

Product 4 (Detailed Flood Risk) for: Sandown Park, Portsmouth Rd, Esher KT10 9AJ

Requested by: Katy Rainford

Reference: KSL 102687 LB

Date: 16/10/2018

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- Open Government Licence

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.

This information is provided subject to the enclosed notice which you should read.

Orchard House, Endeavour Park, London Road, Addington, West Malling, Kent, ME19 5SH.

Customer services line: 020 8474 6848

Email: kslenquiries@environment-agency.gov.uk

Website: <https://www.gov.uk/government/organisations/environment-agency>

Flood Risk Assessments: Climate Change Allowances

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 developments will be safe in flood risk terms for its lifetime.

Flood Map for Planning (Rivers and Sea)

The Flood Map for Planning (Rivers & Sea)

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.environment-agency.gov.uk.

At this Site:

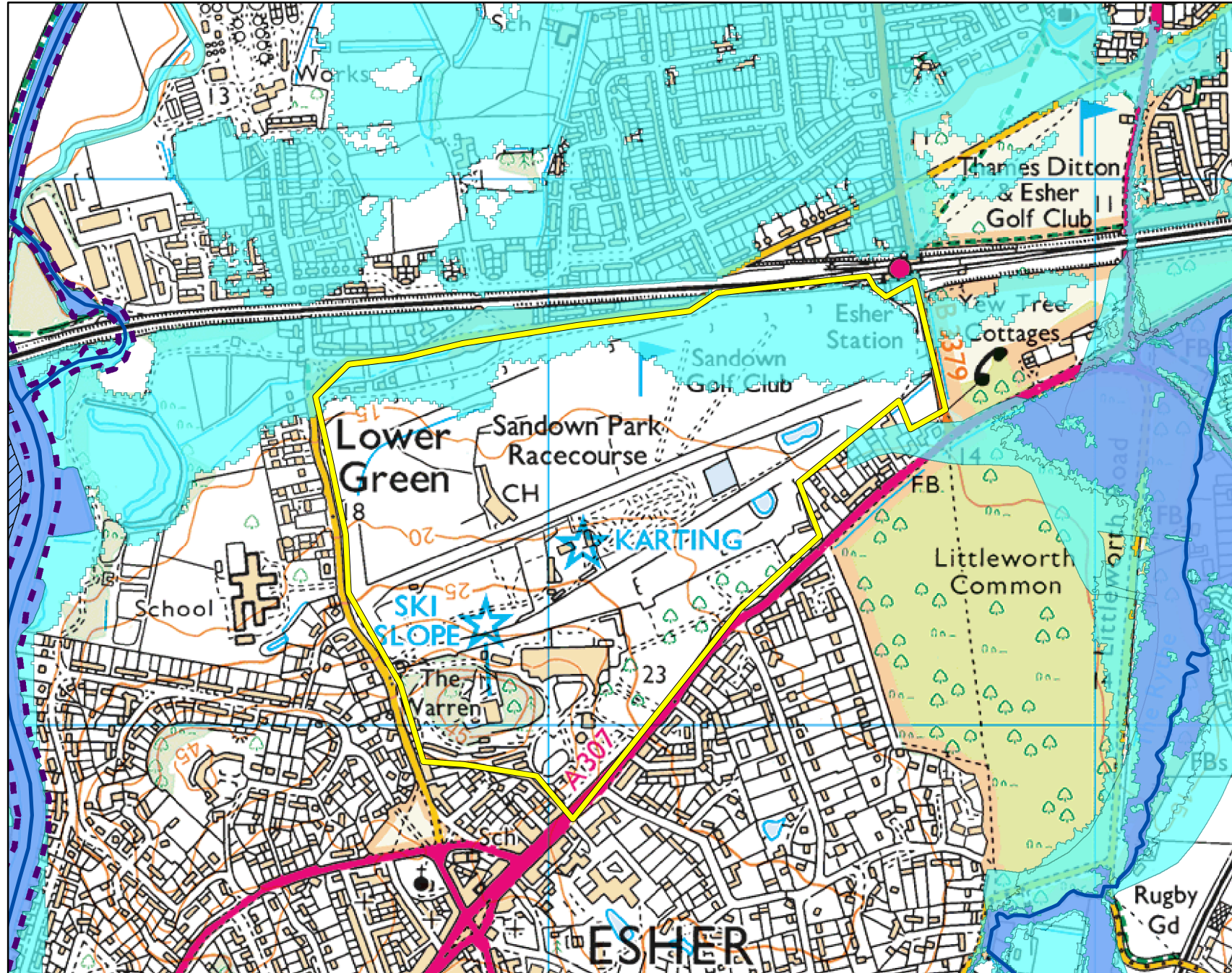
The Flood Map shows that this property/site lies within the outline of Flood Zone 2 this zone comprises land assessed as having a 0.1% chance of flooding from rivers in any given year.


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 our detailed fluvial model; 2D Lower Mole Modelling and Flood Risk Mapping, completed in 2009 by Halcrow

Detailed FRA Map centred on KT10 9AJ created 16/10/2018 (Ref: KSL 102687 LB)




Environment Agency



Legend

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

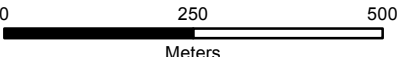
Flood Map for Planning (assuming no defences)

Flood Zone 3 shows the area that could be affected by flooding:

- from the sea with a 0.5% or greater chance of occurring each year
- or from a river with a 1% or greater chance of occurring each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to a 0.1% chance of occurring each year.

Scale 1:10,000



0 250 500
Meters

Model Output Data

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

2D

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.

Table 1: Modelled Defended Node Levels

Node ID	Easting	Northing	Modelled Flood Level for Annual Exceedance Probability Shown, in Metres AOD		
			5% AEP	1% AEP	0.1% AEP
167585	514402	165779	Nil return	Nil return	12.77
167824	514602	165774	Nil return	Nil return	12.77
169971	514242	165729	Nil return	Nil return	12.77
171839	514452	165699	Nil return	Nil return	12.77
172056	514022	165694	Nil return	Nil return	13.01
173259	514667	165674	Nil return	Nil return	12.77
174123	513807	165654	Nil return	Nil return	13.06
174405	514292	165649	Nil return	Nil return	12.77
174594	513697	165644	Nil return	Nil return	13.09
174700	514532	165644	Nil return	Nil return	12.77
176648	513622	165599	Nil return	Nil return	13.11
177161	513872	165584	Nil return	Nil return	13.07

Data taken from our 2D Lower Mole Modelling and Flood Risk Mapping, completed in 2009 by Halcrow

1D

The modelled flood levels for the most appropriate cross sections taken from our 2D modelling of the River Mole, 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.

Table 3: Modelled Undefended Node Levels

Node ID	Easting	Northing	Modelled Flood Level for Annual Exceedance Probability Shown, in Metres AOD		
			1.% AEP	0.5% AEP	0.1% AEP
MRel4859	513011	165173	12.76	13.03	13.46
MRel4673	513067	165343	12.67	12.94	13.45
MRel4449	513049	165568	12.55	12.82	13.33
RMLoop515	513075	165623	12.54	12.80	13.29
RMLoop370	513182	165670	12.51	12.77	13.39
RMLoop295	513228	165714	12.49	12.75	13.36
RMLoop250d	513173	165765	11.07	11.37	11.75
RMLoop183	513140	165778	11.07	11.37	11.75
MRel4035	513013	165972	11.00	11.29	11.63
MRel3939	513036	166065	10.90	11.20	11.54

Data taken from our 2D Lower Mole Modelling and Flood Risk Mapping, completed in 2009 by Halcrow

Table 4: Modelled Defended Node Levels

			Modelled Flood Level for Annual Exceedance Probability Shown, in Metres AOD						
Node ID	Easting	Northing	20% AEP	5% AEP	1.3 % AEP	1% AEP	1% AEP Plus Climate Change	0.5% AEP	0.1% AEP
MRel4859	513011	165173	12.35	12.48	12.70	12.76	13.10	13.05	13.44
MRel4673	513067	165343	12.32	12.43	12.61	12.67	13.01	12.96	13.36
MRel4449	513049	165568	12.28	12.36	12.51	12.55	12.89	12.84	13.18
RMLoop515	513075	165623	12.27	12.35	12.49	12.54	12.87	12.83	13.14
RMLoop370	513182	165670	12.26	12.33	12.46	12.51	12.84	12.79	13.32
RMLoop295	513228	165714	12.25	12.32	12.45	12.49	12.82	12.77	13.29
RMLoop250d	513173	165765	10.05	10.48	10.95	11.07	11.41	11.39	11.68
RMLoop183	513140	165778	10.04	10.48	10.95	11.07	11.41	11.39	11.68
MRel4035	513013	165972	9.97	10.40	10.87	11.00	11.33	11.31	11.57
MRel3939	513036	166065	9.89	10.31	10.78	10.90	11.24	11.22	11.48

Data taken from our 2D Lower Mole Modelling and Flood Risk Mapping, completed in 2009 by Halcrow.

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

Table 5: Modelled Undefended Node Flows

Node ID	Easting	Northing	Modelled Discharge for Annual Exceedance Probability Shown, in m ³ /s		
			1.% AEP	0.5% AEP	0.1% AEP
MRel4859	513011	165173	152.26	176.44	244.04
MRel4673	513067	165343	152.27	175.83	197.74
MRel4449	513049	165568	152.25	175.81	218.90
RMLoop515	513075	165623	19.39	25.69	83.64
RMLoop370	513182	165670	19.38	25.44	46.07
RMLoop295	513228	165714	19.38	25.44	45.05
RMLoop250d	513173	165765	19.37	25.44	41.27
RMLoop183	513140	165778	19.40	25.44	41.64
MRel4035	513013	165972	152.23	174.38	207.37
MRel3939	513036	166065	152.24	174.38	207.07

Data taken from our 2D Lower Mole Modelling and Flood Risk Mapping, completed in 2009 by Halcrow

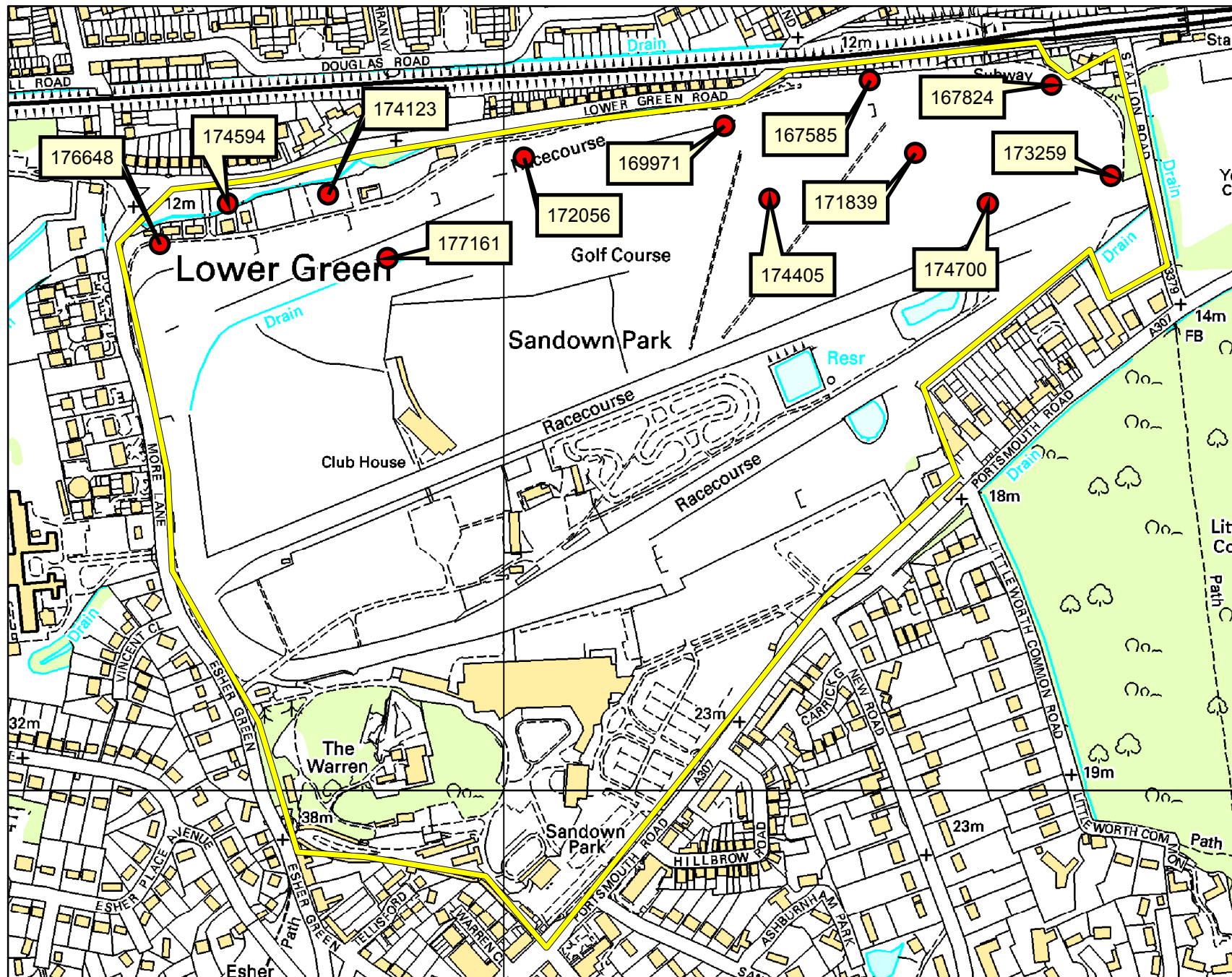
Table 6: Modelled Defended Node Flows

Node ID	Easting	Northing	Modelled Discharge for Annual Exceedance Probability Shown, in m ³ /s						
			20% AEP	5% AEP	1.3 % AEP	1% AEP	1% AEP Plus Climate Change	0.5% AEP	0.1% AEP
MRel4859	513011	165173	74.69	103.89	141.32	152.26	180.30	176.44	244.04
MRel4673	513067	165343	74.80	104.21	141.71	152.27	181.05	176.42	227.13
MRel4449	513049	165568	74.71	104.48	141.85	152.25	181.79	176.40	236.42
RMLoop515	513075	165623	11.31	14.77	18.44	19.39	31.45	26.56	88.81
RMLoop370	513182	165670	11.30	14.75	18.43	19.38	27.47	26.03	41.32
RMLoop295	513228	165714	11.29	14.75	18.43	19.38	27.43	26.03	39.99
RMLoop250d	513173	165765	11.29	15.42	18.42	19.37	27.15	26.03	39.13
RMLoop183	513140	165778	11.29	14.72	18.42	19.40	27.18	26.03	39.07
MRel4035	513013	165972	74.73	104.45	142.17	152.23	178.84	175.83	199.25
MRel3939	513036	166065	74.77	104.38	142.12	152.24	178.86	175.83	199.17


Data taken from our 2D Lower Mole Modelling and Flood Risk Mapping, completed in 2009 by Halcrow.

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

2D Node Location Map centred on KT10 9AJ created 16/10/2018 (Ref: KSL 102687 LB)



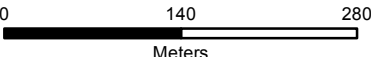

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Legend

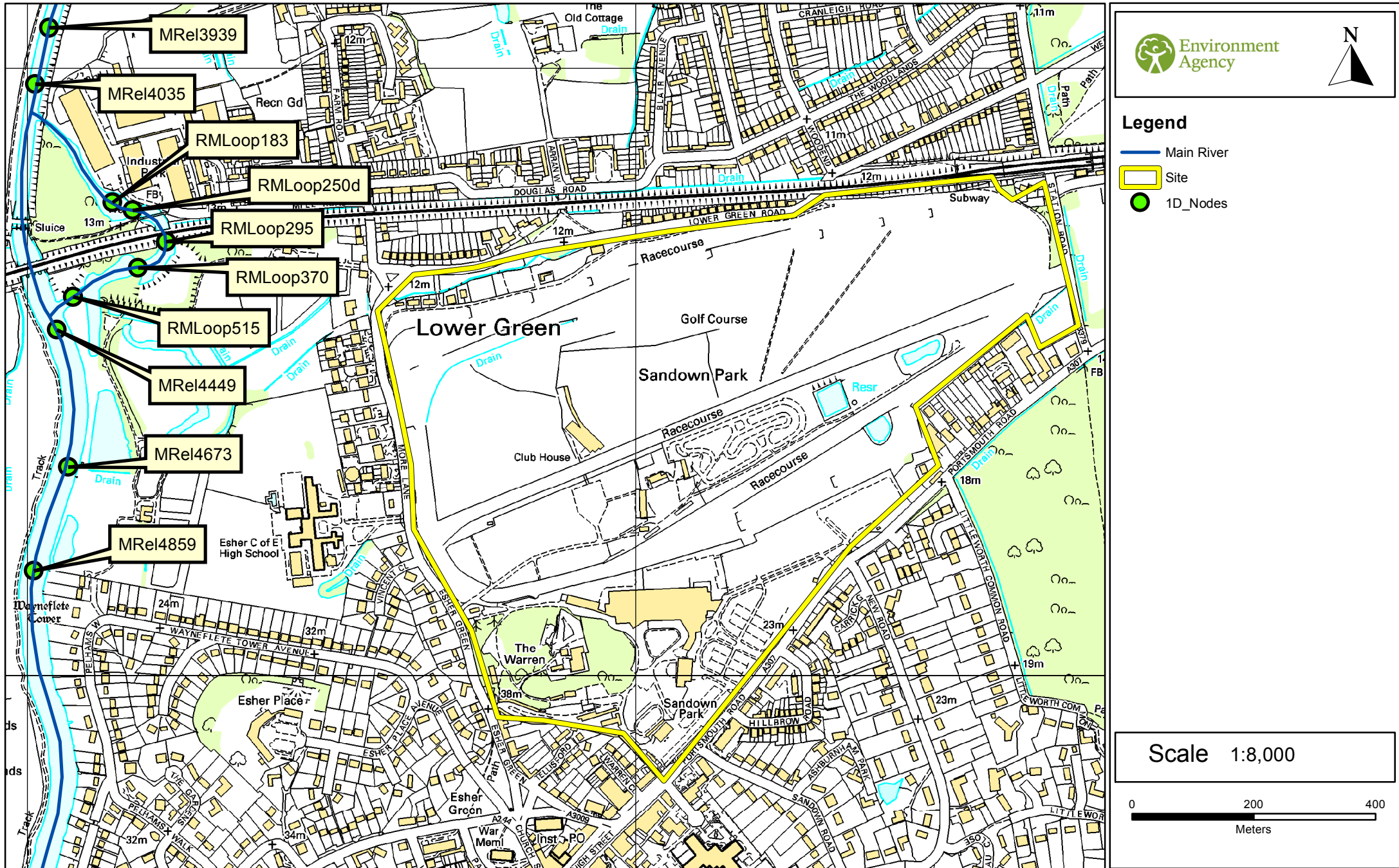
- Main River
- Site
- 2D_Nodes

Scale 1:6,000

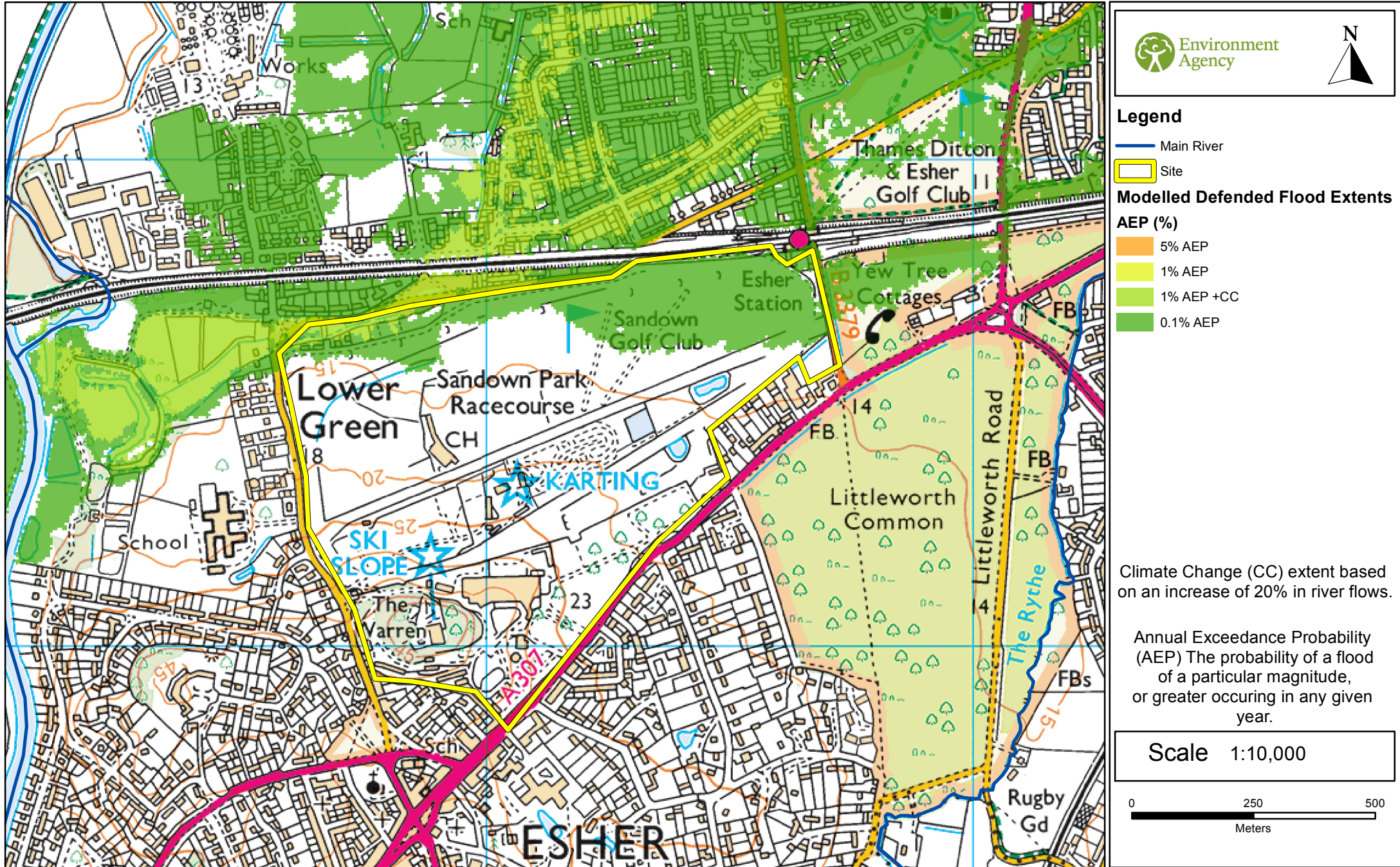


Meters

1D Node Location Map centred on KT10 9AJ created 16/10/2018 (Ref: KSL 102687 LB)



Modelled Defended Flood Extents Map centred on KT10 9AJ created 16/10/2018 (Ref: KSL 102687 LB)



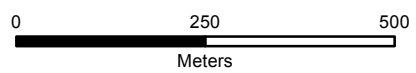
Legend

- Main River
- Site
- Modelled Defended Flood Extents**
- AEP (%)**
- 5% AEP
- 1% AEP
- 1% AEP + CC
- 0.1% AEP

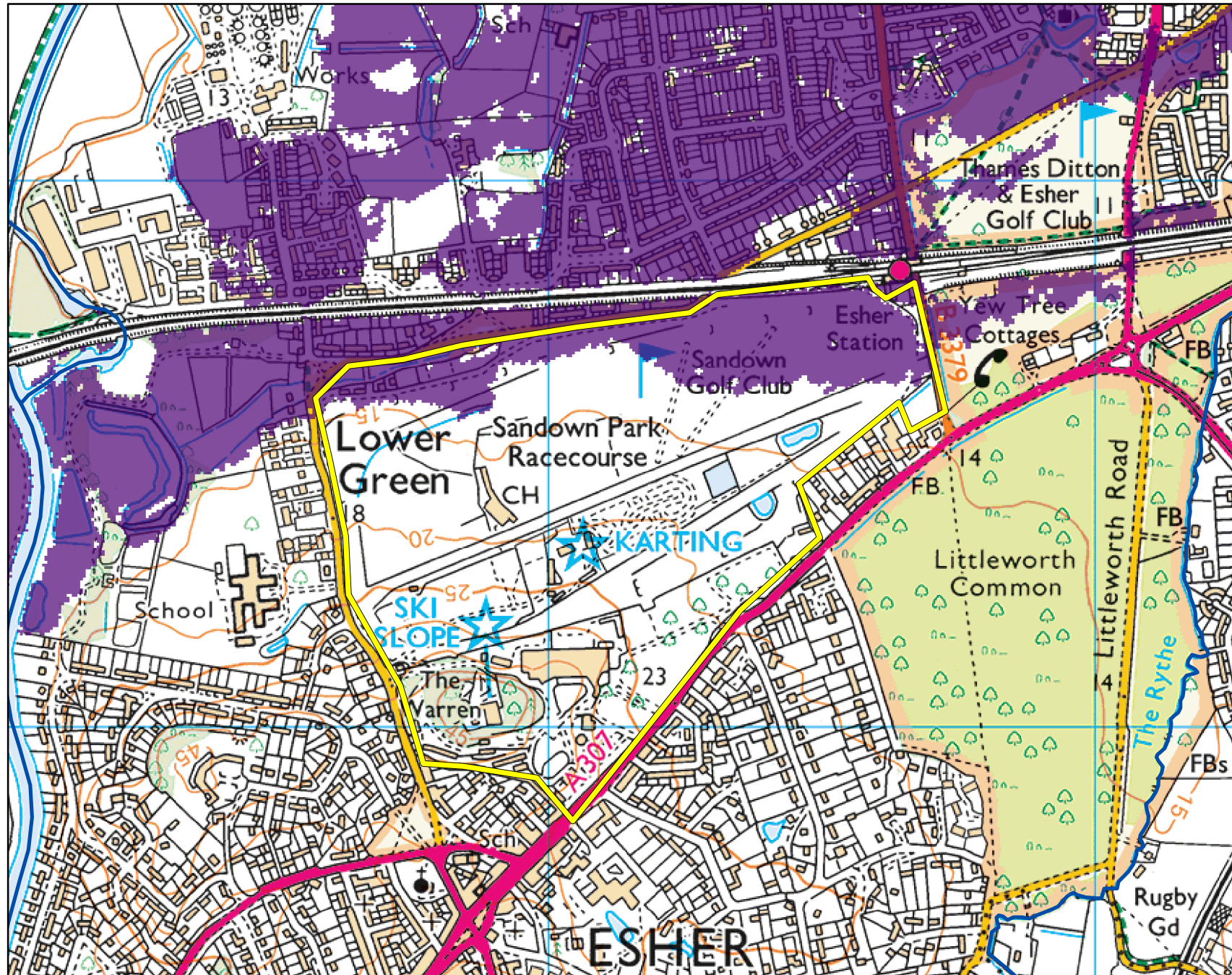
Climate Change (CC) extent based on an increase of 20% in river flows.

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

Scale 1:10,000



Modelled Undefended Flood Extents Map centred on KT10 9AJ created 16/10/2018 (Ref: KSL 102687 LB)



Legend

— Main River

□ Site

Modelled Flood Extents

AEP (%)

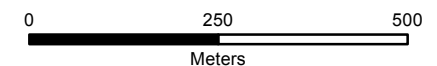
■ 1% AEP

■ 0.1% AEP

Climate Change (CC) extent based on an increase of 20% in river flows.

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

Scale 1:10,000



Defence Details

Type and location: Lower Mole Flood Alleviation Scheme. As a result of the great flood of 1968, the Lower Mole Flood Alleviation Scheme was built in the 1970's through to the mid 1980's. This scheme consists of a major channel creation, widening and dredging. 3km of earth bank have been constructed to keep the floods within the original floodplain upstream of Albany Bridge. The river is also now regulated through sluices and other structures designed to minimize flood damage. The scheme design flow is 241 cumecs. Of this, 31 cumecs flows via Royal Mills sluice before re-entering the flood relief channel downstream of Viaduct Sluice. The remaining 210 cumecs is diverted through Viaduct Sluice into the flood relief channel.

Build date: 1980's

Standard of protection: In excess of a 1 in 100 year event (1% AEP).

Owner – EA, LA, private

Areas Benefiting from Flood Defences

This property/site is within an area benefiting from flood defences, as shown on the enclosed extract of our Flood Map. Areas benefiting from flood defences are defined as those areas which benefit from formal flood defences specifically in the event of flooding from rivers with a 1% (1 in 100) chance in any given year.

If the defences were not there, these areas would be flooded. An area of land may benefit from the presence of a flood defence even if the defence has overtopped, if the presence of the defence means that the flood water does not extend as far as it would if the defence were not there.

Historic Flood Events Data

We hold records of historic flood events from rivers. 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 – September 1968

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.

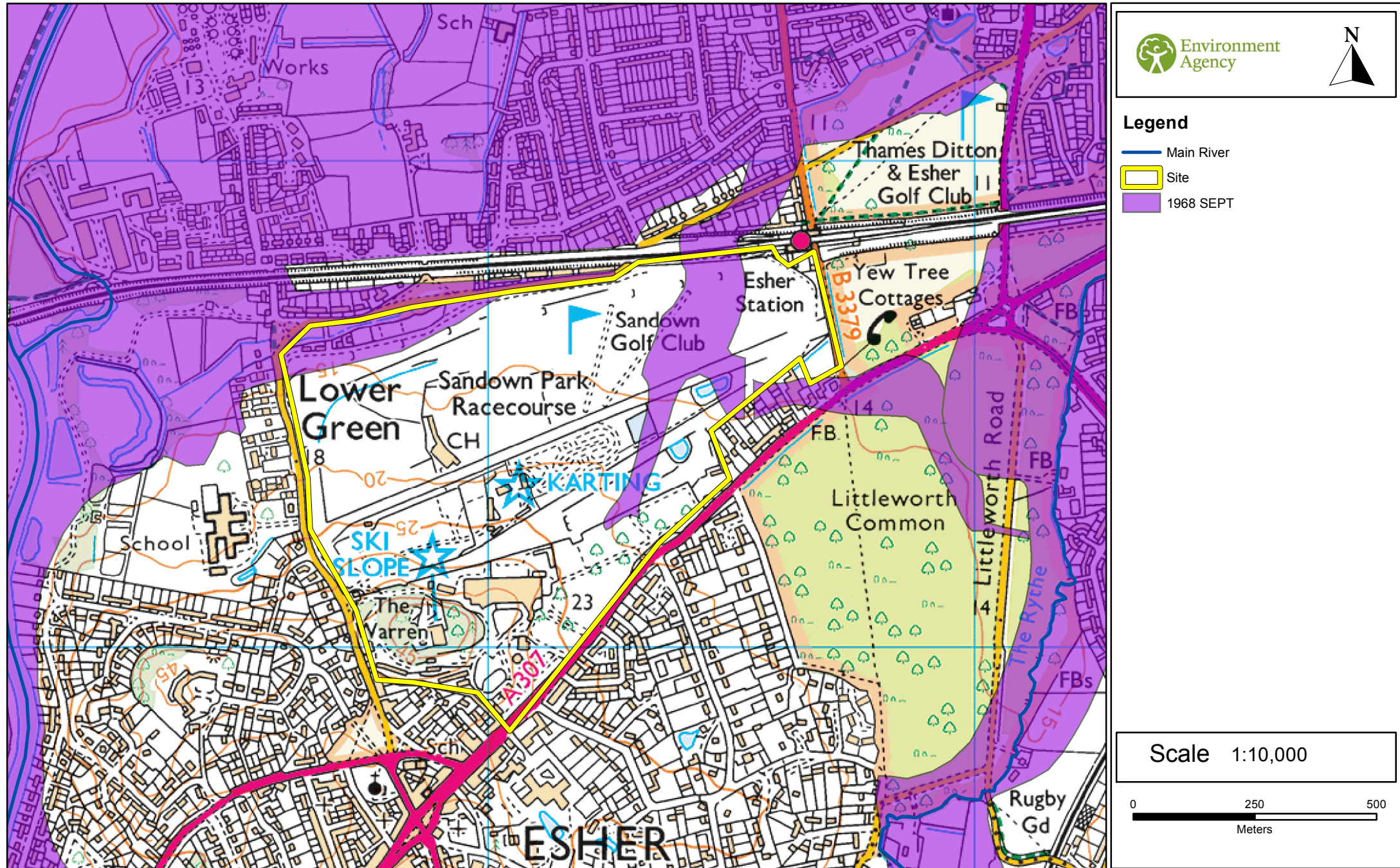
We map flooding to land, not individual properties. Our historic flood event record outlines are an indication of the geographical extent of an observed flood event. Our historic flood event outlines do not give any indication of flood levels for individual properties. They also do not imply that any 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 Extents Map centred on KT10 9AJ created 16/10/2018 (Ref: KSL 102687 LB)



Additional Information

Information Warning - OS background mapping

The mapping of features provided as a background in this product is © Ordnance Survey. It is provided to give context to this product. The Open Government Licence does not apply to this background mapping. You are granted a non-exclusive, royalty free, revocable licence solely to view the Licensed Data for non-commercial purposes for the period during which the Environment Agency makes it available. You are not permitted to copy, sub-license, distribute, sell or otherwise make available the Licensed Data to third parties in any form. Third party rights to enforce the terms of this licence shall be reserved to OS.

Planning advice and guidance

The Environment Agency are keen to work with partners to enable development which is resilient to flooding for its lifetime and provides wider benefits to communities. If you have requested this information to help inform a development proposal, then we recommend engaging with us as early as possible by using the pre-application form available from our website:

<https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion>

Complete the form in the link and email back to kslplanning@environment-agency.gov.uk

We recognise the value of early engagement in development planning decisions. This allows complex issues to be discussed, innovative solutions to be developed that both enables new development and protects existing communities. Such engagement can often avoid delays in the planning process following planning application submission, by reaching agreements up-front. We offer a charged pre-application advice service for applicants who wish to discuss a development proposal.

We can also provide a preliminary opinion for free which will identify environmental constraints related to our responsibilities including flooding, waste, land contamination, water quality, biodiversity, navigation, pollution, water resources, foul drainage or Environmental Impact Assessment.

Flood Risk Assessments guidance

Flood risk standing advice for applicants

In preparing your planning application submission, you should refer to the Environment Agency's Flood Risk Standing Advice and the Planning Practice Guidance for information about what flood risk assessment is needed for new development in the different Flood Zones. This information can be accessed via:

<https://www.gov.uk/flood-risk-assessment-standing-advice>

<http://planningguidance.planningportal.gov.uk/>

<https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications>

<https://www.gov.uk/guidance/flood-risk-and-coastal-change>

You should also consult the Strategic Flood Risk Assessment and flood risk local plan policies 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 Assessment 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. You should discuss surface water management with your Lead Local Flood Authority.
3. Where a planning application requires a FRA and this is not submitted or deficient, the Environment Agency may well raise an objection due to insufficient information

Surface Water

We have provided two national Surface Water maps, under our Strategic Overview for flooding, to your Lead Local Flood Authority 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.

Your Lead Local Flood Authority 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.

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