Notes
1. This drawing has been prepared in accordance with the scope of RPS's appointment with its client and is subject to the terms and conditions of that appointment. RPS accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided.
2. If received electronically it is the recipients responsibility to print to correct scale. Only written dimensions should be used.

Legend

- Site Boundary
- 5 Minutes
- 10 Minutes
- 15 Minutes
- 20 Minutes
- 25 Minutes
- Community Facilities
- Educational Facilities
- Employment Sites
- Food Stores
- Medical Facilities
- Recreational / Leisure Facilities
- Bus Stop
- Rail Station

Rev	Description	By	CB	Date

Figure Number: **2** Rev: **-**

rpsgroup.com

Client: Parker Strategic Land

Project: Bodkin Farm, Whitstable

Title: Walk Isochrone

0 250 500 m

Note:
Total end to end journey time using Basemap TRACC with Walk speed of 1.33m/s (4.8km/hr)

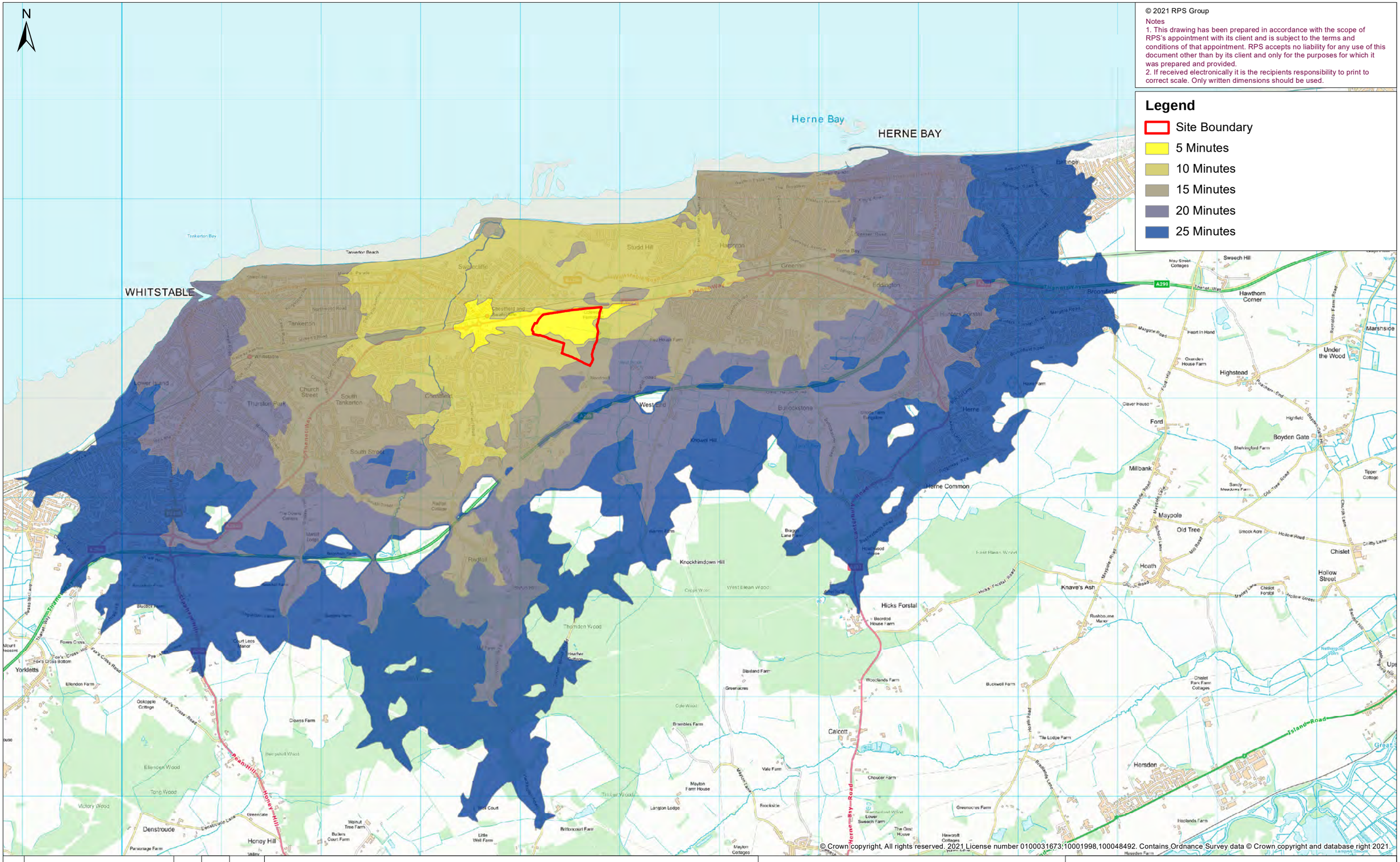
Status	Drawn By	PM/Checked By
FINAL	BG	CM
Project Number	**Scale @ A3**	**Date Created**
JNY10663	1:10,000	JUL 2021

20 Western Avenue, Milton Park,
Abingdon, Oxfordshire, OX14 4SH
T: +44(0)1235 821 888
E: rpsox@rpsgroup.com

MAKING COMPLEX EASY

\\eur-mpfs-02\Projects_TRANSPORT\JNY10663\Tech\Drawings\10663-0003-03.mxd

Appendix C – Cycle Isochrone Plan



Notes
1. This drawing has been prepared in accordance with the scope of RPS's appointment with its client and is subject to the terms and conditions of that appointment. RPS accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided.
2. If received electronically it is the recipients responsibility to print to correct scale. Only written dimensions should be used.

Legend

- Site Boundary
- 5 Minutes
- 10 Minutes
- 15 Minutes
- 20 Minutes
- 25 Minutes

Rev	Description	By	CB	Date

Figure Number **3** Rev **-**

rpsgroup.com

Client Parker Strategic Land

Project Bodkin Farm, Whitstable

Title Cycle Isochrone Plan

0 500 1,000 m

Note:
Total end to end journey time using Basemap TRACC
with Cycle speed of 16km/hr

Status	Drawn By	PM/Checked By
FINAL	BG	CM
Project Number	**Scale @ A3**	**Date Created**
JNY10663	1:35,000	JUL 2021

20 Western Avenue, Milton Park,
Abingdon, Oxfordshire, OX14 4SH
T: +44(0)1235 821 888
E: rpsox@rpsgroup.com

MAKING COMPLEX EASY

\\eur-mpfs-02\Projects_TRANSPORT\JNY10663\Tech\Drawings\10663-0002-04.mxd

Appendix D – Accessibility Plan

ACCESSIBILITY PLAN

MAKING COMPLEX EASY

Contact

RPS Consulting Services Ltd
20 Farringdon Street
London EC4A 4AB
T: +44(0) 20 3691 0500
transport@rpsgroup.com

Appendix 4: Flood Risk & Drainage Technical Note

E

ENVIRONMENT

Parker Strategic Land
Bodkin Farm
Whitstable
Flood Risk & Drainage Technical Note

July 2021

Document Number:	BFW-BWB-ZZ-XX-RP-YE-0001_FRN
BWB Reference:	NTW2885

Revision	Date of Issue	Status	Author:	Checked:	Approved:
P01	July 2021	S2	Chris Dodd BEng (Hons) IEng MICE	Claire Gardner BSc (Hons) MSc MCIWEM C.WEM	Chris Dodd BEng (Hons) IEng MICE

Notice

1. SITE OVERVIEW

1.1 The site is located to the south of Thanet Way, Whitstable and comprises land east of Bodkin Farm extending to approximately 24ha across the existing farm and associated fields. The location of the site is shown in **Figure 1.1**.

Figure 1.1: Site Location

1.2 BWB have been appointed to assess the existing site's deliverability in terms of flood risk and drainage including a review of constraints. The assessment is based on the intention to develop the site for a residential end use, which is classed as 'More Vulnerable' in planning terms.

1.3 Topographically, the site has a localised high point with a maximum elevation of approximately 16mAOD at its centre, falling to the east (to 11mAOD) and west (8mAOD).

2. FLOOD RISK

Fluvial

2.1 Flooding from watercourses occurs when flows exceed the capacity of the channel, or where a restrictive structure is encountered, which leads to water overtopping the banks into the floodplain. This process can be exacerbated when debris is mobilised by high flows and accumulates at structures.

2.2 The site is bound to the west by a watercourse (Kite Farm Ditch) which is a Main River and, therefore, under the jurisdiction of the Environment Agency (EA), although maintenance responsibility is riparian.

2.3 The eastern part of the site drains via a network of field ditches across, or through, the adjacent solar farm into another Main River, known as West Brook (or Westbrook).

2.4 With particular reference to planning and development, the Flood Map for Planning produced by the EA identifies Flood Zones in accordance with Table 1 of the Planning Practice Guidance.

2.5 Flood Zone 1 (Low Probability) is defined as land having less than a 1 in 1000 annual probability of river or sea flooding (<0.1% Annual Exceedance Probability).

2.6 Flood Zone 2 (Medium Probability) is defined as land having between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% - 0.1% AEP); or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5% - 0.1% AEP).

2.7 Flood Zone 3a (High Probability) is defined as land having a 1 in 100 or greater annual probability of river flooding (>1% AEP); or land having a 1 in 200 or greater annual probability of flooding from the sea (>0.5% AEP). This is represented by "Flood Zone 3" on the Flood Map for Planning.

2.8 Flood Zone 3b (The Functional Floodplain) is defined as land where water has to flow or be stored in times of flood. This is not identified or separately distinguished from Zone 3a on the Flood Map for Planning.

2.9 The site is shown to be predominantly located within Flood Zone 1, as shown in Error! Reference source not found.. The Kite Farm Ditch has areas of Flood Zone 2 & 3 associated with it, although the encroachment into the site is minimal.

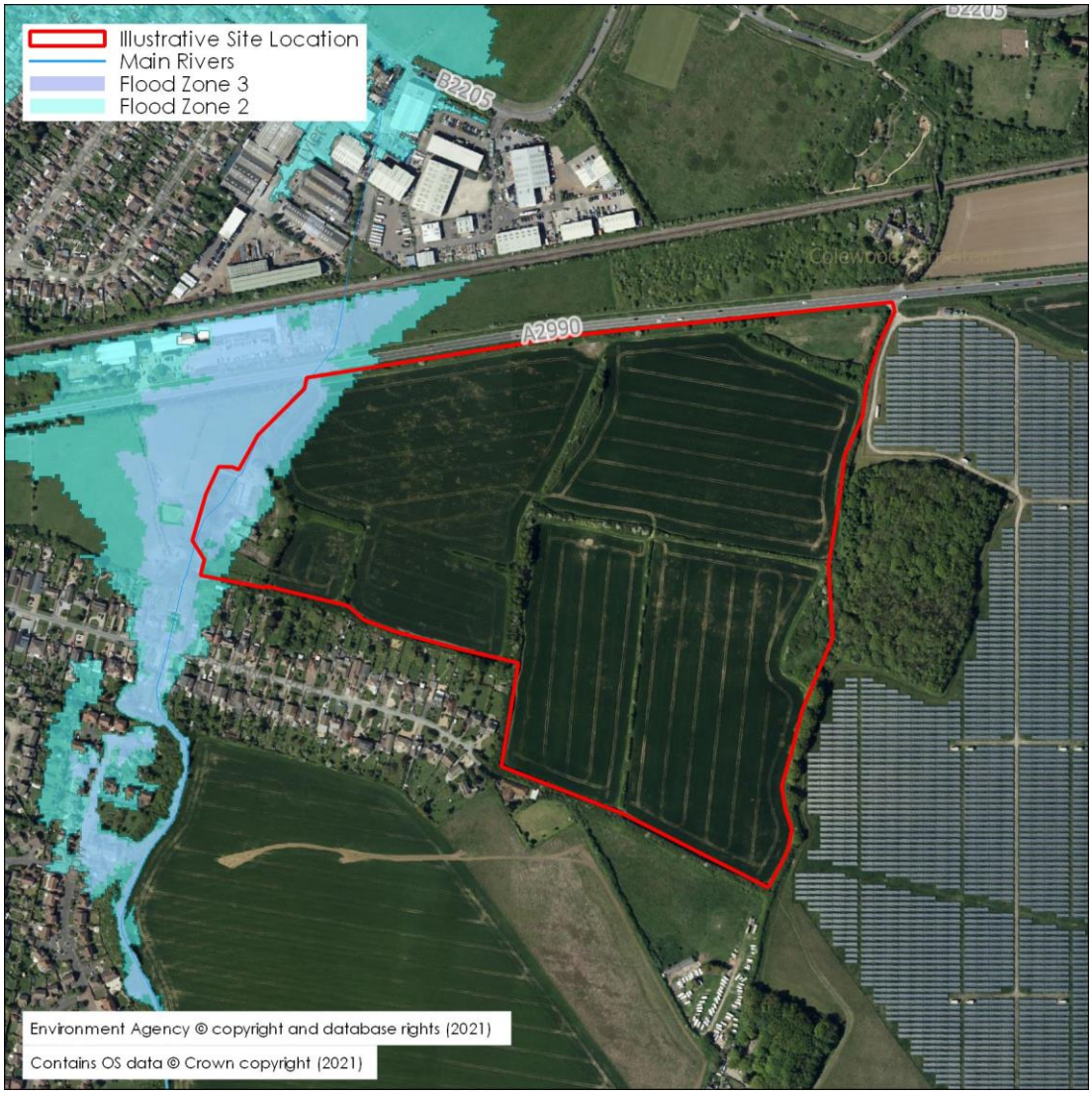


Figure 2.1: Flood Map for Planning

2.10 A hydraulic model of the Kite Farm Ditch exists and should be reviewed to determine its suitability for site specific use in supporting any development scheme. This may need to be supplemented with additional survey and inclusion of the latest climate change allowances (last updated July 2021).

2.11 It is not expected that amendments to the model will show substantially greater areas of flooding than currently mapped due to the existing topography. Development proposals should be able to avoid the areas of greatest risk whilst making use of the watercourse within any masterplan.

Coastal/Tidal

2.12 Inundation of low-lying coastal areas by the sea may be caused by seasonal high tides, storm surges and storm driven wave action. Coastal/tidal flooding is most commonly a result of a combination of two or more of these mechanisms, which can result in the

overtopping or breaching of sea defences. River systems may also be subject to tidal influences.

2.13 Although the site is close to the coast, it does not appear to be directly affected by such risk. The railway line to the north acts as a physical barrier and there appears to be little interaction between the on-site watercourses and the sea, although this should be investigated further to understand how the hydraulic model functions during periods of high tide, for example, and if such effects impact as far upstream as the site.

Pluvial

2.14 Pluvial flooding can occur during prolonged or intense storm events when the infiltration potential of soils, or the capacity of drainage infrastructure, is overwhelmed leading to the accumulation of surface water and the generation of overland flow routes.

2.15 Risk of flooding from surface water mapping has been prepared by the EA; this shows the potential flooding which could occur when rainwater does not drain away through the normal drainage systems or soak into the ground but lies on or flows over the ground instead. An extract from the mapping is included as **Figure 2.2**.rror

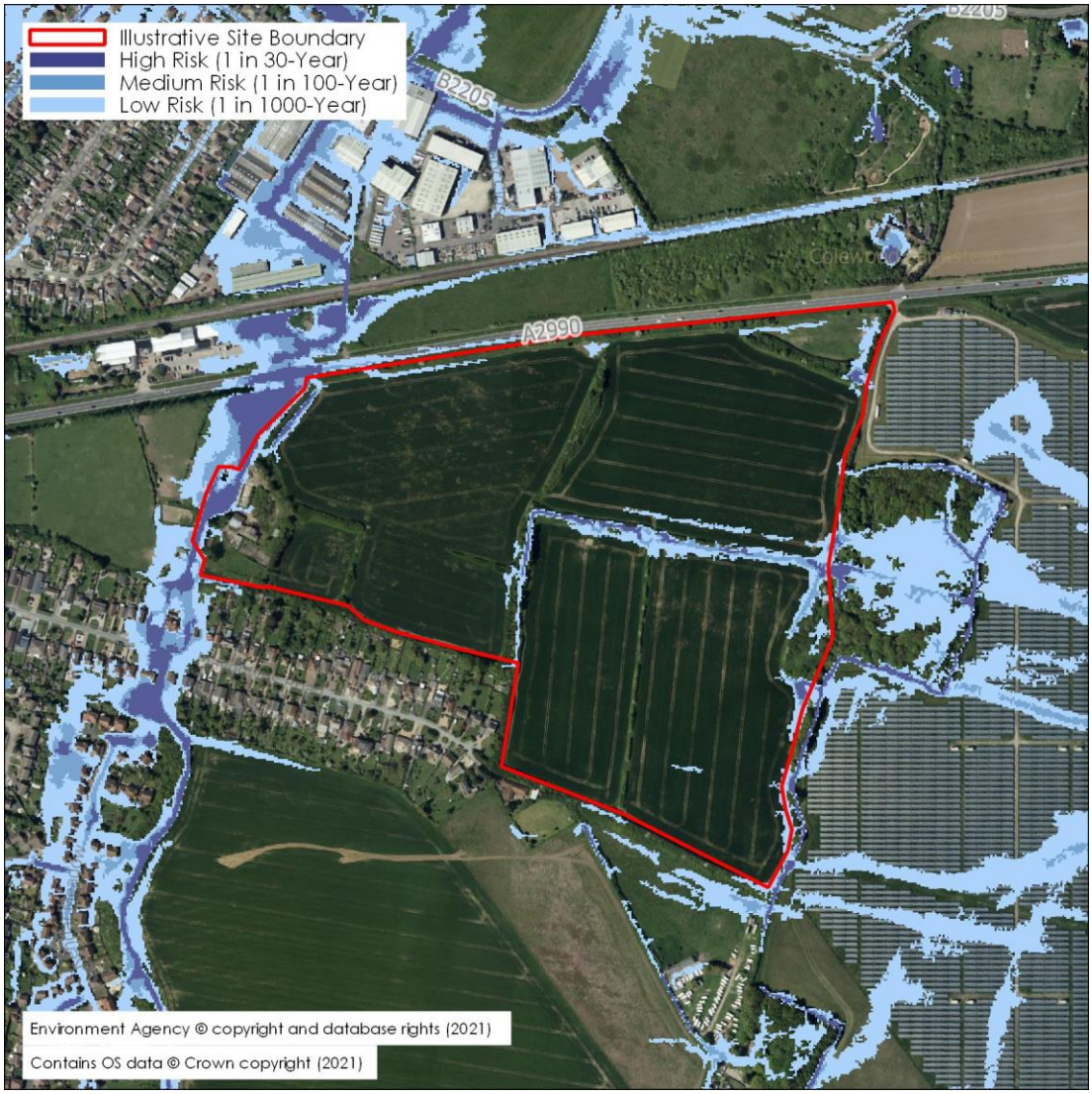


Figure 2.2: Surface Water Flood Risk

2.16 The areas at most risk are consistent with topographical depressions/watercourses within the site and indicate that the majority of the site is at a low risk. Existing topography, including field ditches and the like, should be utilised in the development of the site to provide conveyance for surface water and manage residual risk.

Other Sources of Risk

2.17 The NPPF requires that potential developments are assessed against all sources of flood risk. In addition to those mentioned above, groundwater, large waterbodies/reservoirs, canals and sewerage infrastructure can all present a risk, as well as other developments.

2.18 A review of relevant local and national guidance has been undertaken to inform a view on the other sources of risk and it can be concluded that they are low.

2.19 Relevant guidance includes, but is not limited to;

- Canterbury District Surface Water Management Plan Stage 1 (Jacobs, 2012)
- Flood Risk to Communities, Canterbury (Kent CC, 2017)

3. DRAINAGE

Surface Water

3.1 New developments are obligated to manage surface water runoff in a manner which does not affect flood risk elsewhere. This therefore means that increases in impermeable area resulting from development encourage water to flow off the surface rather than into the ground and this must be captured and released at a controlled rate.

3.2 Although infiltration is the idealised method of surface water disposal, the underlying geology is understood to comprise London Clay which does not provide sufficient permeability to allow soakaways to be utilised. The next most preferable discharge method is to a watercourse.

3.3 As the site is split into two catchments (east and west), a greenfield runoff rate can be calculated for each catchment for relevant storm return periods and used as a limiting rate in any redevelopment. The area draining to each catchment should ideally not be increased so as to prevent transfer of flows across catchments.

3.4 The implementation of Sustainable Drainage Systems (SuDS) is required on new developments and particularly so in Kent where the Lead Local Flood Authority (Kent CC) are a leading group nationally in the implementation of SuDS.

3.5 A detailed strategy would be required to support a masterplan but the presence of watercourses at low points and existing flow routes through the site should provide a framework to provide source control, conveyance and treatment features as well as any attenuation that is required to balance flows.

Foul Water

3.6 There are understood to be a network of adopted sewers in the vicinity of the site which are owned and maintained by Southern Water. A connection point has not been determined but the wide site frontage and surrounding development are likely to provide multiple options for disposal.

3.7 Irrespective of existing capacity, allocation of a development site through the Local Plan would trigger a need for Southern Water to provide capacity within the network prior to the development being constructed and therefore provision of conveyance and treatment would be adequately addressed.

4. OPPORTUNITIES

4.1 The location and type of development provides an opportunity to engage with local stakeholders to investigate solutions to potential issues.

4.2 Although fluvial flood risk to the site is not substantial, the Kite Brook is indicated to have flood zones associated with it both up and downstream of the site. There are residential dwellings immediately adjacent the site which are indicated to be at risk and further investigation/upgrading of hydraulic models may provide a mitigation solution which could reduce risk.

4.3 **Figure 4.1** shows a property which is recorded by the EA to have flooded historically due to insufficient watercourse capacity.

Figure 4.1: Historic Flooding Recorded (Orange Hatch)

4.4 Similarly, it is noted that the Kite Brook drains to a Southern Water surface water sewer network downstream and there are flood risk issues associated with it and tide locking closer to the coast. A restriction or slowing down in pass forward flows could provide downstream betterment.

4.5 Installation of a well-designed SuDS scheme restricted to annual average flows would provide downstream betterment by virtue of attenuating larger storm period events on site and gradually releasing flows.

4.6 Landscape and biodiversity enhancement via the SuDS scheme may provide wider environmental benefits, subject to further survey.

5. SUMMARY

5.1 Flood risk to the site from all sources has been reviewed and it is concluded that it does not prevent a barrier to development, which should be placed in areas of Flood Zone 1.

5.2 Adequate provision for surface and foul water drainage can be provided in order to meet the needs of the site and, through careful design, provide betterment off site.

5.3 Opportunity to mitigate flood risk on and off site exists through further development of watercourse modelling and stakeholder liaison.

Turley Office
The Pinnacle
20 Tudor Road
Reading
RG1 1NH

T 0118 902 2830