



**Document 3.1- ES Volume 2
Appendix 9.2 EA Flood Risk Data**

**The Kemsley Mill K4 Combined Heat and
Power Generating Station Development
Consent Order**

**Planning Act 2008 The Infrastructure Planning
(Applications: Prescribed Forms and
Procedure) Regulations 2009
Regulation 5(2)q**

April 2018 - Submission Version

PINS Ref: EN010090

9 Water Environment – Appendix 9.2

9.1 Introduction

Purpose

- 9.1.1 The purpose of this Appendix is to present information received from the Environment Agency with respect to hydrology and flood risk, including hydrological and tidal model outputs.
- 9.1.2 This data has been used to inform the baseline characterisation in Chapter 9 of the EIA, as well as Appendix 9.1 Flood Risk Assessment.

Product 4 (Detailed Flood Risk) for: Kemsley, Kent
Requested by: Jonathan Morley, RPS
Reference: KSL 62226 UE
Date: 10/11/2017

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- Defence Details
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- Additional Data
- Use of information for Flood Risk Assessment and Updated Climate Change Allowances (2016)

The information provided is based on the best data available as of the date of this letter.

You may feel it is appropriate to contact our office at regular intervals, to check whether any amendments/ improvements have been made to the data for this location. Should you re-contact us after a period of time, please quote the above reference in order to help us deal with your query.

Please refer to the [Open Government Licence](#) which explains the permitted use of this information.

Flood Map Confirmation

The Flood Map:

Our Flood Map shows the natural floodplain for areas at risk from river and tidal flooding. The floodplain is specifically mapped ignoring the presence and effect of defences. Although flood defences reduce the risk of flooding they cannot completely remove that risk as they may be over topped or breached during a flood event.

The Flood Map indicates areas with a 1% (0.5% in tidal areas), Annual Exceedance Probability (AEP) - the probability of a flood of a particular magnitude, or greater, occurring in any given year, and a 0.1% AEP of flooding from rivers and/or the sea in any given year. The map also shows the location of some flood defences and the areas that benefit from them.

The Flood Map is intended to act as a guide to indicate the potential risk of flooding. When producing it we use the best data available to us at the time, taking into account historic flooding and local knowledge. The Flood Map is updated on a quarterly basis to account for any amendments required. These amendments are then displayed on the internet at www.gov.uk/prepare-for-a-flood.

At this Site:

The Flood Map shows that this site lies within the outline of the 0.5% chance of flooding in any given year from the sea.

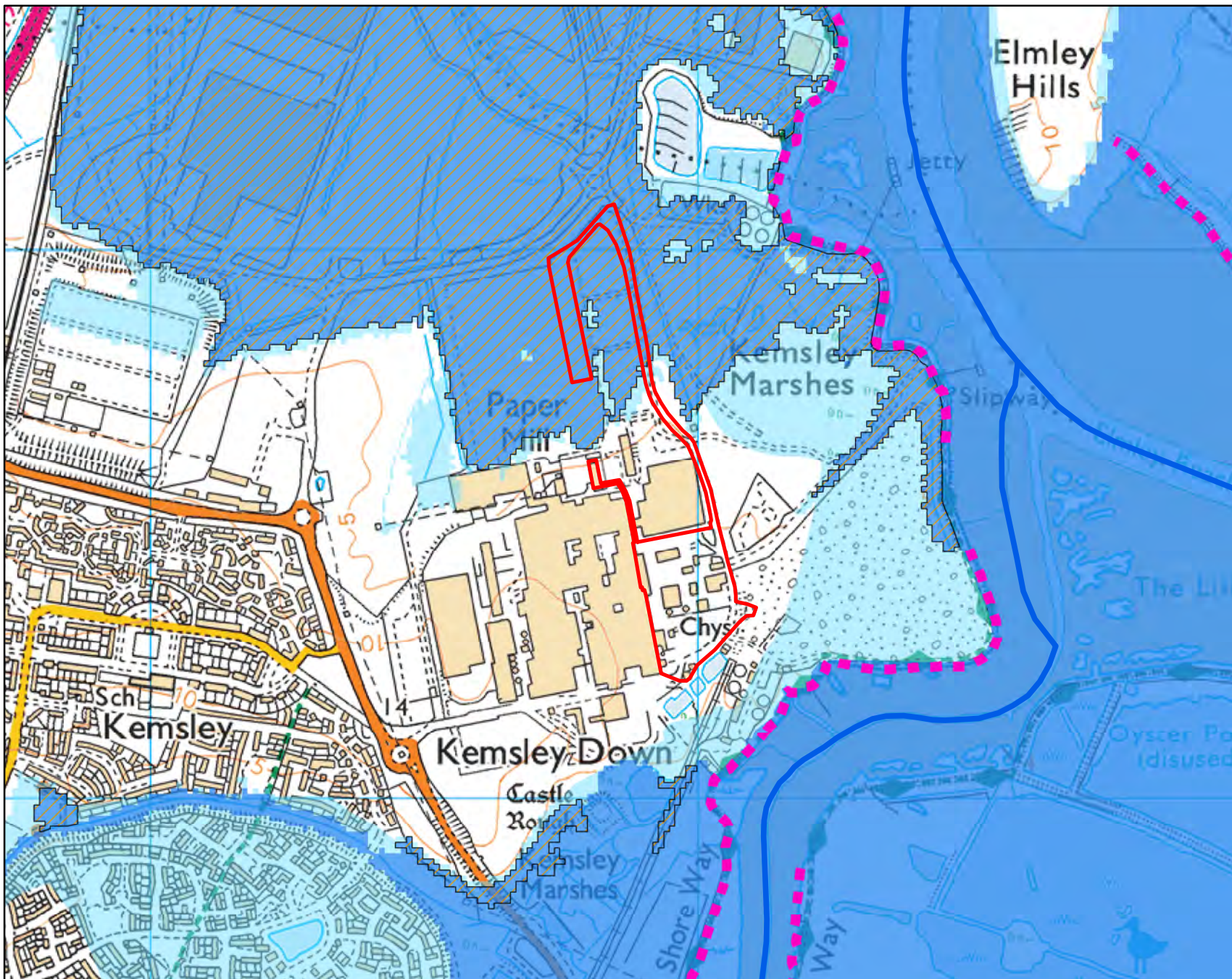
Enclosed is an extract of our Flood Map which shows this information for your area.

Method of production

The Flood Map at this location has been derived using detailed tidal modelling of the North Kent Coast, completed in August 2015.

Flood Map centred on Kemsley, ME10 2SG

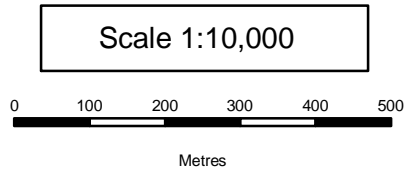
Created 10 November 2017 (Ref KSL 62226 UE)



Legend

- Main Rivers
- Site Outline
- Flood Defences
- Flood Storage Area
- Areas Benefiting From Flood Defence
- Flood Zone 3
- Flood Zone 2

Annual Exceedance Probability (AEP) The probability of a flood of a particular magnitude, or greater occurring in any given year.



Model Output Data

You have requested flood levels for various return periods at this location.

The modelled flood levels for the closest most appropriate model grid cells, any additional information you may need to know about the modelling from which they are derived and/or any specific use or health warning for their use are set out below.

Using a 2D TuFLOW model the floodplain has been represented as a grid. The flood water levels have been calculated for each grid cell.

A map showing the location of the points from which the data is taken is enclosed. Please note you should read the notice enclosed for your specific use rights.

Values of 0.00 indicate locations at which the selected points lie outside of a particular modelled flood extent.

Data taken from North Kent Coast Modelling and Mapping Study, completed by JBA Consulting, in August 2015.

There are no health warnings or additional information for these levels or the model from which they were produced.

Table 1: Defended Modelled Tidal Flood levels for Annual Exceedance Probability shown in mAOD

Node Location ID	Modelled Tidal Flood levels for Annual Exceedance Probability shown in mAOD						
	National Grid Ref		Defended - Still Water				
	Easting	Northing	5% AEP 2012	0.5% AEP 2012	0.5% AEP 2070	0.5% AEP 2115	0.1% AEP (2012)
1	591787	166774	0.000	0.000	0.000	5.435	0.000
2	591768	166875	0.000	0.000	0.000	5.431	0.000
3	591750	166979	0.000	0.000	0.000	5.428	0.000
4	591796	167028	0.000	0.000	0.000	5.426	0.000
5	591840	167065	0.000	0.000	0.000	5.425	0.000
6	591879	166961	0.000	0.000	0.000	5.427	0.000
7	591900	166836	0.000	0.000	0.000	5.430	0.000
8	591923	166725	0.000	0.000	0.000	5.432	0.000
9	591986	166647	0.000	0.000	0.000	0.000	0.000
10	592030	166513	0.000	0.000	0.000	0.000	0.000
11	591907	166453	0.000	0.000	0.000	0.000	0.000
12	591923	166344	0.000	0.000	0.000	0.000	0.000
13	591949	166233	0.000	0.000	0.000	0.000	0.000
14	591969	166466	0.000	0.000	0.000	0.000	0.000
15	591986	166369	0.000	0.000	0.000	0.000	0.000
16	592009	166263	0.000	0.000	0.000	0.000	0.000
17	592082	166341	0.000	0.000	0.000	0.000	0.000
18	592052	166386	0.000	0.000	0.000	0.000	0.000

Table 2: Defended Modelled Tidal Flood levels for Annual Exceedance Probability shown in mAOD

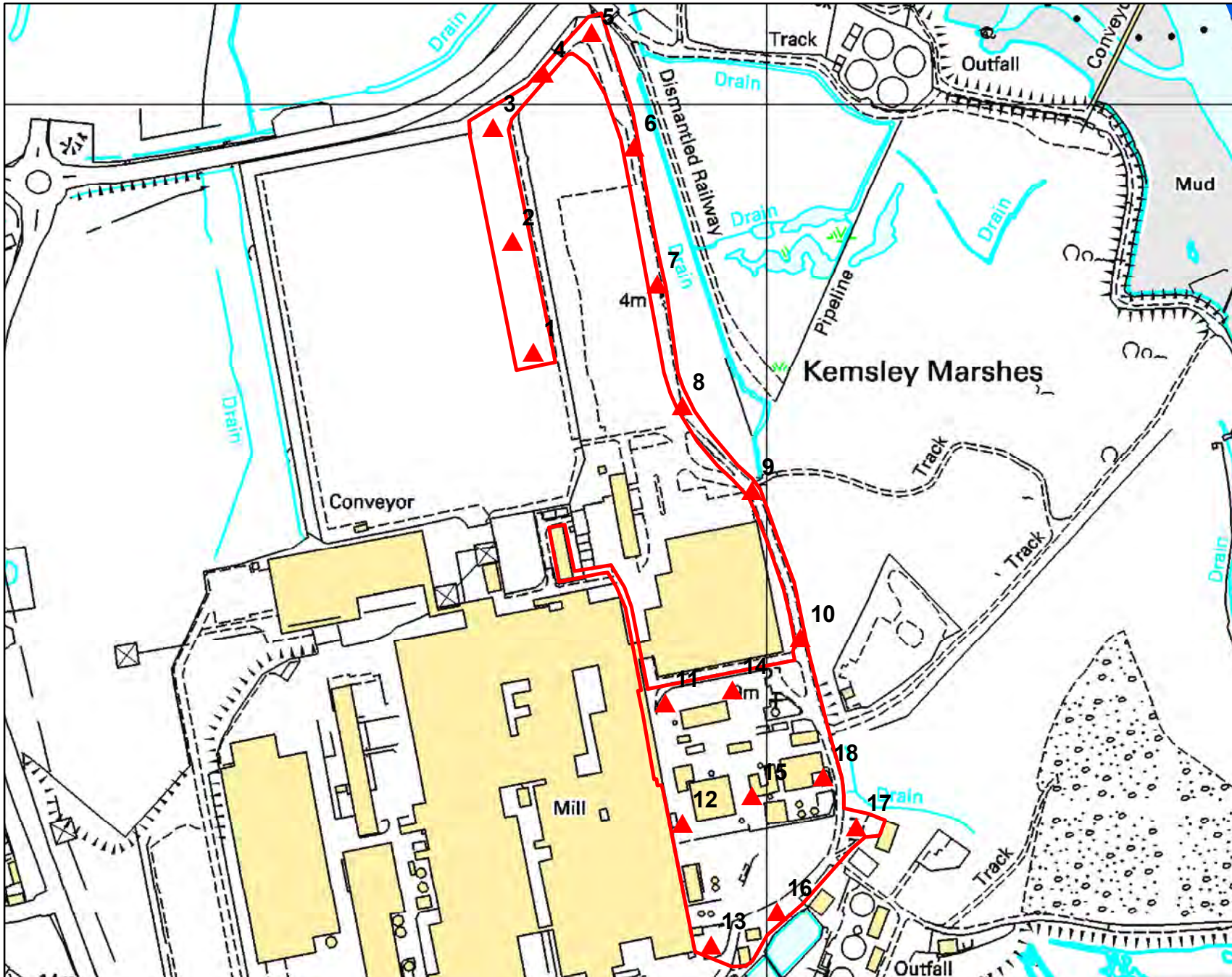
Node Location ID	Modelled Tidal Flood levels for Annual Exceedance Probability shown in mAOD						
	National Grid Ref		Defended - Wave Overtopping				
	Easting	Northing	5% AEP 2012	1.33% AEP 2012	0.5% AEP 2012	0.5% AEP 2115	0.1% AEP (2012)
1	591787	166774	0.000	0.000	0.000	5.432	0.000
2	591768	166875	0.000	0.000	0.000	5.428	0.000
3	591750	166979	0.000	0.000	0.000	5.425	0.000
4	591796	167028	0.000	0.000	0.000	5.424	0.000
5	591840	167065	0.000	0.000	0.000	5.423	0.000
6	591879	166961	0.000	0.000	0.000	5.424	0.000
7	591900	166836	0.000	0.000	0.000	5.427	0.000
8	591923	166725	0.000	0.000	0.000	5.431	0.000
9	591986	166647	0.000	0.000	0.000	0.000	0.000
10	592030	166513	0.000	0.000	0.000	0.000	0.000
11	591907	166453	0.000	0.000	0.000	0.000	0.000
12	591923	166344	0.000	0.000	0.000	0.000	0.000
13	591949	166233	0.000	0.000	0.000	0.000	0.000
14	591969	166466	0.000	0.000	0.000	0.000	0.000
15	591986	166369	0.000	0.000	0.000	0.000	0.000
16	592009	166263	0.000	0.000	0.000	0.000	0.000
17	592082	166341	0.000	0.000	0.000	0.000	0.000
18	592052	166386	0.000	0.000	0.000	0.000	0.000

Table 3: Undefended Modelled Tidal Flood levels for Annual Exceedance Probability shown in mAOD

Node Location ID	Modelled Tidal Flood levels for Annual Exceedance Probability shown in mAOD						
	National Grid Ref		Undefended				
	Easting	Northing	5% AEP 2012	0.5% AEP 2012	0.5% AEP 2070	0.5% AEP 2115	0.1% AEP (2012)
1	591787	166774	4.064	4.704	5.274	6.013	5.163
2	591768	166875	4.063	4.703	5.274	6.011	5.162
3	591750	166979	4.062	4.703	5.273	6.010	5.160
4	591796	167028	4.062	4.703	5.274	6.009	5.161
5	591840	167065	4.062	4.703	5.274	6.009	5.161
6	591879	166961	4.063	4.704	5.276	6.011	5.162
7	591900	166836	4.064	4.705	5.277	6.013	5.163
8	591923	166725	0.000	0.000	5.277	6.015	0.000
9	591986	166647	0.000	0.000	0.000	0.000	0.000
10	592030	166513	0.000	0.000	0.000	0.000	0.000
11	591907	166453	0.000	0.000	0.000	0.000	0.000
12	591923	166344	0.000	0.000	0.000	0.000	0.000
13	591949	166233	0.000	0.000	0.000	0.000	0.000
14	591969	166466	0.000	0.000	0.000	0.000	0.000
15	591986	166369	0.000	0.000	0.000	0.000	0.000
16	592009	166263	0.000	0.000	0.000	0.000	0.000
17	592082	166341	0.000	0.000	0.000	0.000	0.000
18	592052	166386	0.000	0.000	0.000	0.000	0.000

Modelled Node Location Map centred on Kemsley, ME10 2SG

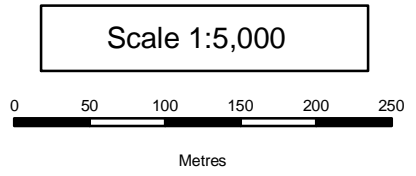
Created 10 November 2017 (Ref KSL 62226 UE)



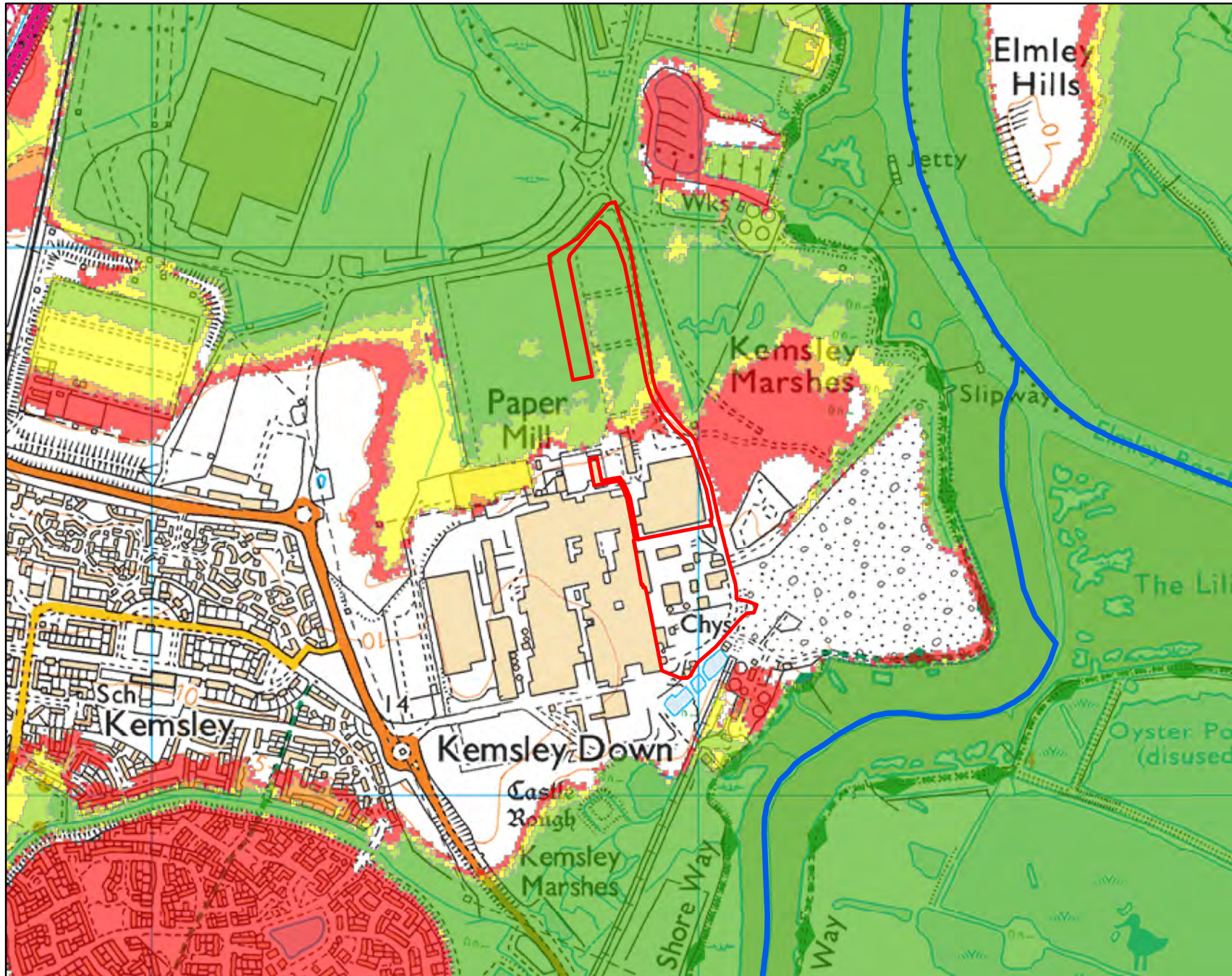
Legend

- Main Rivers
- Site Outline
- ▲ NodeLocations

Annual Exceedance Probability (AEP) The probability of a flood of a particular magnitude, or greater occurring in any given year.



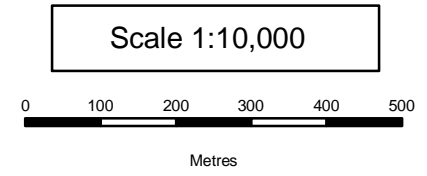
Modelled Flood Event Extent Map centred on Kemsley, ME10 2SG
Created 10 November 2017 (Ref KSL 62226 UE)



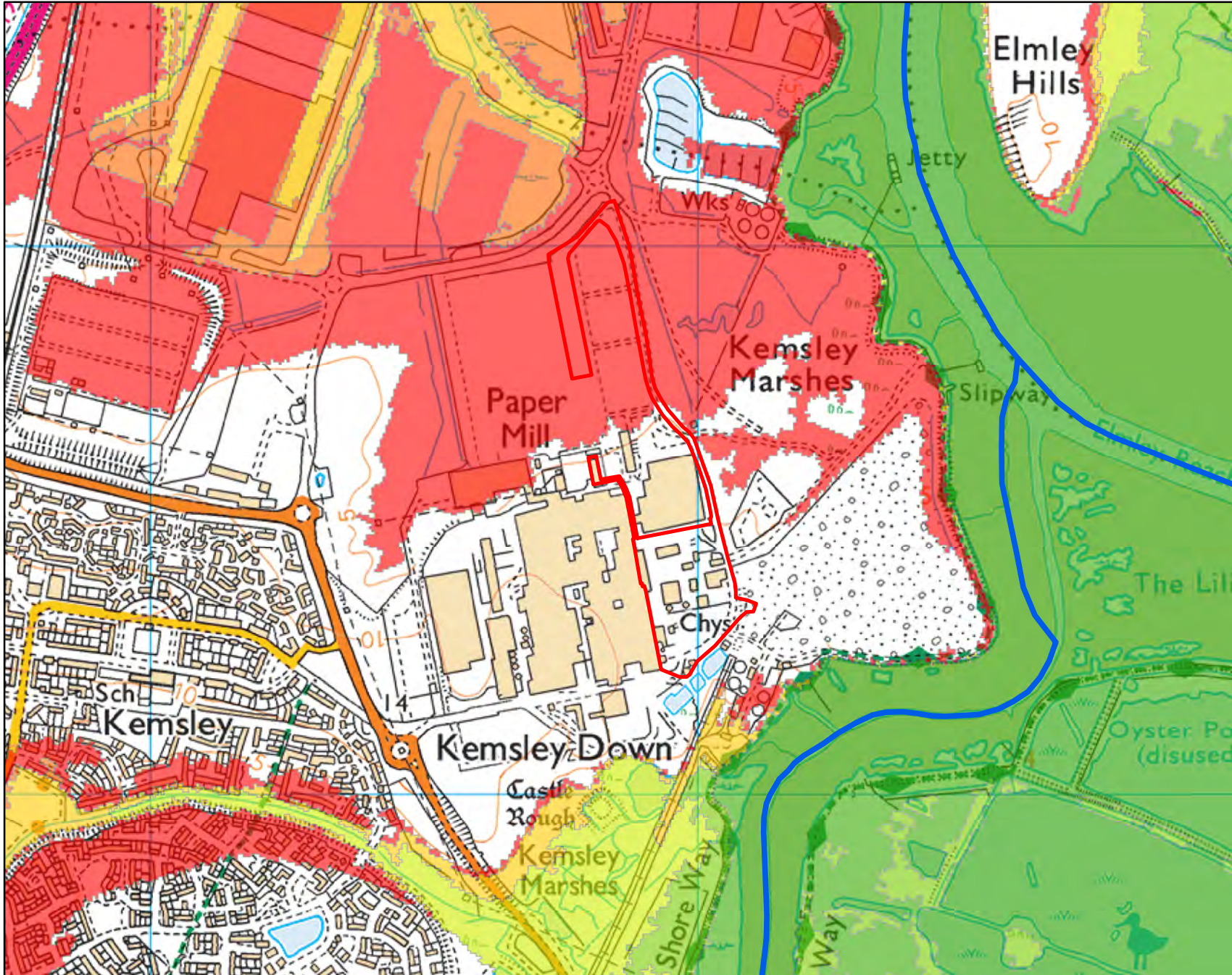
Legend

- Main Rivers
 - Site Outline
- Undefended Scenario**
- AEP (%)**
- 5% AEP (2012)
 - 0.5% AEP (2012)
 - 0.1% AEP (2012)
 - 0.5% AEP (2070)
 - 0.5% AEP (2115)

Annual Exceedance Probability (AEP) The probability of a flood of a particular magnitude, or greater occurring in any given year.



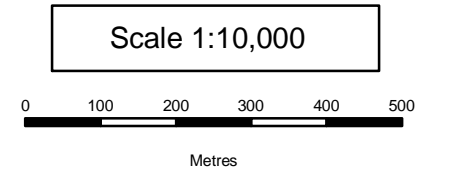
Modelled Flood Event Extent Map centred on Kemsley, ME10 2SG
Created 10 November 2017 (Ref KSL 62226 UE)



Legend

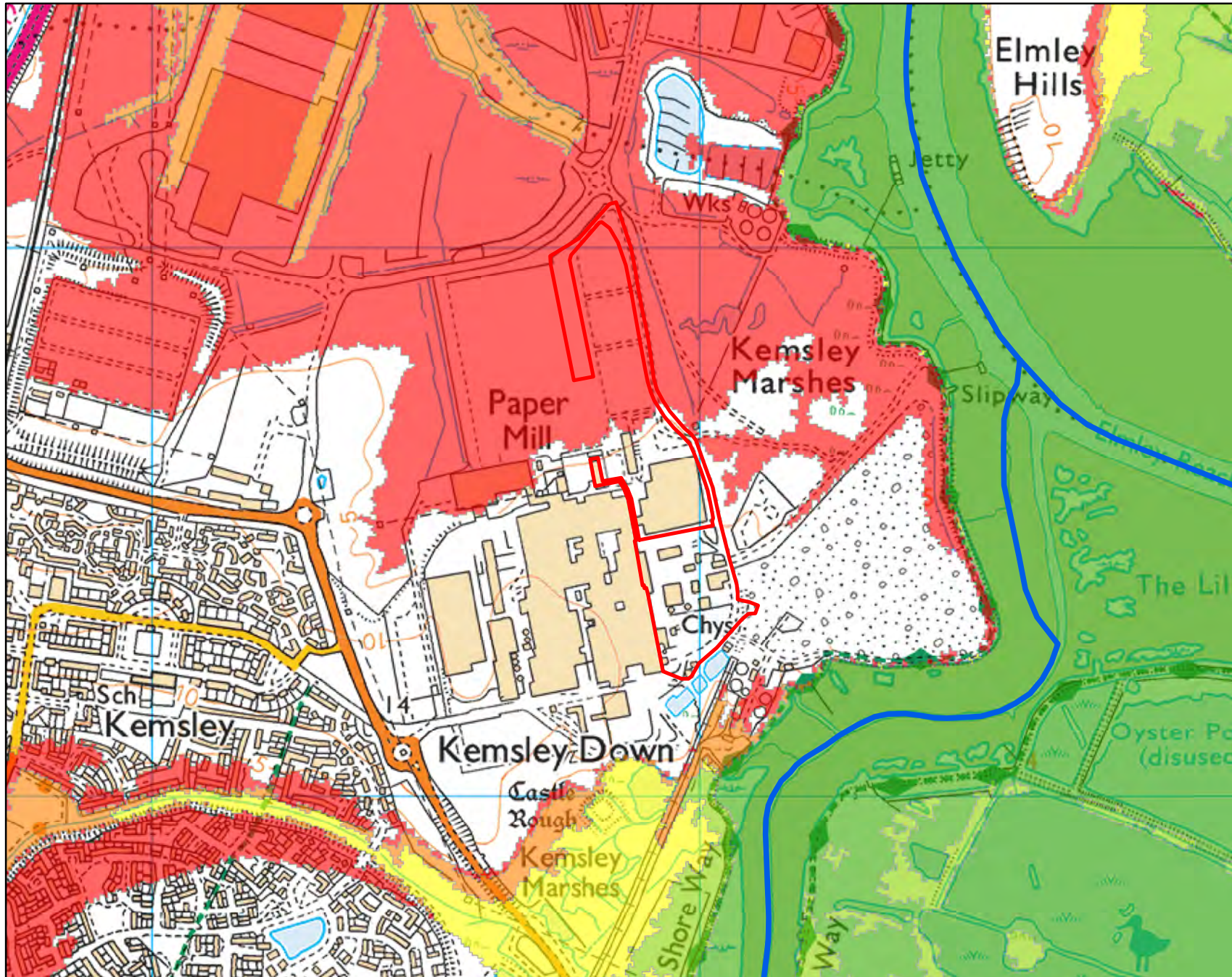
- Main Rivers
 - Site Outline
- Defended Scenario - Still Water**
- AEP (%)**
- 5% AEP (2012)
 - 1.3% AEP (2012)
 - 0.5% AEP (2012)
 - 0.1% AEP (2012)
 - 0.5% AEP (2070)
 - 0.5% AEP (2115)

Annual Exceedance Probability (AEP) The probability of a flood of a particular magnitude, or greater occurring in any given year.



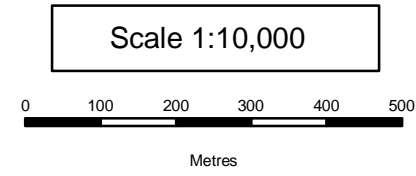
Modelled Flood Event Extent Map centred on Kemsley, ME10 2SG

Created 10 November 2017 (Ref KSL 62226 UE)



- Legend**
- Main Rivers
 - Site Outline
- Defended Scenario - Wave Overtopping**
- AEP (%)**
- 0.5% AEP (2115)
 - 0.1% AEP (2012)
 - 0.5% AEP (2012)
 - 1.3% AEP (2012)
 - 5% AEP (2012)

Annual Exceedance Probability (AEP) The probability of a flood of a particular magnitude, or greater occurring in any given year.



Defence Details

Existing flood defences in this area are made up of raised walls and embankments. These provide a 1 in 1000 year standard of protections. The Environment Agency currently has no planned improvement works to these defences.

Historic Flood Data

We hold records of historic flood events from rivers and the sea. Information on the floods that may have affected the area local to your site are provided below and in the enclosed map (if relevant).

Flood Event Data

Dates of historic flood events in this area – February 1953.

Please note that our records are not comprehensive. We would therefore advise that you make further enquiries locally with specific reference to flooding at this location. You should consider contacting the relevant Local Planning Authority and/or water/sewerage undertaker for the area.

We map flooding to land, not individual properties. Our historic flood event record outlines are an indication of the geographical extent of an observed flood event. Our historic flood event outlines do not give any indication of flood levels for individual properties. They also do not imply that any property within the outline has flooded internally.

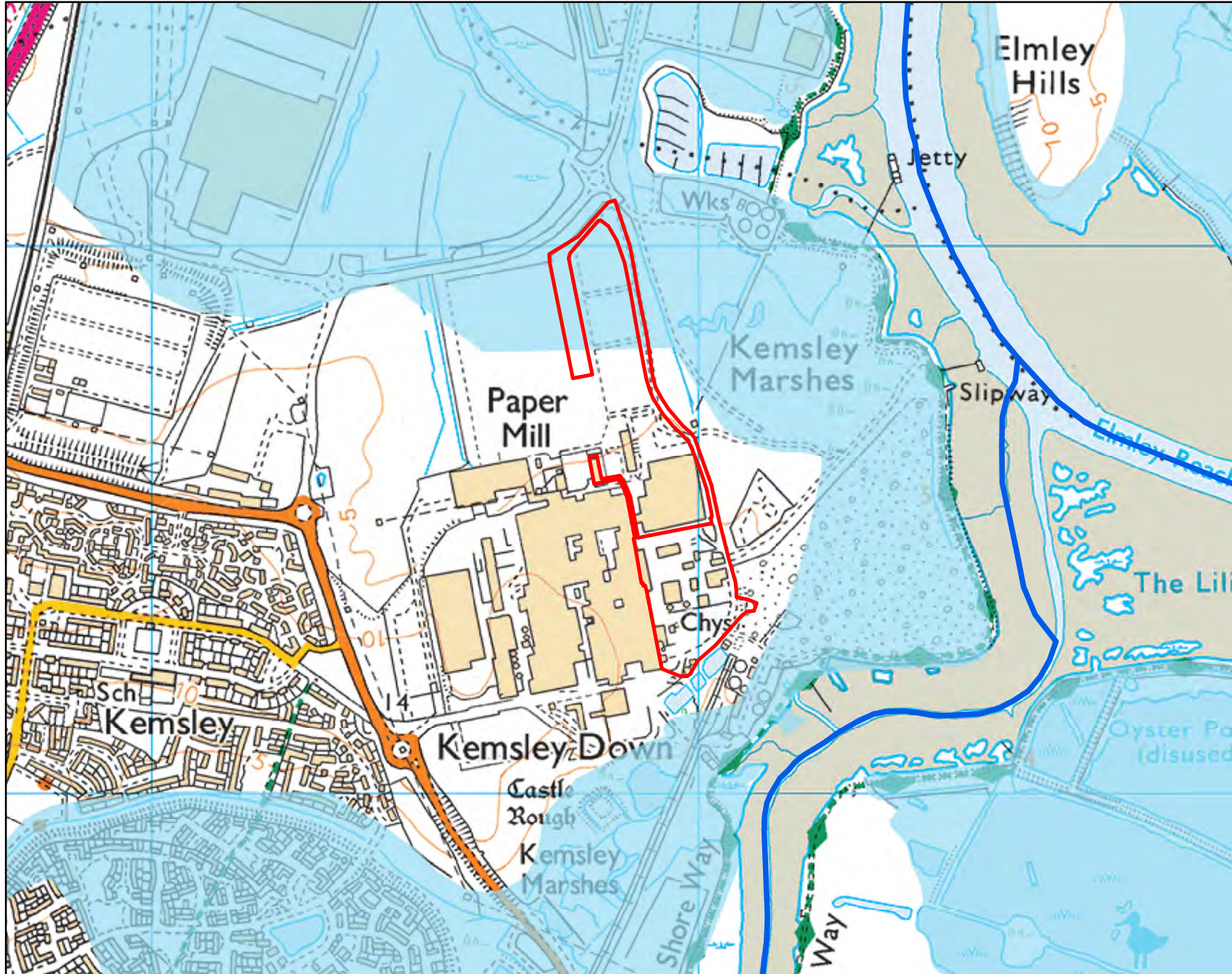
Please be aware that flooding can come from different sources. Examples of these are:

- from rivers or the sea;
- surface water (i.e. rainwater flowing over or accumulating on the ground before it is able to enter rivers or the drainage system);
- overflowing or backing up of sewer or drainage systems which have been overwhelmed,
- groundwater rising up from underground aquifers




Currently the Environment Agency can only supply flood risk data relating to the chance of flooding from rivers or the sea. However you should be aware that in recent years, there has been an increase in flood damage caused by surface water flooding or drainage systems that have been overwhelmed.

Historic Flood Map centred on Kemsley, ME10 2SG

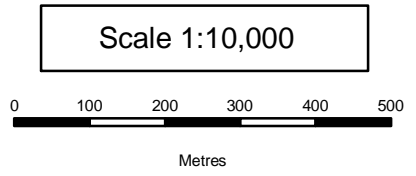
Created 10 November 2017 (Ref KSL 62226 UE)



Legend

-  Main Rivers
-  Site Outline
-  Feb 1953

Annual Exceedance Probability (AEP) The probability of a flood of a particular magnitude, or greater occurring in any given year.



Additional Information

Use of Environment Agency Information for Flood Risk / Flood Consequence Assessments

Depending on the enquiry, we may also provide advice on other issues related to our responsibilities including flooding, waste, land contamination, water quality, biodiversity, navigation, pollution, water resources, foul drainage or Environmental Impact Assessment.

In **England**, you should refer to the Environment Agency's Flood Risk Standing Advice, the technical guidance to the National Planning Policy Framework and the existing PPS25 Practice Guide for information about what flood risk assessment is needed for new development in the different Flood Zones. These documents can be accessed via:

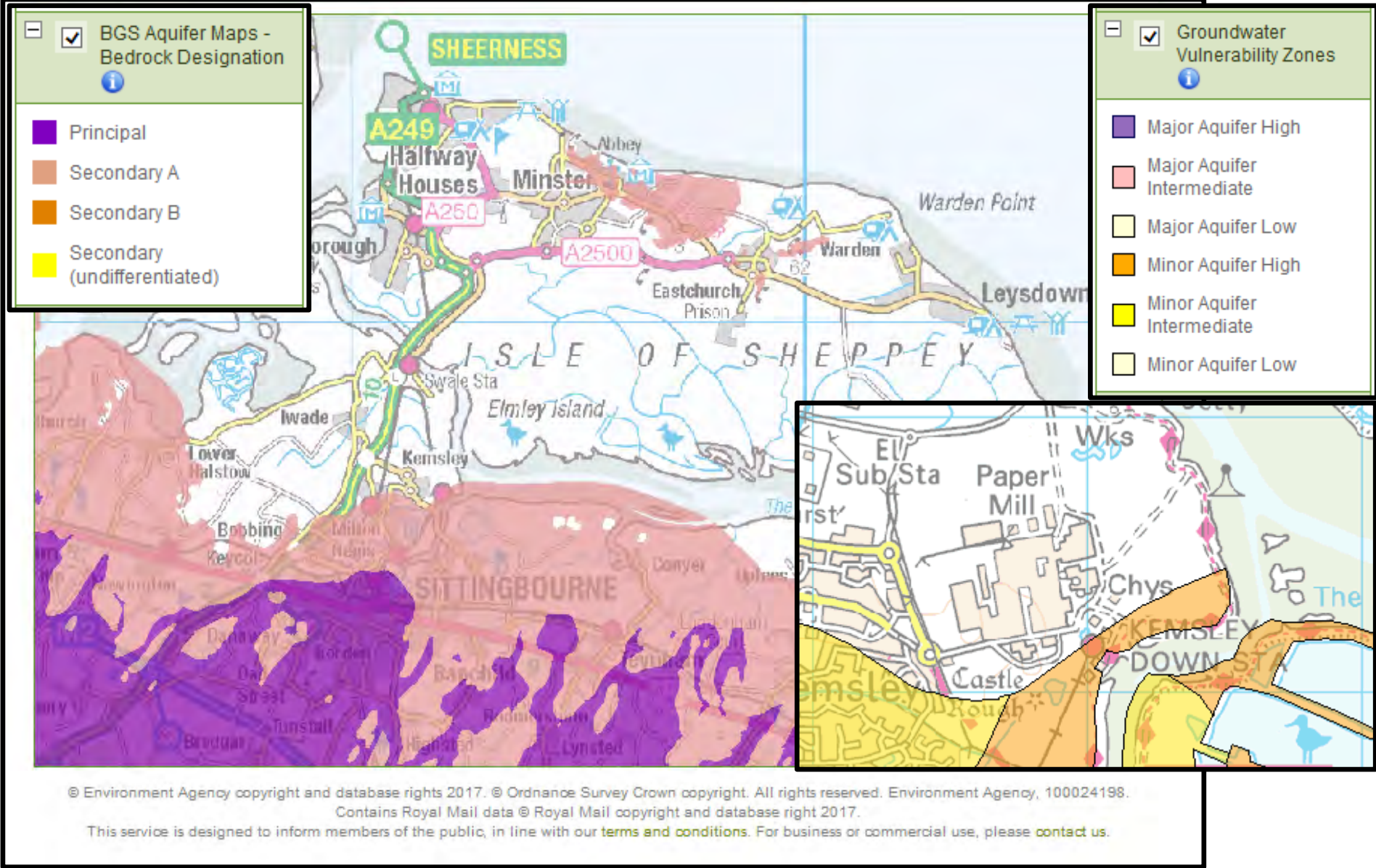
<https://www.gov.uk/government/publications/flood-risk-standing-advice-for-local-planning-authorities-frsa>
<http://planningguidance.planningportal.gov.uk/>

You should also consult the Strategic Flood Risk Assessment produced by your local planning authority.

You should note that:

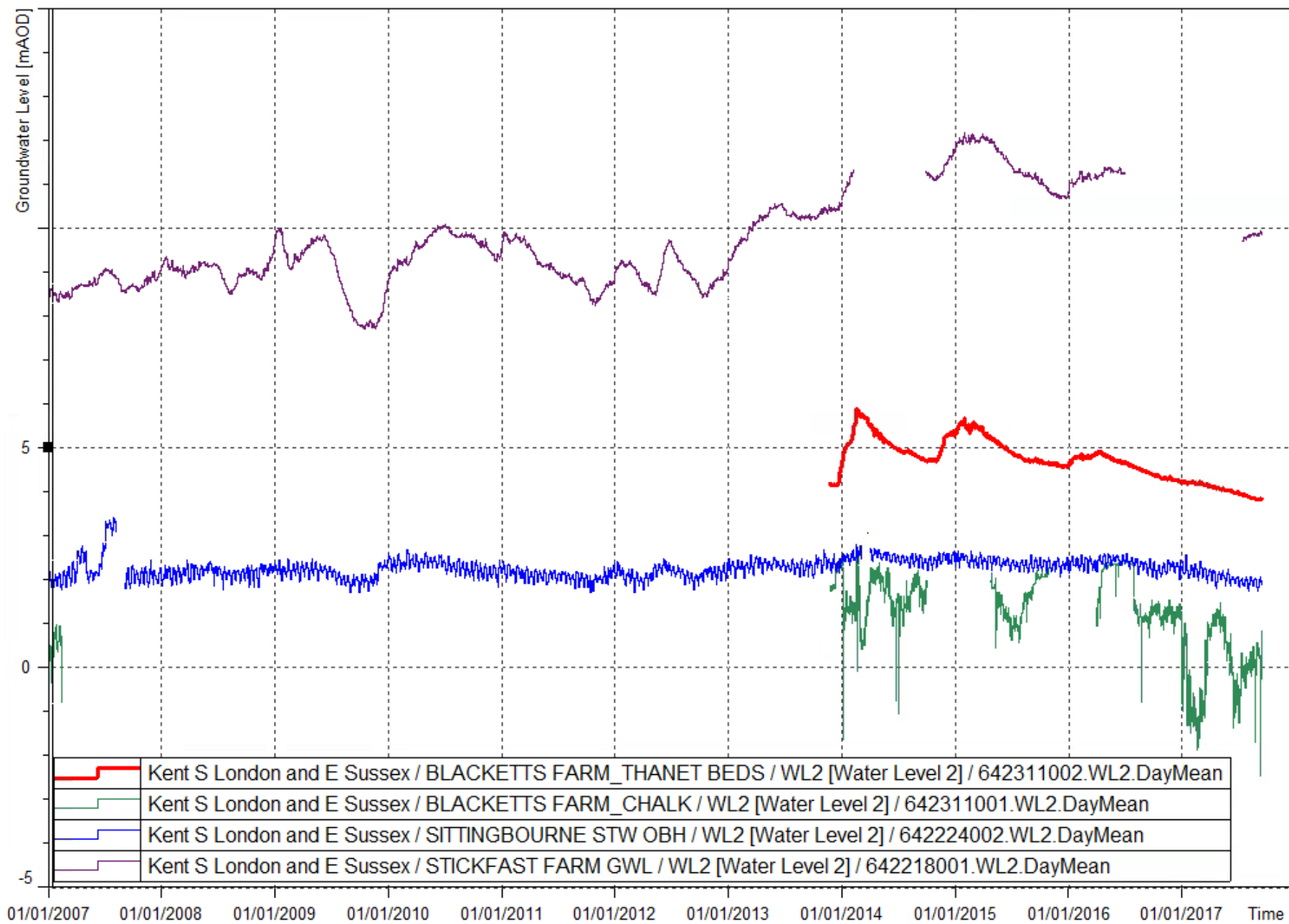
1. Information supplied by the Environment Agency may be used to assist in producing a Flood Risk / Consequence Assessment (FRA / FCA) where one is required, but does not constitute such an assessment on its own.
2. This information covers flood risk from main rivers and the sea, and you will need to consider other potential sources of flooding, such as groundwater or overland runoff. The information produced by the local planning authority referred to above may assist here.
3. Where a planning application requires a FRA / FCA and this is not submitted or deficient, the Environment Agency may well raise an objection.
4. For more significant proposals in higher flood risk areas, we would be pleased to discuss details with you ahead of making any planning application, and you should also discuss the matter with your local planning authority.

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Groundwater Elevation (derived from datalogger data) in the Kemsley Area

(N.B. With reference to Blacketts Farm, GWLs in the Thanet Beds are typically 3 or 4 metres above those in the Chalk)



Updated climate change requirements for flood risk assessments

On 19/02/2016 the 'Flood risk assessments: climate change allowances' were published on gov.uk. You can view the new allowances at ['Flood risk assessments: climate change allowances'](#). This replaces the previous guidance [Climate Change Allowances for Planners](#).

The data provided in this product does not include the new allowances. You will need to consider this data and factor in the new allowances to demonstrate the development will be safe from flooding. The fluvial climate change factors are now more complex reflecting the fact that the latest information shows that a single uplift percentage across England cannot be justified.

The Environment Agency will incorporate the new allowances into future modelling studies.

It remains the applicant's responsibility to demonstrate through their proposals and flood risk assessments that new development will be safe in flood risk terms for its lifetime.

Surface Water

We have provided two national Surface Water maps, under our Strategic Overview for flooding, to your Lead Local Flood Authority – Medway / Kent County Council, who are responsible for local flood risk (i.e. surface runoff, ground water and ordinary watercourse), which alongside their existing local information will help them in determining what best represents surface water flood risk in your area.

Medway / Kent County Council have reviewed these and determined what it believes best represents surface water flood risk. You should therefore contact this authority so they can provide you with the most up to date information about surface water flood risk in your area.

You may also wish to consider contacting the appropriate relevant Local Planning Authority and/or water/sewerage undertaker for the area. They may be able to provide some knowledge on the risk of flooding from other sources. We are working with these organisations to improve knowledge and understanding of surface water flooding.