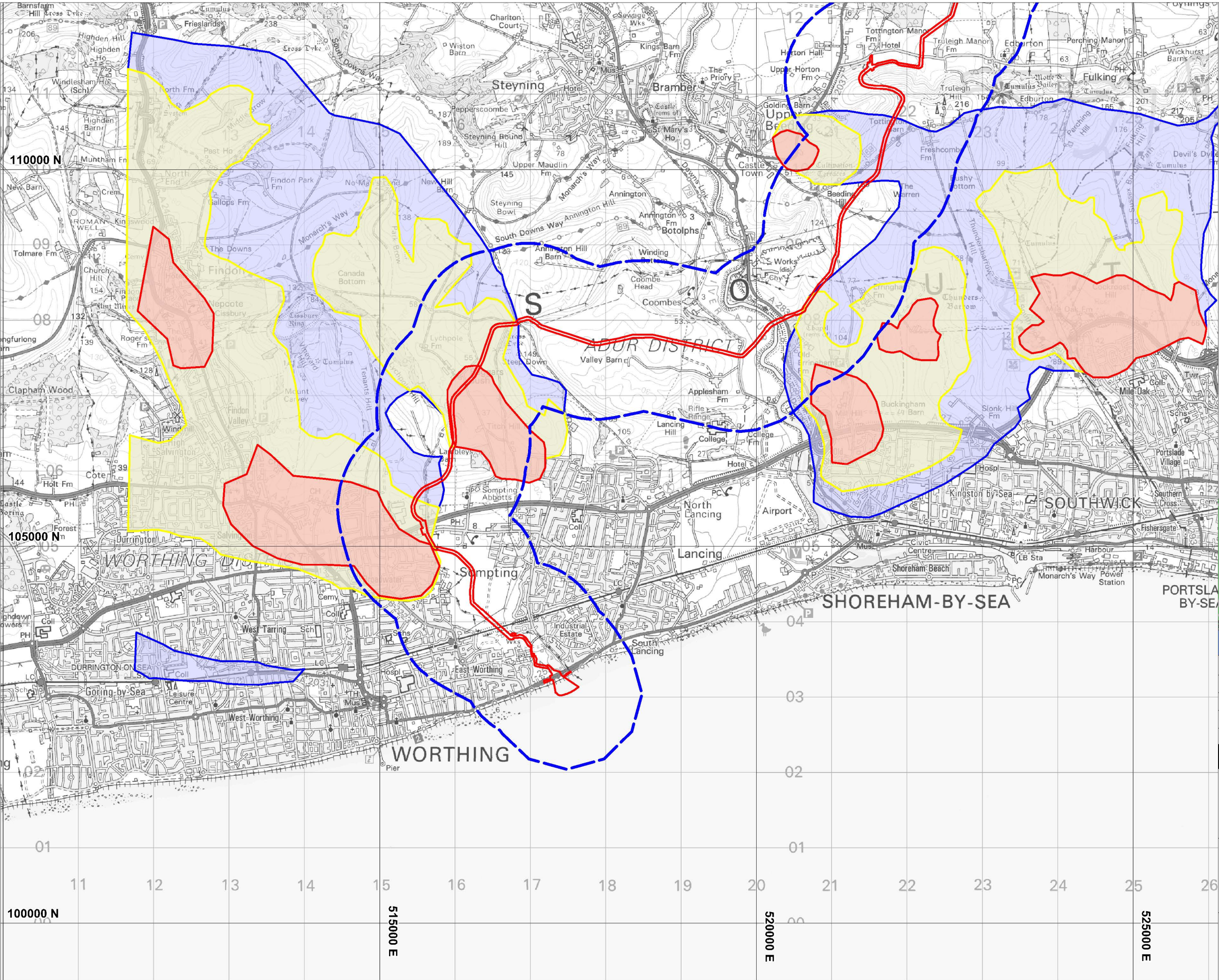
Rampion Offshore Wind Farm



Title :
Figure 1 - Flood Zones
(Map 2 of 2)

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REV 04



- Legend:
- Development Boundary
 - Study Area
 - Zone I - Inner Protection Zone
 - Zone II - Outer Protection Zone
 - Zone III - Total Catchment



04	26.11.12	New Development Area	AJ	KB	DW
03	18.10.12	New Route	DL	KB	DW
02	20.03.12	New Layout	LG	KB	DW
01	20.10.11	Second Draft	AJ	GS	KB
Rev	Date	Description	Drn	Chk	App

Rampion Offshore Wind Farm



Title: Figure 2 - Source Protection Zone (Map 1 of 2)

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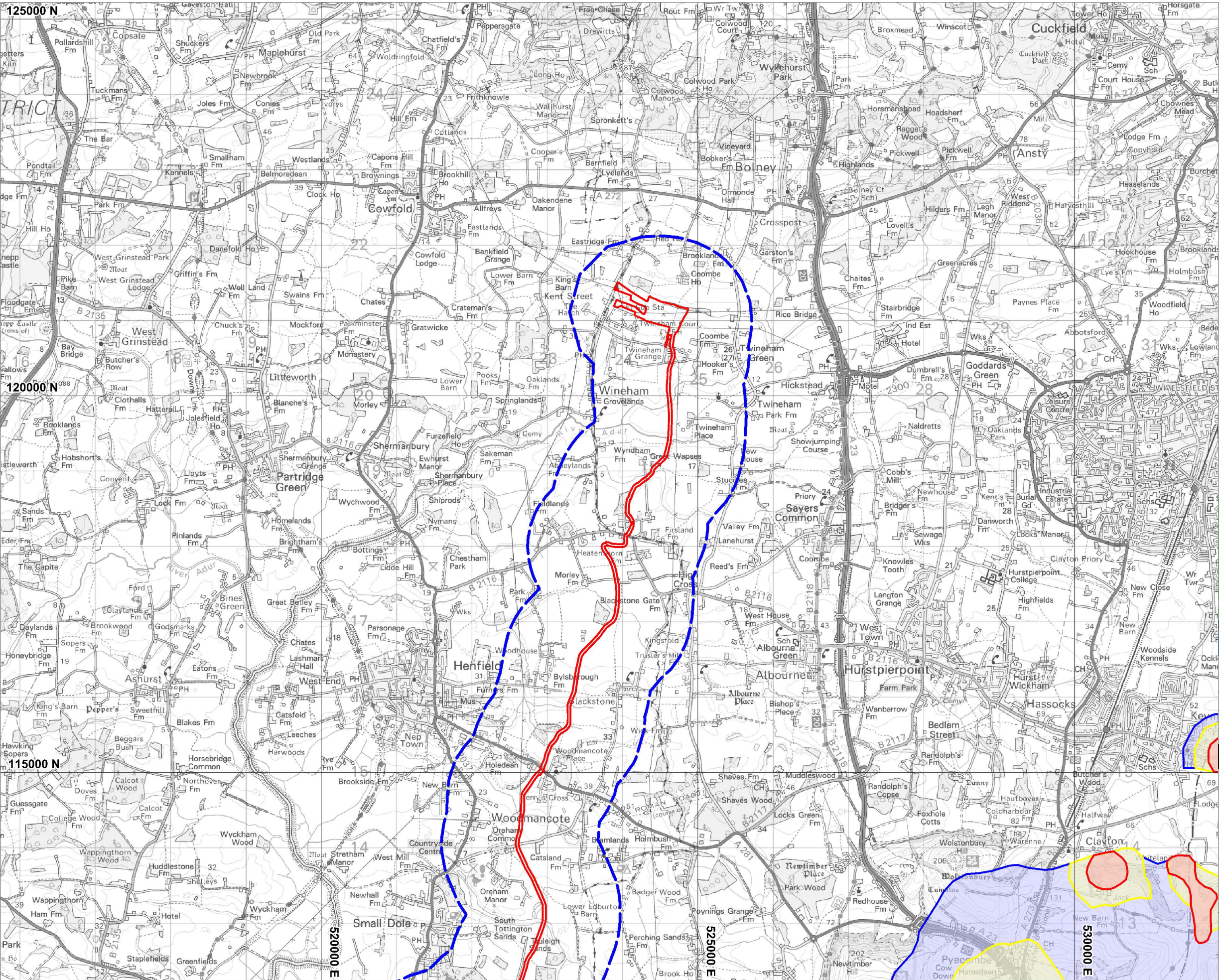
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REV 04



Legend :

- Development Boundary
- Study Area
- Zone I - Inner Protection Zone
- Zone II - Outer Protection Zone
- Zone III - Total Catchment



04	26.11.12	New Development Area	AJ	KB	DW
03	18.10.12	New Route	DL	KB	DW
02	20.03.12	New Layout	LG	KB	DW
01	20.10.11	Second Draft	AJ	GS	KB
Rev	Date	Description	Drn	Chk	App

Rampion Offshore Wind Farm



Title : Figure 2 - Source Protection Zone (Map 2 of 2)

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APPENDIX A

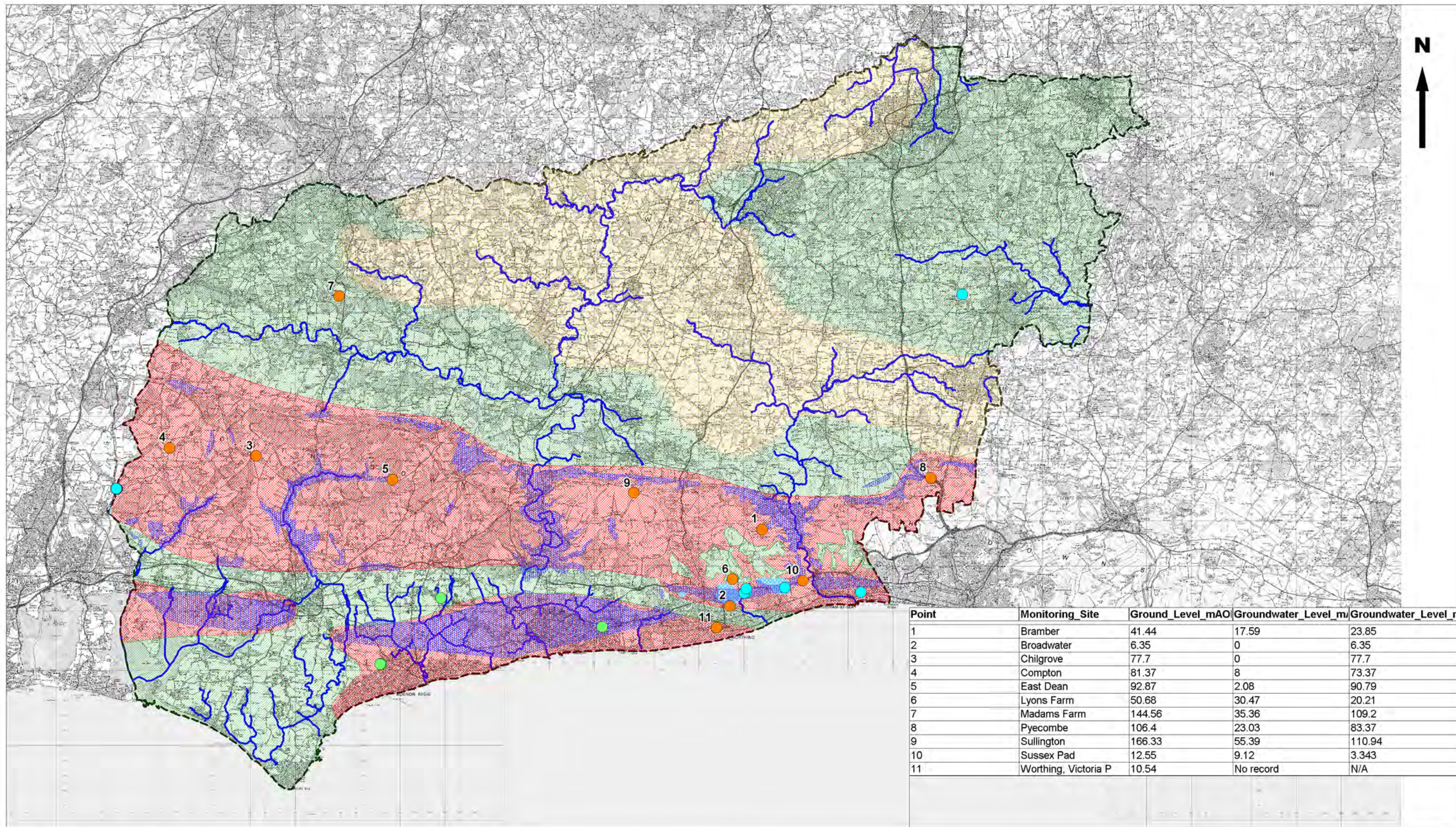
Service Constraints

RSK GROUP SERVICE CONSTRAINTS

1. This report and the Drainage design carried out in connection with the report (together the "Services") were compiled and carried out by RSK LDE Ltd (RSK) for E.On. (the "client") in accordance with the terms of a contract between RSK and the "client". The Services were performed by RSK with the skill and care ordinarily exercised by a reasonable Civil Engineer at the time the Services were performed. Further, and in particular, the Services were performed by RSK taking into account the limits of the scope of works required by the client, the time scale involved and the resources, including financial and manpower resources, agreed between RSK and the client.
2. Other than that expressly contained in paragraph 1 above, RSK provides no other representation or warranty whether express or implied, in relation to the Services.
3. Unless otherwise agreed the Services were performed by RSK exclusively for the purposes of the client. RSK is not aware of any interest of or reliance by any party other than the client in or on the Services. Unless expressly provided in writing, RSK does not authorise, consent or condone any party other than the client relying upon the Services. Should this report or any part of this report, or otherwise details of the Services or any part of the Services be made known to any such party, and such party relies thereon that party does so wholly at its own and sole risk and RSK disclaims any liability to such parties. Any such party would be well advised to seek independent advice from a competent environmental consultant and/or lawyer.
4. It is RSK's understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was a significant factor in determining the scope and level of the Services. Should the purpose for which the report is used, or the proposed use of the site change, this report may no longer be valid and any further use of or reliance upon the report in those circumstances by the client without RSK's review and advice shall be at the client's sole and own risk. Should RSK be requested to review the report after the date hereof, RSK shall be entitled to additional payment at the then existing rates or such other terms as agreed between RSK and the client.
5. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of RSK. In the absence of such written advice of RSK, reliance on the report in the future shall be at the client's own and sole risk. Should RSK be requested to review the report in the future, RSK shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between RSK and the client.
6. The observations and conclusions described in this report are based solely upon the Services, which were provided pursuant to the agreement between the client and RSK. RSK has not performed any observations, investigations, studies or testing not specifically set out or required by the contract between the client and RSK. RSK is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the Services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, RSK did not seek to evaluate the presence on or off the site of asbestos, electromagnetic fields, lead paint, heavy metals, radon gas or other radioactive or hazardous materials.
7. The Services are based upon RSK's observations of existing physical conditions at the Site gained from a walk-over survey of the site together with RSK's interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The Services are also based on information and/or analysis provided by independent testing and information services or laboratories upon which RSK was reasonably entitled to rely. The Services clearly are limited by the accuracy of the information, including documentation, reviewed by RSK and the observations possible at the time of the walk-over survey. Further RSK was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the Services. RSK is not liable for any inaccurate information or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to RSK and including the doing of any independent investigation of the information provided to RSK save as otherwise provided in the terms of the contract between the client and RSK.
8. The phase II or intrusive environmental site investigation aspects of the Services is a limited sampling of the site at pre-determined borehole and soil vapour locations based on the operational configuration of the site. The conclusions given in this report are based on information gathered at the specific test locations and can only be extrapolated to an undefined limited area around those locations. The extent of the limited area depends on the soil and groundwater conditions, together with the position of any current structures and underground facilities and natural and other activities on site. In addition chemical analysis was carried out for a limited number of parameters [as stipulated in the contract between the client and RSK] [based on an understanding of the available operational and historical information,] and it should not be inferred that other chemical species are not present.
9. Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan, but is (are) used to present the general relative locations of features on, and surrounding, the site.

APPENDIX B

Historic Flood Mapping



West Sussex SFRA

Map G - Areas More Prone to Groundwater Flooding



CAPITA SYMONDS

Legend

- West Sussex County Boundary
 - Main River
 - Groundwater flood event
 - Groundwater monitoring sites
 - Arun District Council boreholes
 - Recorded areas of groundwater flooding
 - Groundwater Emergence Zones
- Potential for Groundwater Flooding
- High
 - Low
 - Medium



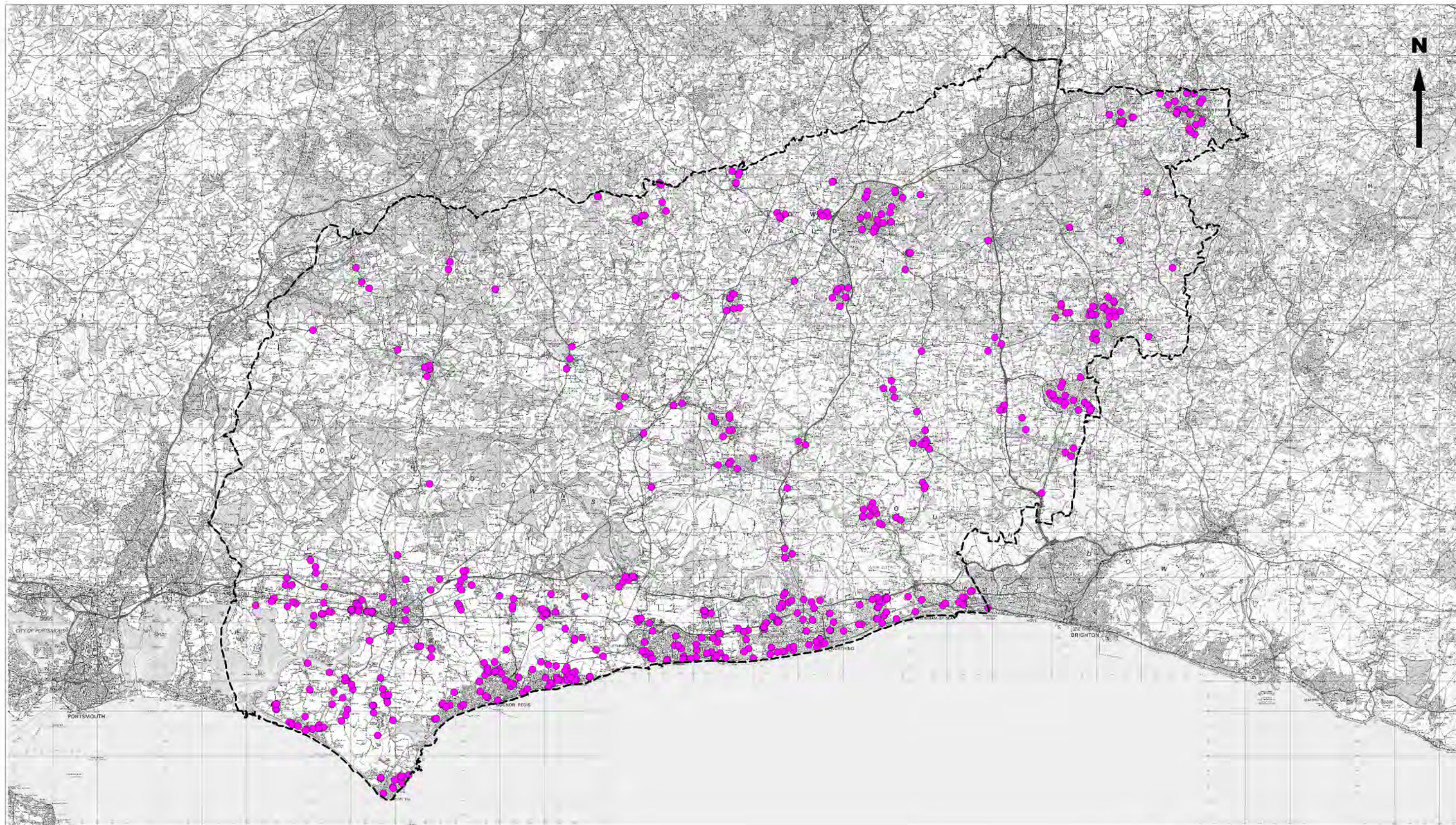
Scale at A3 1: 250000

Date 05/05/2009



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Map_G.wor



West Sussex SFRA

Map S - Areas More Prone to Flooding From Sewers



CAPITA SYMONDS

Legend

-  West Sussex County Boundary
-  Historic Incidents of Flooding from Sewers



Scale at A3 1: 250000
Date 05/05/2009

0 5 10 15
kilometres

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