cgs civils Consulting Civil Engineers

Flood Risk Assessment

Kingston Broadway, Shoreham BN43 6TE

Rev -

Reference **C3219**

Date **09 April 2025**

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-	Final v1	Issued for Approval	09.04.25	RH	RH

1 SITE AND DEVELOPMENT OVERVIEW

DEVELOPMENT DESCRIPTION	EXISTING (PRE-DEVELOPMENT)	PROPOSED (POST-DEVELOPMENT)
Site Use	Existing commercial use (report ref: existing site coverage)	Construction of 5no dwellings
Development Use	Commercial (report ref: existing site use)	Residential (report ref: proposed site use)
Use Design Life		100 years
Number of Dwellings	0	5
EA Vulnerability Classification	Less Vulnerable (ref: existing site vulnerability)	More Vulnerable (ref: proposed site vulnerability)
Development Class		Minor
County Planning Authority	West Sussex County Council (ref: County Council)	
District Planning Authority	Adur (ref: District Council)	
Local Sewer Authority	Southern Water (ref: Local Sewer Authority)	

SITE CATCHMENT CHARACTERISTICS	DESCRIPTION	SOURCE
River Management Catchment	Adur and Ouse Management Catchment (report ref: River Basin Catchment)	https://environment.data.gov.uk/
River Basin District	South East	https://environment.data.gov.uk/

KEY FLOOD RISK AND DATA SOURCES	DATA TYPE	SOURCE
EA Fluvial and Tidal Planning Data	UK Government Flood Maps for Planning (ref: FMP)	https://flood-map-for-planning.service.gov.uk/
EA Surface Water Data	DEFRA Risk of Flooding from Surface Water Sources GIS Data (ref: RoFSW)	https://environment.data.gov.uk/DefraDataDownload/?Mode=rofsw
EA Long term Flood Risk	UK Government Long term Flood Risk Maps (ref: LTFRM)	https://www.gov.uk/check-long-term-flood-risk
Environment Agency Product 4/5 Data	N/A (report ref: EA Product Data)	EA Detailed Flood Model
Historic Flood Risk Data	DEFRA Historic Flood Outlines GIS Data	https://environment.data.gov.uk/DefraDataDownload/?mapService=EA/HistoricFloodMap&Mode=spatial
Strategic Flood Risk Assessment Data	West Sussex County Council (ref SFRA)	Council Website
Local Flood Risk Assessment Data	Crawley Borough Council (refer to SFRA)	Council Website
Topographic Information	DEFRA Opensource LIDAR Data	https://environment.data.gov.uk/DefraDataDownload/?Mode=survey

DESIGNATION	FLOOD RISK DESIGNATION	NOTE
EA/LLFA Designated Flood Zone	**Flood Zone 2 – Medium Risk**	*Designation based on highest flood risk between River, Sea or Surface Water - Refer Section 1: Table 2
Sea Flood Risk Present	Very Low	Refer Section 1: Table 2
River Flood Risk Present	Very Low	Refer Section 1: Table 2
Surface Water Flood Risk Present	Moderate	Refer Section 1: Table 2

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2 INTRODUCTION

2.1 The following report is a Flood Risk Assessment (FRA) for the development proposals at Kingston Broadway, Shoreham, BN43 6TE (see site location map, Figure 1).

2.2 This assessment is required under the National Planning Policy Framework (NPPF) and Local and District Councils given the location, scale and associated flood risks.

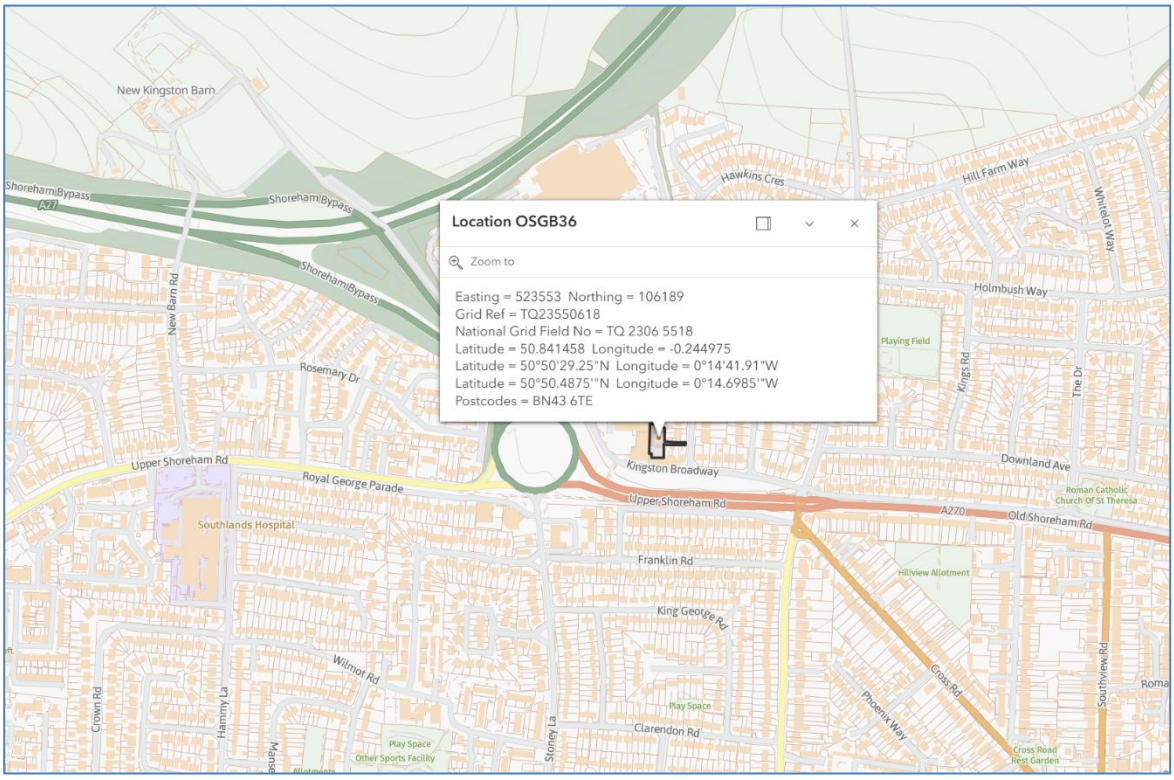


Figure 1 - Site Location Plan (site bordered red) Source: Location Map

2.3 This FRA has been written in general accordance with the National Planning Policy Framework (NPPF) and its Technical Guidance, Environment Agency (EA) Standing Advice, LFRMS, County SFRA and associated guidance. This FRA has relied upon publicly available information and data provided from the EA (where relevant). The interpretation of this data has been undertaken with the understand of its accuracy and to a detail deemed suitable for this development type, location and relevant flood risk.

DEVELOPMENT PROPOSALS

2.4 The development proposals are for the demolition of the existing commercial buildings and the construction of 5no dwellings and associated parking and access. Architectural proposals are included in Appendix 1.

FLOOD RISK ASSESSMENT SCOPE

2.5 The purpose of this FRA is to inform the feasibility and appropriateness of the proposals and to ensure the development proposals incorporate flood resilient measures appropriate to its flood risk.

2.6 It should be noted, where up to date flood risk or climate change models are not available, best efforts have been made to assess these risks and extrapolate the available data where necessary. However, this approach may require further detailed modelling if deemed necessary by the reviewing authorities. Detailed hydraulic modelling is deemed outside the scope of this report.

FLOOD RISK VULNERABILTY

2.7 This FRA has been undertaken with due regard to the statutory requirements of the NPPF and with reference to the Planning Practice Guidance (PPG) in relation to development and flood risk. This FRA has been undertaken to inform on the current flood risk to the site. Therefore, this FRA aims to ensure that the development proposals consider the site-specific flood risk and to avoid inappropriate development in areas potentially at risk of flooding.

2.8 Annex 3 of the NPPF Flood Risk Vulnerability Classification provides guidance on assigning development vulnerability. A summary of this information is provided in Table 1.

Table 1 – Extract from Annex 3 of the National Planning Policy Framework and Table 2: Flood risk vulnerability classification of PPG detailing Flood Risk Vulnerability Classification by use. (Existing Site Classification is Shaded Gray, Proposed Site specific classification shaded blue).

ESSENTIAL INFRASTRUCTURE	HIGHLY VULNERABLE	MORE VULNERABLE	LESS VULNERABLE	WATER-COMPATIBLE
Essential transport infrastructure	Police and ambulance stations; fire stations and telecom installations	Hospitals	Police, ambulance and fire stations which are not required to be operational during flooding.	Flood control infrastructure.
Essential utility infrastructure which has to be located in a flood risk area for operational reasons	Emergency dispersal points.	Residential institutions such as residential care homes, prisons and hostels.	Buildings used for commercial purposes and of a non-residential nature	Water transmission infrastructure and pumping stations.
Wind turbines.	Basement dwellings.	Buildings used for dwelling houses and sleeping, drinking establishments	Land and buildings used for agriculture and forestry.	Sewage transmission infrastructure and pumping stations.
Solar farms.	Caravans, mobile homes and park homes intended for permanent residential use.	Non–residential uses for health services, nurseries and educational uses	Waste treatment (except landfill* and hazardous waste facilities).	Sand and gravel working.
	Installations requiring hazardous substances consent.	Landfill* and sites used for waste management facilities for hazardous waste.	Minerals working and processing (except for sand and gravel working).	Docks, marinas and wharves and Navigation facilities.
		Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.	Water treatment and Sewage treatment works which do not need to remain operational during times of flood.	Ministry of Defence installations.

2.9 The site is presently considered ‘Less Vulnerable’ in accordance with Table 1 and the NPPF.

2.10 The development proposals are considered ‘More Vulnerable’.

3 FLOOD RISK ASSESSMENT SCOPE

3.1 Flood risk as defined by the NPPF, is a combination of the probability and the potential consequences of flooding. Areas at risk of flooding are those at risk of flooding from any source, now or in the future. Sources include rivers and the sea, direct rainfall on the ground surface, rising groundwater, overwhelmed sewers and drainage systems, reservoirs, canals and lakes and other artificial sources. Flood risk also accounts for the interactions between these different sources. This term is key to the application of the presumption in favour of sustainable development in paragraph 11 of the National Planning Policy Framework (NPPF).

3.2 The NPPF requires flood risk to be considered on all sites, however more detailed site-specific FRA's are required when one or more of the following criteria apply to the site:

- Where a site is affected by the **Design Flood Event** (DFE) from any source (typically the 1% AEP) for all proposals of any new development (including minor development and change of use); or
- Greater than 1 ha in size and located in Flood Zone 1; or
- Located in Flood Zone 1 where there are critical drainage problems or within a designated Critical Drainage Area (CDA) as notified to the LPA by the Environment Agency; or
- Subject to a change of use to a higher vulnerability classification which may be subject to other sources of flooding; or
- A Major planning application (i.e. more than 10 residential dwellings).

3.3 The NPPF designates that the **'Design Flood Event'** (DFE) is used to assess the suitability of a development proposal against the criteria of the NPPF. The design flood, is a flood event of a given annual flood probability, but is generally taken as:

- River flooding likely to occur with a 1% annual probability (a 1 in 100 chance each year), typically shown as Flood Zone 3a as designated on the EA's Flood Map for Planning; or
- Tidal flooding with a 0.5% annual probability (1 in 200 chance each year), typically shown as Flood Zone 3a as designated on the EA's Flood Map for Planning; or
- Surface water flooding likely to occur with a 1% annual probability (a 1 in 100 chance each year), typically shown as the Medium Risk of Surface Water flooding as designated on the EA's Long Term Flood Risk mapping,

3.4 In addition to assessing present day risk, the DFE also must be assessed to include and appropriate allowance for climate change (refer to Section 0 for climate change allowances) based on the site's geographical location, vulnerability and design life.

3.5 For this FRA, the worst case DFE (whether this be from tidal, river or surface water sources), has been used to steer the recommendations of this report. Consideration of extreme events above that of the DFE have not been considered further beyond identifying these as residual risks.

3.6 Table 1 of the NPPF provides definitions of the Flood Zones, from low to high probability of river and sea flooding and also in regard to surface water flood risk. These Flood Zone Classification for the purpose of this FRA are:

- Flood Zone 1 - land assessed as having a less than a 1 in 1,000 annual probability (<0.1%);
- Flood Zone 2 - land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river (1% – 0.1%), 1:100 year or greater of surface water flooding (1% – 0.1%), or between a 1 in 200 and 1 in 1,000 annual probability of sea flooding (0.5% – 0.1%) in any year;
- Flood Zone 3 - land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year. Flood Zone 3b is land have greater than 1 in 20 to 1 in 30 year annual probability of flooding.

3.7 Following an assessment from the various sources of flood risk for the DFE, this site-specific FRA has applied the key principles for decision making when flood risk is a consideration and includes in order of importance:

1. **Avoid –** This is to physically locating the development proposals to areas of lowest flood risk within the site and/or determined how to vertically place the proposals to such that more vulnerable uses are positioned above the design flood level (such as raising floor levels or placing more vulnerable uses on upper levels). Developers should refer to the BS 85500:2012-Flood resistant and resilient construction. Guide to improving the flood performance of buildings for applicable strategies);

2. **Control -** Planning authorities and developers can investigate measures to control the risk of flooding affecting the site (this may be through flood defences, flood gates, flood storage or other engineered solutions such as SUDS). This is rarely applied at the site level and is mostly address through strategic and county level flood defence strategies. At this site level, typically this will be through applying a Water Exclusion or Water Entry strategy when designing a building or space.

3. **Mitigate –** Is the use of flood resistance and resilience measures to address any residual risks remaining after the use of the avoidance and control measures described above. Passive measures should be prioritised overactive measures as they are likely to be more effective and more reliable. Flood Resilience is an approach to building design which aims to reduce flood damage and speed recovery and reoccupation following a flood. It uses a combination of flood resistance and recovery measures (referred to here as resilience measures), and is described in the industry-developed CIRIA Property Flood Resilience Code of Practice, which provides advice for both new-build and retrofit.

4. **Managing Residual Risk –** this will usually involve ensuring either safe access and egress is available from the safe in a DFE, Flood Warning Systems/Evacuation Plans are in place, safe refuge is on site during a DFE, the building is designed to account for flood loadings etc.

5. **Flood Risk is not increased elsewhere –** assuming all the above items can be address, it is critical that the development does not increase flood risk elsewhere as a result. Typically this is addressed by ensuring flood waters are not displaced (in surface water or river flood affected areas, the loss of floodplain storage is less likely to be a concern in areas benefitting from appropriate flood risk management infrastructure or where the source of flood risk is **solely** tidal.) or appropriate hydraulic modelling is provided in support of an application to demonstrate that flood risk is not increased outside of a site (such as through on site flood compensation or detailed site specific hydraulic modelling).

3.8 It should be noted, where up-to date flood risk or climate change models are not available, best efforts have been made to assess these risks and extrapolate the available data where necessary. However, this approach may require further detailed modelling if deemed necessary by the reviewing authorities. Detailed hydraulic modelling is deemed outside the scope of this report.

SEQUENTIAL TEST/EXCEPTION TEST

3.9 For the purpose of this assessment, the application of the Sequential Test has been broken down into three levels. Passing the Sequential Test at the strategic level is a weighting of the risks versus benefit of a development against a wider criterion (such as meeting other sustainability targets, housing needs or other strategic planning goals) than just purely avoiding flood risk issues. However, the Sequential Test can also be applied at the site level, where development is steered towards lower areas of flood risk within a site boundary, and is much more objective in its assessment. For the purpose of this FRA, the assessment 'Level' of the Sequential Test are considered to be:

Level 1 - At the high-level, this test is first implemented by local planning authorities (LPA) at the strategic planning scale. The Sequential Test is applied to steer local planning policy by directing particularly vulnerable new developments (e.g., residential, hospitals, mobile homes etc.) outside of the floodplain and for designating new land uses and future development areas.

Level 2 - At the second instance, the Sequential Test is implemented for a specific development at the request of the LPA to assess other sites within an area defined by the LPA, this type of Sequential Test is present where there is a significant conflict between a proposed development and flood risk.

Level 3 - The third instance is where the Sequential Test is applied with the confines of the site, namely by steering development proposals to **avoid** areas of flood risk within a site itself.

3.10 Application of the first and second level of the Sequential Test is deemed outside the scope of this report.

ENVIRONMENT AGENCY FLOOD RISK DESIGNATION

3.11 Table 2 below presents a helpful guide in identifying the suitability of a site prior to applying Level 1 and 2 of the Sequential Tests and identifies when the Exception Test is required.

Table 2 - The Sequential Test: Flood Risk Vulnerability and Flood Zone 'Compatibility' Table as specified by NPPF. Shaded cells denote the proposed re-development. Please note: ✓means development is appropriate; x means the development should not be permitted and should be subject to a full sequential test. Refer to Table 2 for selected Flood Zone Designation

FLOOD RISK VULNERABILITY CLASSIFICATION		ESSENTIAL INFRASTRUCTURE	WATER COMPATIBLE	HIGHLY VULNERABLE	MORE VULNERABLE	LESS VULNERABLE
Flood Zone	**Zone 1**	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test Required	✓	✓
	Zone 3a	Exception Test Required	✓	x	Exception Test Required	✓
	Zone 3b ***Functional Floodplain***	Exception Test Required	✓	x	x	x

3.12 Based on the principles above, a development of this nature is considered appropriate and acceptable and full application of the Sequential Test is not deemed necessary at this time. Therefore, this FRA presents the findings of the Exception Test and recommendations for incorporation of flood resilient measures to improve long term flood resilience of the proposals.

3.13 Table 3 summarises the sites primary flood risk classifications and the source for the DFE. This designation is based on the EA's Risk of Flooding from Rivers and Sea - Climate Change (extract provided in Figure 2) and the EA's Long Term Flood Risk Maps (LTFRM): Risk of Flooding from Surface Water (RoFSW) (extract provided in Figure 3).

3.14 Based on the EA and SFRA data, the site is shown to be at very low risk of flooding from River and Sea and outside of any climate change modelled flood extents for these sources. However, according to the RoFSW, the site may experience some marginal flooding within the southern part of the site and the through the access route. As tidal and river flooding is considered very low, flood risk from these sources is not considered further within this FRA. As such, flooding from surface water is considered the dominant source and is analysed further in the following sections.

Table 3 - Summarises the overall Flood Zone designation based on the highest rated flood risk from either rivers and sea or surface water.

FLOOD ZONE AND SOURCE IDENTIFICATION SUMMARY			
	FLOOD ZONES AFFECTING THE SITE		**DOMINANT SOURCE FOR THE DESIGN FLOOD EVENT (DFE)**
	Flood Zone 2 (medium risk)	**Flood Zone 3 (high risk)**	**Source**
River and Sea	No	No	Surface Water Flooding
Surface Water	Partial	No	

**Flood Zone Designation for assessment is based on the highest flood risk from river, sea or surface water flooding taken from EA's Flood Map for Planning and EA's LTFRM:RoFSW*

3.15 Other sources of flooding have been considered in Section 6 below (such as groundwater and sewer flooding), but these are typically considered to be 'minor' sources of flood risk.

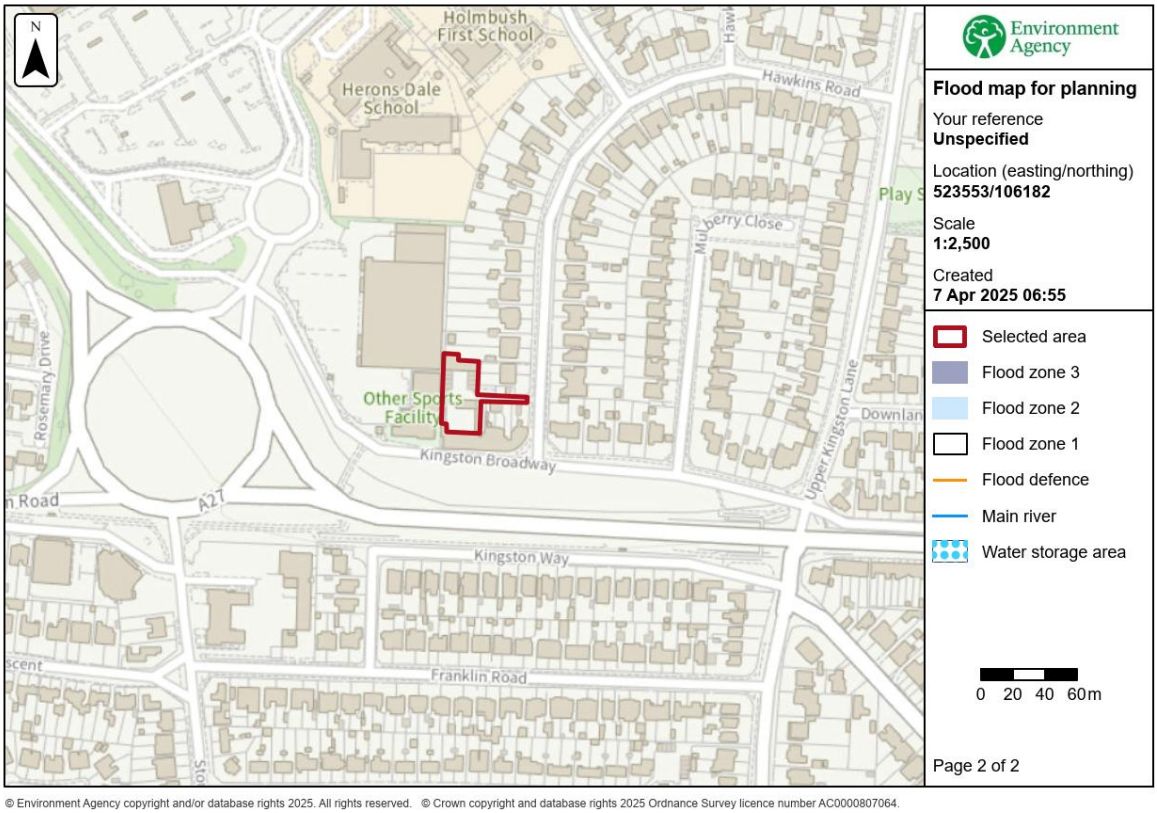


Figure 2 extract from EA Flood Maps for Planning (Source: DEFRA)

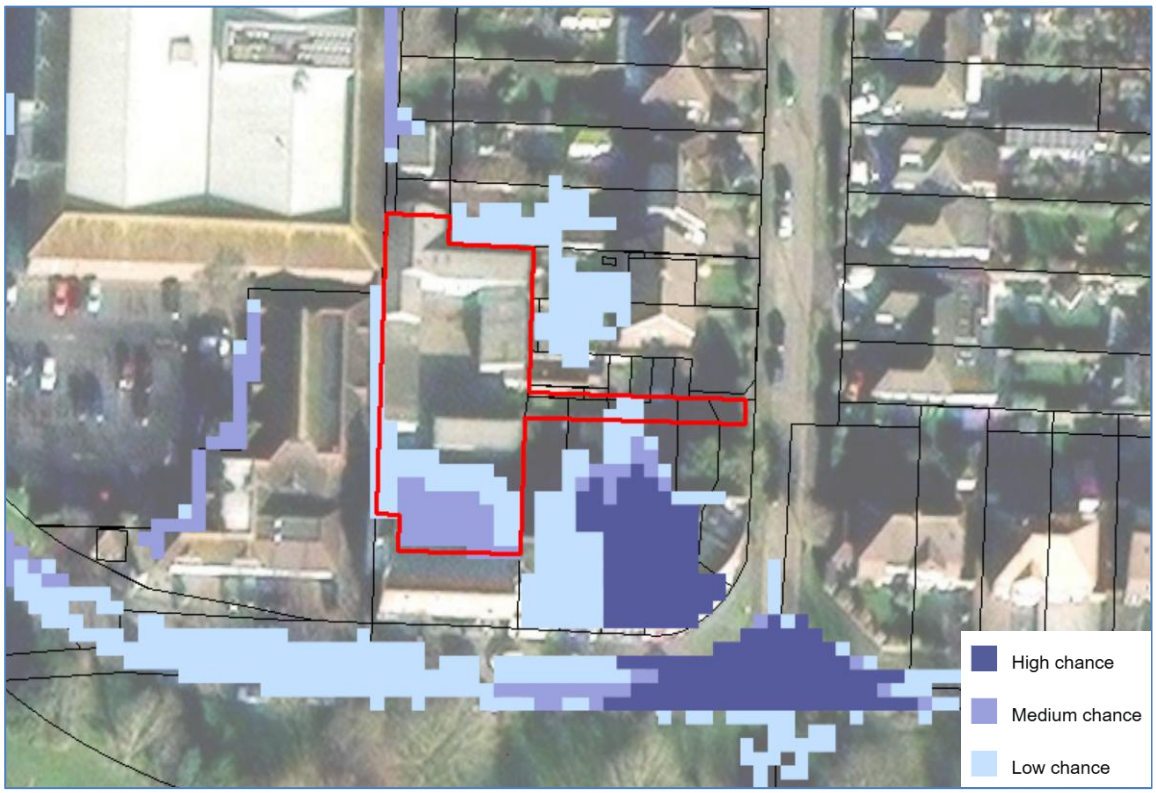


Figure 3 - extract from the EA's Long-Term Risk of Flooding from Surface Water (RoFSW) maps for the yearly chance of flooding between 2040 and 2060

4 LOCAL FEATURES

RIVERS AND WATERCOURSES.

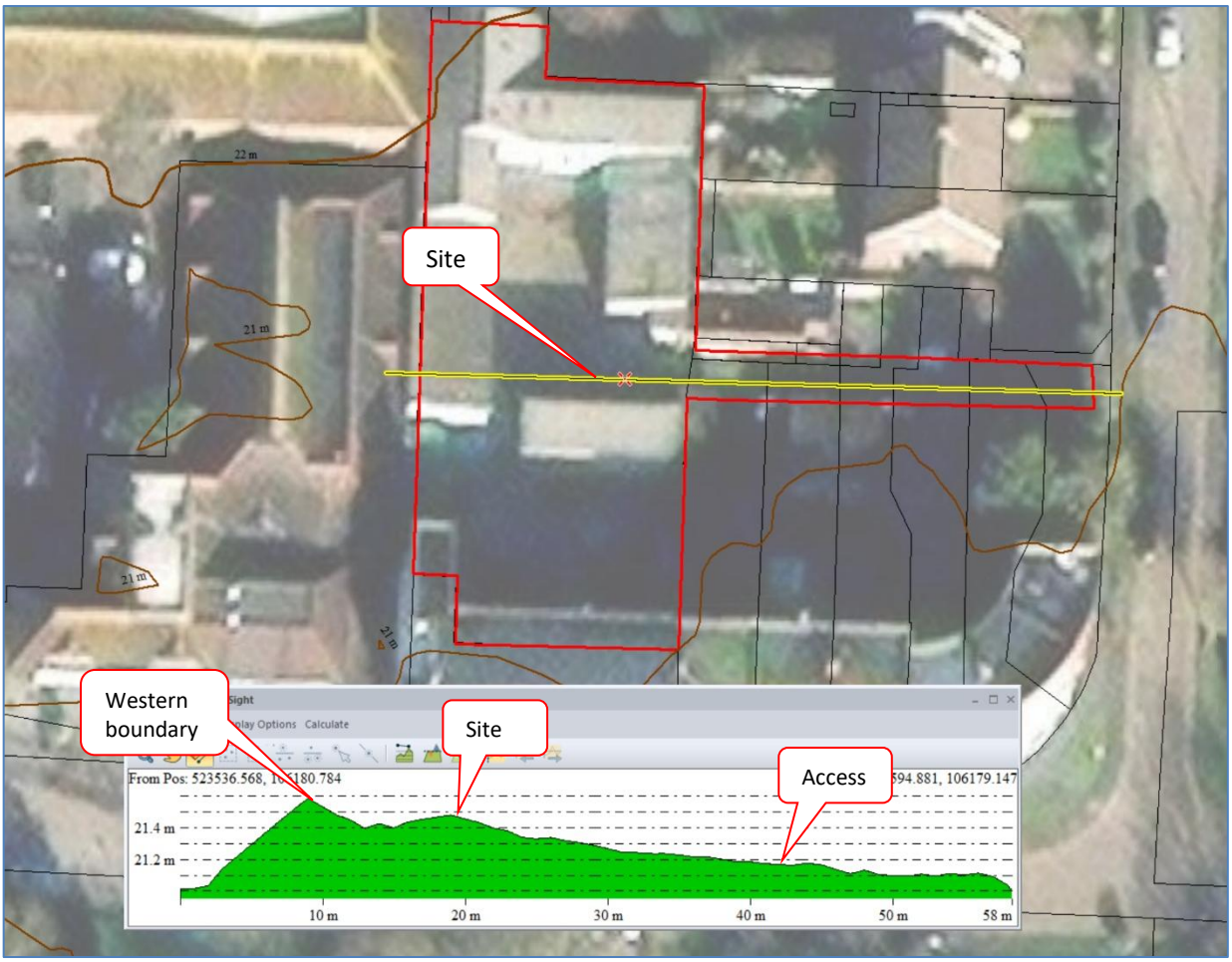
4.1 There are no major watercourses or drainage infrastructure within 500m of the site. The English Channel is located c1.5km to the south, the River Adur is located 2.9km to the west.

TOPOGRAPHY

4.2 The site has a maximum elevation of 22.09mAOD, a minimum elevation of 21mAOD, and an average elevation of 21.4mAOD. The area is relatively flat but does fall slightly to the south and west. From the western boundary, levels drop off to the adjacent property by c400-500mm. Within the southern area of the site, levels drop slightly as well, forming a localised low point where surface water tends to pond.

4.3 Figure 4 below provides long and cross-sectional data through the site demonstrating an approximation of existing site levels based on the available LIDAR information.

4.4 The low points on site can also be identified by looking at Figure 3. Surface water ponding is evident within the southern area of the site, where levels are marginally lower (circa 100-150mm lower). The RoFSW modelling also shows flooding along the western boundary, however this appears to be due to levels dropping down from the site to the adjacent property, with the flooding noted due to this drop of in levels.



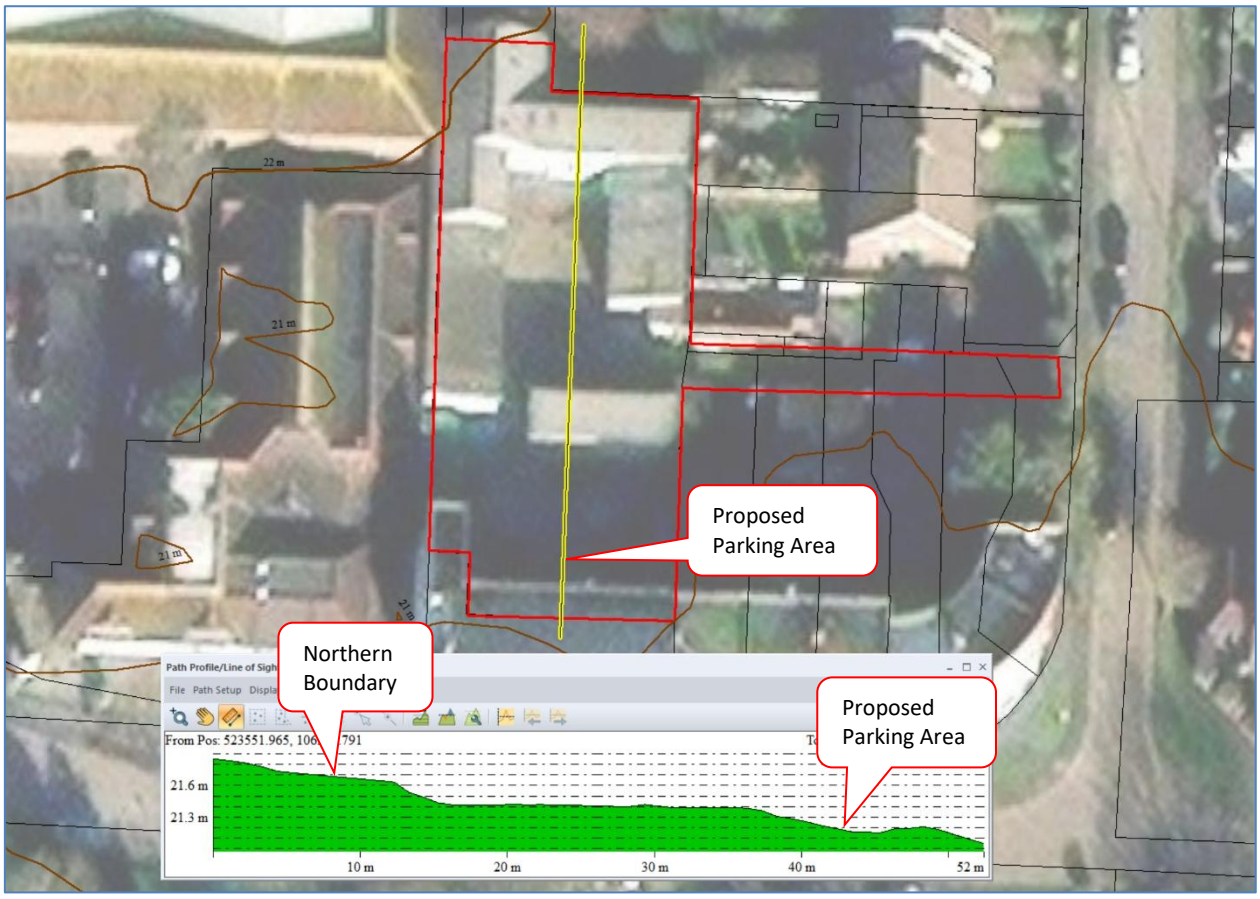


Figure 4 – Top: Terrain profile (North to South), Bottom: East to West (source: DEFRA Lidar Data 1m)

GEOLOGY & HYDROGEOLOGY

4.5 The online British Geological Survey (BGS) (Figure 5) shows the site to be underlain by 1:50 000 scale bedrock geology description: Newhaven Chalk Formation - Chalk. Head - Clay, silt, sand and gravel superficial deposits recorded.

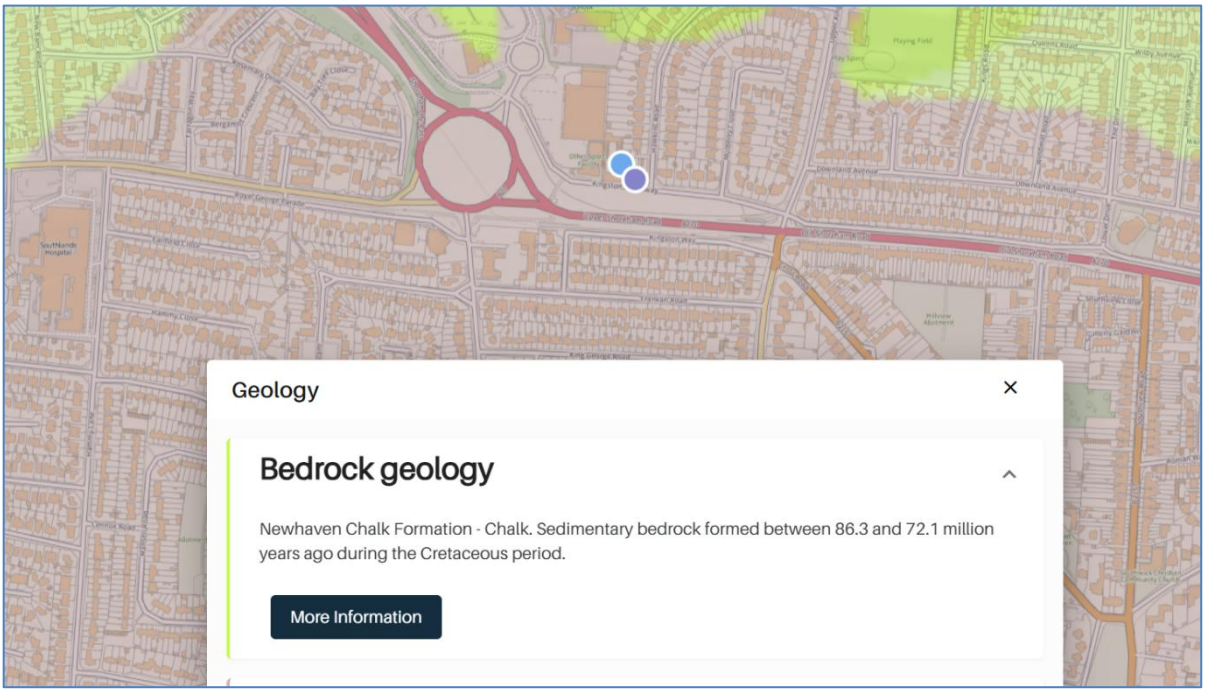


Figure 5 extract from BGS Bedrock and Superficial Deposits Mapping (source: BGS)

4.6 Table 4 below present a summary of the site hydrogeological classifications and considerations.

Table 4 - Summary of Hydrogeology Classifications (source Magic Map, BGS) – applicable classification shaded Blue

HYDROGEOLOGY CLASSIFICATIONS			
Groundwater Vulnerability	High	Medium	Low
Located within Source Protection Zone	Yes	No	N/A
Soluble Rock Risk	Present	Not Present	N/A

4.7 The BGS GeoIndex: Borehole Records provides publicly available borehole data at locations around England. These can provide general information relating to groundwater and can provide greater insight into site specific ground conditions. The closest BGS Borehole record at BGS ID: 583371 : BGS Reference: TQ20NW74 approximately 200m to the southwest, did not record any groundwater within 9m of the surface (based on a surface level of c22mAOD).

4.8 However, the BGS data should be taken as only indicative and should not be relied upon for detailed design of surface water management systems and during construction. Details of groundwater levels and soil permeability are unknown and should be confirmed. The design permeability should be investigated further for the purpose of surface water management on the site.

FLOOD DEFENCES

4.9 The Environment Agency releases a range of flood asset information as Open Data through their AIMS Defence (Spatial Flood Defences) GIS mapping. They are the only comprehensive and up-to-date group of datasets in England that show flood defences currently owned, managed or inspected by the EA.

4.10 Figure 6 provides an extract from EA AIMS Defence data. This data shows that there are no flood defences within the vicinity of the site. Given that the site is not affected by river or sea flooding, it can be concluded that there are no flood defences benefiting the site.

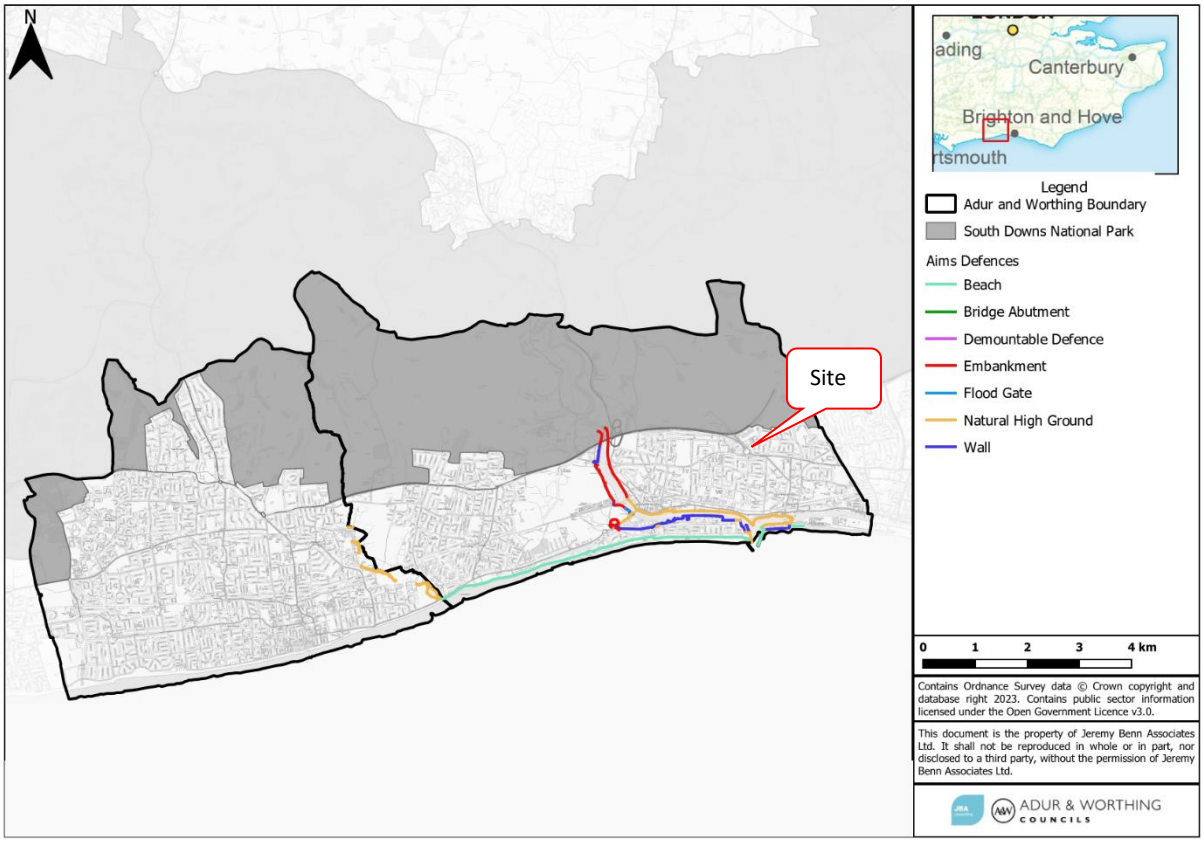


Figure 6 - Extract from EA AIMS Defence Dataset.

5 CLIMATE CHANGE

5.1 In 2022, the EA issued updated guidance on the impacts of climate change on flood risk in the UKCP18 to support the NPPF. This guidance sets out that peak rainfall intensity, sea level, peak river flow; offshore wind speed and extreme wave heights are all expected to increase in the future as a result of climate change.

5.2 The guidance acknowledges that in relation to certain factors there is considerable uncertainty with respect to the absolute level of change that is likely to occur. As such, in these instances, the guidance provides estimates of possible changes that reflect a range of different emission scenarios (Table 5).

Table 5 - Extract from NPPF designating Flood Risk Climate Change Allowances by Flood Zone and Use. The developments required climate change probability scenario is highlighted blue

FLOOD ZONE	ESSIENTIAL INFRASTRUCTURE	HIGHLY VULNERABLE	MORE VULNERABLE	LESS VULNERABLE	WATER COMPTABILE
1/2	Higher Central and Upper End	Higher Central and Upper End	Central and Higher Central	Central	None of these allowances
3a	Upper End	Development should not be permitted	Higher Central and Upper End	Central and Higher Central	Central
3b	Upper End	Development should not be permitted	Development should not be permitted	Development should not be permitted	Central

INCREASES IN SURFACE WATER FLOODING AND RAINFALL ALLOWANCES

5.3 When considering climate change impacts to surface water (pluvial) flooding, The DEFRA peak climate change rainfall allowances detail predicted rainfall increase due to climate change in different regions around England. For all developments with a design epoch up to (and presently beyond) 2070, the NPPF states developments should adopt the Upper End and Central allowances. The site-specific climate change allowances based on the DEFRA data is summarised in Table 6 below and should also be adopted for the purposes of surface water drainage design.

Table 6 - Summary of Table 2: peak rainfall intensity allowance in small catchments (less than 5km2) or urban drainage

Management Catchment peak rainfall allowances 2070's	3.3% Annual Exceedance Probability Event	1% Annual Exceedance Probability Event
Central	25%	25%
Upper End	40%	45%

5.4 The EA, through their RoFSW Climate Change mapping, presents the risk which takes account for climate change in the near term up to 2060 and based on the latest UK Climate Projections (UKCP18) from the Met Office, using the Representative Concentration Pathway (RCP) 8.5 associated with the Central Allowance. This data can be considered suitable for assessing short term development and understanding the sensitivity of a catchment to increases in rainfall, however for developments with a design life in excess of 2060 (and in the absence of additional climate change modelling) the Low-risk event (1 in 1000 year event or 0.1% AEP) is used to assess climate change impacts.

5.5 All Councils considers the implementation of SuDS as an essential element of reducing future flood risk to both the site and its surroundings. Indeed, reducing the rate of discharge from sites is one of the most effective ways of reducing and managing flood risk. SuDS can effectively be used to minimise the potential increase of risk to the property and users in the future. In accordance with the NPPF, the sites surface water drainage should account for minimum 45% climate change allowance to site rainfall profiles, to ensure climate change is appropriately considered.

6 SOURCES OF FLOOD RISK

6.1 To assist the implementation of the Governments NPPF, the EA has undertaken national scale flood risk mapping. This mapping considers a range of sources including flooding from rivers, sea, surface water and reservoir breach. Furthermore, each Council produces a Strategic (county scale) Flood Risk Assessments (SFRA) that aim to specifically identify local flood risk issues (such as critical drainage areas and local groundwater flooding).

6.2 The following section reviews both the EA data as well as the relevant information available from the SFRA.

PLUVIAL (SURFACE WATER)

6.3 Surface water flooding is the term applied to flooding when intense rainfall overwhelms the ability of the land to infiltrate water, or in urban areas for the sewers and road drains to drain the water away, resulting in surface water runoff and consequent flooding. It is a particular problem in urban areas where the excess water will often travel along streets and paths, between and through buildings and across open space.

6.4 RoFSW is created by combining best available flood models, including locally produced detailed flood model information from LLFAs, and national flood modelling. These are used to generate the probability of flood risk for each 2m grid square of land, with the aim of using the best available flood risk information in any one location. The RoFSW maps are built off remotely sensed LiDAR data instead of site-specific topography. This LiDAR data has been edited to remove buildings, trees and other features to produce a terrain profile. As a result, this editing process results in a slightly un-even surface profile, which can result in the production of small depressions that fill with water but in reality, is not at risk of surface water flooding. As such when surface water flooding is isolated, it not considered to pose a risk to a development as these areas can be managed within the confines of the site. This should be considered where very localised areas of flooding are evident and are independent of wider surface water flood flows and routes.

6.5 The SFRA does present surface water flood mapping up to the 1 in 100 year plus 45% climate change. However, the resolution of this mapping is too coarse to accurately determine the flood risk to the site. Therefore, the EAs RoFSW plus CC has been used to review flood risk from this source at the site level.

6.6 Figure 3 shows the EA's Long-Term Risk of Flooding from Surface Water (RoFSW) map for the yearly chance of flooding between 2040 and 2060. This mapping is an assessment of where surface water flooding may 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. It includes information about flooding extents and depths. It is produced using national scale modelling and enhanced with compatible, locally produced modelling from lead local flood authorities (LLFAs).

6.7 RoFSW is a probabilistic product, meaning that it shows the overall risk, rather than the risk associated with a specific event or scenario. In externally published versions of this dataset, risk is displayed as one of four likelihood bandings:

- ⇒ High - greater than or equal to 3.3% chance in any given year (1 in 30)
- ⇒ Medium - less than 3.3% (1 in 30) but greater than or equal to 1% (1 in 100) chance in any given year
- ⇒ Low - less than 1% (1 in 100) but greater than or equal to 0.1% (1 in 1000) chance in any given year
- ⇒ Very Low - less than 0.1% (1 in 1000) chance in any given year

6.8 For most development, the surface water DFE is equivalent to the 1% AEP or Medium Risk event plus an allowance for climate change.

6.9 This dataset presents the risk which takes account for climate change in the near term up to 2060 and based on the latest UK Climate Projections (UKCP18) from the Met Office, using the Representative Concentration Pathway (RCP) 8.5 associated with the Central Allowance. For developments with a design life in excess of 2060 (and in the absence of additional climate change modelling) the Low-risk event (1 in 1000 year event or 0.1% AEP) is used to assess

climate change impacts. For this site, given that the design life is within the long-term, the RoFSW data can be used to establish the surface water DFE.

6.10 To assess surface water flood risk to the site and proposed use, an assessment of flood depth up to 0.6m has been assessed. Flood depths greater than this are considered 'unsafe' and as such a 0.6m flood depth is considered the threshold for this assessment.

6.11 Figure 7 shows surface water flood depths up to 0.2m for each of the risk bandings.



Figure 7 - extract from the EA's Long-Term Risk of Flooding from Surface Water (RoFSW) maps for the Yearly chance of flooding between 2040 and 2060 and flood depths of less than 0.2m, site bordered red, site bordered red

6.12 Figure 8 shows surface water flood depths up to 0.3m for each of the risk bandings.



Figure 8 - extract from the EA's Long-Term Risk of Flooding from Surface Water (RoFSW) maps for the Yearly chance of flooding between 2040 and 2060 and flood depths of less than 0.3m, site bordered red.

6.13 Figure 9 shows surface water flood depths up to 0.6m for each of the risk bandings.



Figure 9 - extract from the EA's Long-Term Risk of Flooding from Surface Water (RoFSW) maps for the Yearly chance of flooding between 2040 and 2060 and flood depths of less than 0.6m, site bordered red

6.14 The figures above show that the site is unlikely to see more than 150mm of flooding in the DFE (noting that this is the 1 in 1000 year event plus UKCP18 to 2060). The only area at risk of flooding is the carpark area, and this is unlikely to see flooding that would result in access and egress becoming hazardous. Site access and egress is also shown to be wholly unaffected by flooding, demonstrating that the site can be evacuated safely if needed.

6.15 The dwellings are shown to be wholly unaffected by surface water flooding in all modelled events.

6.16 Therefore, RoFSW can be considered to be low to the site. As part of the development proposals, the site will include a drainage strategy that is required to fully drain the site up to and the 1 in 100 year plus climate change event. This would further reduce this risk (if not totally remove it). Therefore, the nominal flooding that may be experienced would only occur if there was full site drainage failure and so therefore the surface water flooding could be considered a residual risk to the site.

HISTORICAL, SEWERS AND DRAINAGE

6.17 A common source of flooding is a result of sewer or other drainage infrastructure becoming surcharged and flooding.

6.18 The SFRA does not directly present any records relating to sewer flooding directly impacting the site, however EA recorded flooding occurring southwest of the site.

6.19 There have been no other noted flood events specifically at the site, however this does not directly indicate that the site has not flooded in the past or may flood in the future.

6.20 Therefore, it is considered the risk of sewer flooding to the site is considered low, assuming that any new development flows include appropriate protective measures to manage runoff and not increase the risk of sewer flooding.

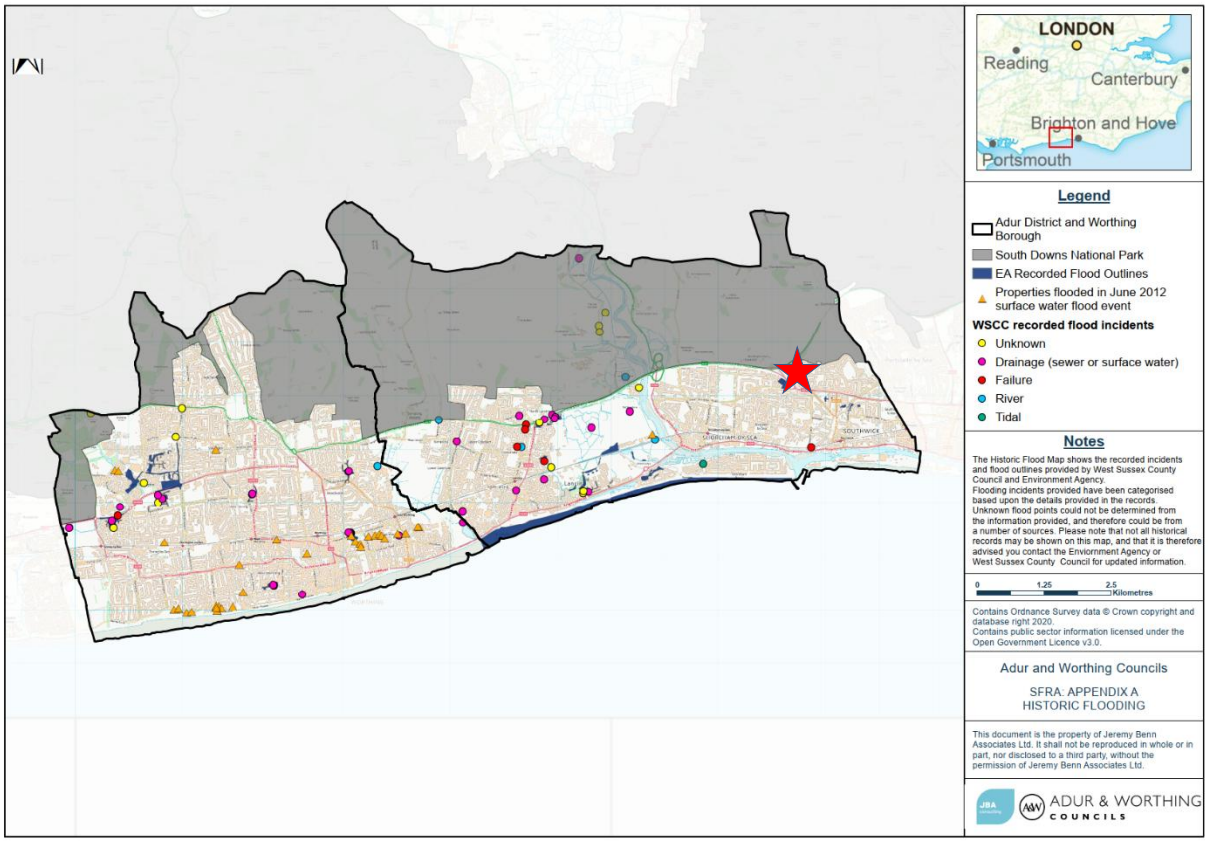


Figure 10 - extract from SFRA Appendix A - Historical Flooding (star marks approximate site location).

GROUNDWATER

6.21 Groundwater flooding is the emergence of groundwater at the ground surface or into subsurface voids arising as a result of:

- ⇒ abnormally high groundwater heads or flows;
- ⇒ the introduction of an obstruction to groundwater flow; or
- ⇒ the rebound of previously depressed groundwater levels.

6.22 Groundwater flooding usually occurs following a prolonged period of low intensity rainfall. As groundwater flow is much slower than surface flow, the flooding may not recede for long periods of time, typically weeks or even months. It is important to recognise the risk of groundwater flooding is typically highly variable and heavily dependent upon local geology, topography and weather conditions, as well as local abstraction regimes. Groundwater flooding is hard to predict and challenging to mitigate.

6.23 Groundwater susceptibility maps are typically designed for planners, identifying areas where groundwater flooding might be an issue. The computer models used to classify areas produces maps with a pixel size of approximately 50 metres. Because of this coarse resolution it is possible that the actual susceptibility at your property may be different due to small-scale variations in rock and soil type and local landscape. It is important to note that Susceptibility is not the same as risk. These maps show where there is the potential for groundwater flooding but do not give any indication of the probability that it will occur.

6.24 Appendix H of the SRFA, shows that the site is in an area where ground water levels are typically within 0.5-5m below ground levels (see Figure 11). Nearby BGS data suggests groundwater levels may be more than 10m below ground level and therefore very unlikely to every reach the surface level.

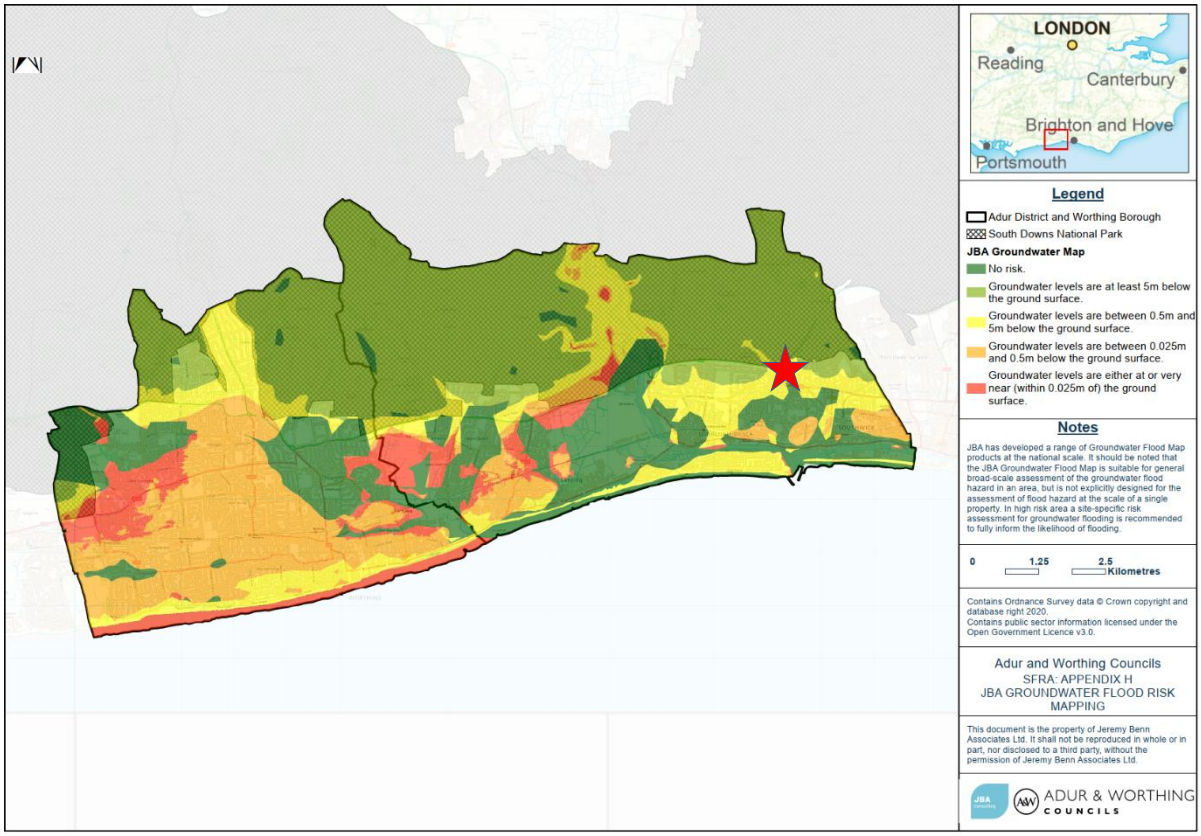


Figure 11 extract from SFRA Groundwater flood map risks (star marks approximate site location).

6.25 So, although information from the maps can be used to highlight an area at risk, it is not designed to be used as a sole indicator of groundwater flooding susceptibility and risk at individual properties. The BGS and SFRAs recommend the following for assessing site specific risk:

1. Review BGS geological maps or and BGS (or site specific) borehole records for information on water strikes and groundwater levels. Where underlying geology of is sufficiently permeable, this may allow groundwater to rise more freely and frequently

2. Review the RoFSW mapping, should groundwater emerge at surface, its flow path can be estimated by looking at the RoFSW mapping. However, it should be noted that groundwater flows at surface are a lot lower than surface water runoff events, however groundwater flows may occur over a longer period. Therefore, the risk event assessed for the DFE for groundwater flooding is the high-risk surface water event (or the 1 in 30 year event).

3. Review historical records and SFRA mapping, for example, if a specific property has experienced groundwater related flood risk in the past. This is often the best indicator of site-specific risk for groundwater flooding and can carry the most weighting in assess risk.

6.26 Table 7 below provides a summary of groundwater flood risk indicators as advised by the BGS. It is considered that if any of these risk indicators are negative (or not present), then the overall risk of groundwater emergence is likely to be low. However, this would not mean that groundwater may not pose a risk to lower ground floor uses if groundwater is recorded within 1m of the lowest level of the building. In which, the building design should account for groundwater being present and account for this in the construction and waterproofing of the building.

Table 7 - Summary of groundwater flood risk indicators to the site

GROUNDWATER FLOOD RISK SUMMARY		
Data Source	Risk Indicator	**Risk Present**
BGS Geological Maps	Is the underlying geology permeable (such as gravels and sands) and may allow free flow of groundwater	No
BGS/Site Borehole Data	Is the depth to Groundwater less than 1m	No
Surface Water Flood Risk	Is there surface water flood risk present in the high-risk 1 in 30 year event (refer to Section 6)	No
Historical Records	Does the SFRA include any records of groundwater flooding occurring at the site	No
SUMMARY OF GROUNDWATER FLOOD RISK		**Very Low**

Impacts of Climate Change

6.27 The potential effects of climate change on groundwater levels are uncertain. Greater seasonality in groundwater level fluctuation is a potential outcome under a pattern of higher winter rainfall and less summer rainfall. Broad predictions of the impacts of climate change on groundwater levels are difficult to make at the present time

RESERVOIR

6.28 Reservoir flooding is very different from other forms of flooding. It may happen with little, or no warning and evacuation will need to happen immediately. The likelihood of such flooding is difficult to estimate, but it is less likely than flooding from rivers or surface water. It may not be possible to seek refuge upstairs from floodwater as buildings could be unsafe or unstable due to the force of water from the reservoir breach or failure. The risk of inundation to the study area as a result of reservoir breach or failure of a number of reservoirs within the area was assessed as part of the National Inundation Reservoir Mapping (NIRIM) study.

6.29 The EA has undertaken failure scenarios of the UK reservoirs and summarised these extents through their Long Term Flood Risk Maps for Reservoir Flooding. This data shows the individual flood extents for all large, raised reservoirs in the event that they were to fail and release the water held on a “wet day” when local rivers had already overflowed their banks.

6.30 It represents a prediction of a credible worst-case scenario, however it’s unlikely that any actual flood would be this large. The data gives no indication of likelihood or probability of reservoir flooding. This mapping shows that the site is at low risk flooding from this source.

6.31 Several mitigation measures have been proposed below in Section 5 in order to minimise/mitigate flood risk from the above sources.

RESIDUAL RISKS

6.32 Residual risks are those remaining after applying the sequential approach to the location of development and taking mitigating actions.

6.33 Given that the site is not located behind flood defences or in a reservoir failure area, the primary risk to the site is residual failure of onsite drainage or an extreme exceedance event.

7 BUILDING MATERIAL MITIGATIONS

7.1 The national government produced guidance for improving the flood resilience of building in the Communities and Local Government (CLG) 2007 'Improving the Flood Performance of New Buildings' publication. This publication provides recommendations on how to protect buildings in the case of a flood event, and propose two scenarios based on maximum expected flooded depths, and provides an explanation between flood resistance and resilience measures, these are summarised below:

⇒ **Water exclusion strategy** is when the emphasis is placed on minimising water entry whilst maintaining structural integrity, and on using materials and construction techniques to facilitate drying and cleaning. This strategy is favoured when low flood water depths are involved (not more than 0.3m). According to the definitions adopted in this Guidance, this strategy can be considered as a resistance measure but it is part of the aim to achieve overall building resilience

⇒ **Water entry strategy** is when the emphasis is placed on allowing water into the building, facilitating draining and consequent drying. Standard masonry buildings are at significant risk of structural damage if there is a water level difference between outside and inside of about 0.6m or more. This strategy is therefore favoured when high flood water depths are involved (greater than 0.6m) by utilising resilient materials, and construction methods.

⇒ **Flood resistant measures** are incorporated where it is considered feasible to prevent floodwater entering the building and take the form of flood barriers. Many flood resistant products/barriers are only suitable to typical maximum height being 0.68m, before the risk of structural damage is incurred. As this is a historic structure with limited scope for structural reinforcement.

⇒ **Flood resilient measures** are incorporated where it is accepted that, in severe flood events, water may enter parts of the building so it is necessary to ensure the building will remain useable after the floodwater has receded and the area has been cleaned. Therefore, materials should be incorporated that retain their structural integrity and have good drying and cleaning properties or are waterproof, and services and sockets etc. are located as high as practical to minimise flood damage.

7.2 Given the primary risk is related to surface water flooding most likely from an exceedance event or failure of onsite drainage, it is considered that some key principles of the **Water Exclusion Strategy** should be adopted for the buildings on the site. Some simple construction measures can greatly protect buildings during such an event without incurring large additional construction costs. Some recommendations include:

- The route of all electrical services will run from ceilings at ground floor (where possible), down toward sockets;
- All plumbing insulation to be of closed-cell design;
- Non-return valves to be fitted to all drain and sewer outlets;
- (If possible) Finish Floor Levels to be minimum 150mm above external ground levels.

7.3 Further detail can be found at https://assets.publishing.service.gov.uk/ and within BS 85500:2025-Flood resistant and resilient construction. Guide to improving the flood performance of buildings for applicable strategies

8 EMERGENCY ACCESS AND EGRESS

8.1 To comply with the NPPF, all occupants should be able to make their way, unassisted by the Emergency Services, to dry land. This is known as 'safe access to dry land' and does not have to be dry, just not ***hazardous*** at the peak of the predicted critical 1% (1 in 100 year) plus climate change storm.

8.2 Table 13.1 of FD2320 shows the maximum depths/velocity combinations that are safe for 3 categories of user (occupant). The methodology for calculating "Flood Hazard" is reproduced below according to the methodology stated within the "Supplementary Note on Flood Hazard Ratings and Thresholds for Development Planning and Control Purposes – Clarification of the Table 13.1 of FD2320/TR2 and Figure 3.2 of FD2321/TR1" (*Figure 12*).

8.3 For an access/egress route to be acceptable under the NPPF, the combination of flood depths, velocities and debris must be analysed.

HR	Depth of flooding - d (m)												
	DF = 0.5				DF = 1								
elocity v (m/s)	0.05	0.10	0.20	0.25	0.30	0.40	0.50	0.60	0.80	1.00	1.50	2.00	2.50
0.0	0.03 + 0.5 = 0.53	0.05 + 0.5 = 0.55	0.10 + 0.5 = 0.60	0.13 + 0.5 = 0.63	0.15 + 1.0 = 1.15	0.20 + 1.0 = 1.20	0.25 + 1.0 = 1.25	0.30 + 1.0 = 1.30	0.40 + 1.0 = 1.40	0.50 + 1.0 = 1.50	0.75 + 1.0 = 1.75	1.00 + 1.0 = 2.00	1.25 + 1.0 = 2.25
0.1	0.03 + 0.5 = 0.53	0.06 + 0.5 = 0.56	0.12 + 0.5 = 0.62	0.15 + 0.5 = 0.65	0.18 + 1.0 = 1.18	0.24 + 1.0 = 1.24	0.30 + 1.0 = 1.30	0.36 + 1.0 = 1.36	0.48 + 1.0 = 1.48	0.60 + 1.0 = 1.60	0.90 + 1.0 = 1.90	1.20 + 1.0 = 2.20	1.50 + 1.0 = 2.50
0.3	0.04 + 0.5 = 0.54	0.08 + 0.5 = 0.58	0.15 + 0.5 = 0.65	0.19 + 0.5 = 0.69	0.23 + 1.0 = 1.23	0.30 + 1.0 = 1.30	0.38 + 1.0 = 1.38	0.45 + 1.0 = 1.45	0.60 + 1.0 = 1.60	0.75 + 1.0 = 1.75	1.13 + 1.0 = 2.13	1.50 + 1.0 = 2.50	1.88 + 1.0 = 2.88
0.5	0.05 + 0.5 = 0.55	0.10 + 0.5 = 0.60	0.20 + 0.5 = 0.70	0.25 + 0.5 = 0.75	0.30 + 1.0 = 1.30	0.40 + 1.0 = 1.40	0.50 + 1.0 = 1.50	0.60 + 1.0 = 1.60	0.80 + 1.0 = 1.80	1.00 + 1.0 = 2.00	1.50 + 1.0 = 2.50	2.00 + 1.0 = 3.00	2.50 + 1.0 = 3.50
1.0	0.08 + 0.5 = 0.58	0.15 + 0.5 = 0.65	0.30 + 0.5 = 0.80	0.38 + 0.5 = 0.88	0.45 + 1.0 = 1.45	0.60 + 1.0 = 1.60	0.75 + 1.0 = 1.75	0.90 + 1.0 = 1.90	1.20 + 1.0 = 2.20	1.50 + 1.0 = 2.50	2.25 + 1.0 = 3.25	3.00 + 1.0 = 4.00	3.75 + 1.0 = 4.75
1.5	0.10 + 0.5 = 0.60	0.20 + 0.5 = 0.70	0.40 + 0.5 = 0.90	0.50 + 0.5 = 1.00	0.60 + 1.0 = 1.60	0.80 + 1.0 = 1.80	1.00 + 1.0 = 2.00	1.20 + 1.0 = 2.20	1.60 + 1.0 = 2.60	2.00 + 1.0 = 3.00	3.00 + 1.0 = 4.00	4.00 + 1.0 = 5.00	5.00 + 1.0 = 6.00
2.0	0.13 + 0.5 = 0.63	0.25 + 0.5 = 0.75	0.50 + 0.5 = 1.00	0.63 + 0.5 = 1.13	0.75 + 1.0 = 1.75	1.00 + 1.0 = 2.00	1.25 + 1.0 = 2.25	1.50 + 1.0 = 2.50	2.00 + 1.0 = 3.00	3.50	4.75	6.00	7.25
2.5	0.15 + 0.5 = 0.65	0.30 + 0.5 = 0.80	0.60 + 0.5 = 1.10	0.75 + 0.5 = 1.25	0.90 + 1.0 = 1.90	1.20 + 1.0 = 2.20	1.50 + 1.0 = 2.50	1.80 + 1.0 = 2.80	3.40	4.00	5.50	7.00	8.50
3.0	0.18 + 0.5 = 0.68	0.35 + 0.5 = 0.85	0.70 + 0.5 = 1.20	0.88 + 0.5 = 1.38	1.05 + 1.0 = 2.05	1.40 + 1.0 = 2.40	1.75 + 1.0 = 2.75	3.10	3.80	4.50	6.25	8.00	9.75
3.5	0.20 + 0.5 = 0.70	0.40 + 0.5 = 0.90	0.80 + 0.5 = 1.30	1.00 + 0.5 = 1.50	1.20 + 1.0 = 2.20	1.60 + 1.0 = 2.60	3.00	3.40	4.20	5.00	7.00	9.00	11.00
4.0	0.23 + 0.5 = 0.73	0.45 + 0.5 = 0.95	0.90 + 0.5 = 1.40	1.13 + 0.5 = 1.63	1.35 + 1.0 = 2.35	1.80 + 1.0 = 2.80	3.25	3.70	4.60	5.50	7.75	10.00	12.25
4.5	0.25 + 0.5 = 0.75	0.50 + 0.5 = 1.00	1.00 + 0.5 = 1.50	1.25 + 0.5 = 1.75	1.50 + 1.0 = 2.50	2.00 + 1.0 = 3.00	3.50	4.00	5.00	6.00	8.50	11.00	13.50
5.0	0.28 + 0.5 = 0.78	0.60 + 0.5 = 1.10	1.10 + 0.5 = 1.60	1.38 + 0.5 = 1.88	1.65 + 1.0 = 2.65	3.20	3.75	4.30	5.40	6.50	9.25	12.00	14.75

Flood Hazard Rating (HR)	Colour Code	Hazard to People Classification
Less than 0.75		Very low hazard - Caution
0.75 to 1.25		Danger for some – includes children, the elderly and the infirm
1.25 to 2.0		Danger for most – includes the general public
More than 2.0		Danger for all – includes the emergency services

Figure 12: Extracts from the Supplementary Note to FD2320/TR2 and FD2321/TR1 describing the methodology for calculating 'Flood Hazard' under the NPPF (Source: EA)

8.4 Figure 13 below illustrates a proposed evacuation route from the site. It is advised that in the case of evacuation, occupants should leave the site onto Hawkins Road, and proceed north.



Figure 13 - EA RoFSW Hazard Mapping – Medium Risk of surface water flooding (source: Flood Zone 2) - Red arrows designate suggested evacuation route.

8.5 Although the site is not located in a Flood Warning Area, it is advised that users sign up to this service to inform the occupants of flood risk in the general area. Further information can be found on www.environment-agency.gov.uk/floodline. General advice includes:

On receipt of a FLOOD ALERT, the individual property owners and occupiers should:

- ⇒ Monitor the situation via local media;
- ⇒ Make themselves aware of forecast local weather conditions;
- ⇒ Alert both current visitors, and those scheduled to arrive, of the situation;
- ⇒ Prepare to evacuate if necessary.

On receipt of a FLOOD WARNING, the individual property owners and occupiers should:

- ⇒ Follow advice to "go in, stay in, and tune in";
- ⇒ Move all vehicles to an area outside of the potential flood extent, if safe to do so;
- ⇒ Alert scheduled visitors that they should seek alternative accommodation;
- ⇒ Be prepared to follow instruction from the Emergency Services.

On receipt of a SEVERE FLOOD WARNING, the individual property owners and occupiers should:

- ⇒ Follow advice to "go in, stay in, and tune in";
- ⇒ Remain attentive to local media forecasts and news bulletins;
- ⇒ Do not evacuate unless instructed to do so by the Emergency Services;

8.6 If flood waters along the proposed evacuation route have exceed 25cm, site users are advised to seek advice from emergency services.

9 FLOOD MITIGATION MEASURES

9.1 The proposals allow the opportunity to improve flood resilience of the site by incorporating a number of flood mitigation measures, both through the incorporation of flood resilient building materials, surface water drainage improvements and signing up to the EA Flood Warning/Alert System.

9.2 Table 8 presents the key flood mitigation measures based the critical DFE on the NPPF and PPG decision making principles:

Table 8 - Key Decision Making principles and measures applied to avoid, control, mitigate, and manage flood risk

DECISION MAKING: ORDER OF PRIORITY	PROPOSED MEASURES
1. Avoid	The proposed residential dwellings are shown to be sequentially located on land above all modelled DFEs. Therefore, the proposals have been designed to avoid flooding of the dwelling for all DFEs and flood risk to the proposals is generally considered to be low.
2. Control	Surface Water Drainage systems should be designed to accommodate the 1 in 100 year plus climate change DFE, therefore removing surface water ponding up to the DFE.
3. Mitigate	Recommend that the developer incorporates the recommendations of BS 85500:2025-Flood resistant and resilient construction. Refer to Section 7 for recommended Building Measures
4. Manage residual flood risk	Safe Access and Egress is deemed possible. Refer to Section 8 for assessment of Access and Egress (Flood Evacuation Planning). The dwellings should have FFLs raised 150mm above existing ground levels, with external ground levels to be graded to fall away from building threshold.
5. Flood Risk is not increased elsewhere	Any new drainage should be designed in accordance with Building Regulations Part H, SuDS Manual and 'DCG' guidance, ensuring drainage proposals include an allowance for climate change. Any additional flows to be directed into the Local Sewer Authorities public sewers or water courses to receive confirmation of capacity and connection approvals prior to detailed design and construction.

10 CONCLUSION

10.1 A review of flood risk from all sources as required by the NPPF, has been undertaken. Based on this FRA, flood risk is considered low from all sources assessed (including Sea, River, Surface Water, Groundwater and Sewer flood risk)

10.2 The site may experience some minor surface water flooding should site drainage fail (post development) with the carparking areas close to the southern boundary. Flooding may be up to 150mm, but of low velocity and therefore of very low hazard.

10.3 To assist in mitigating the present flood risk to the site's users based on the development proposals, a number of recommendations have been discussed, the core of these include:

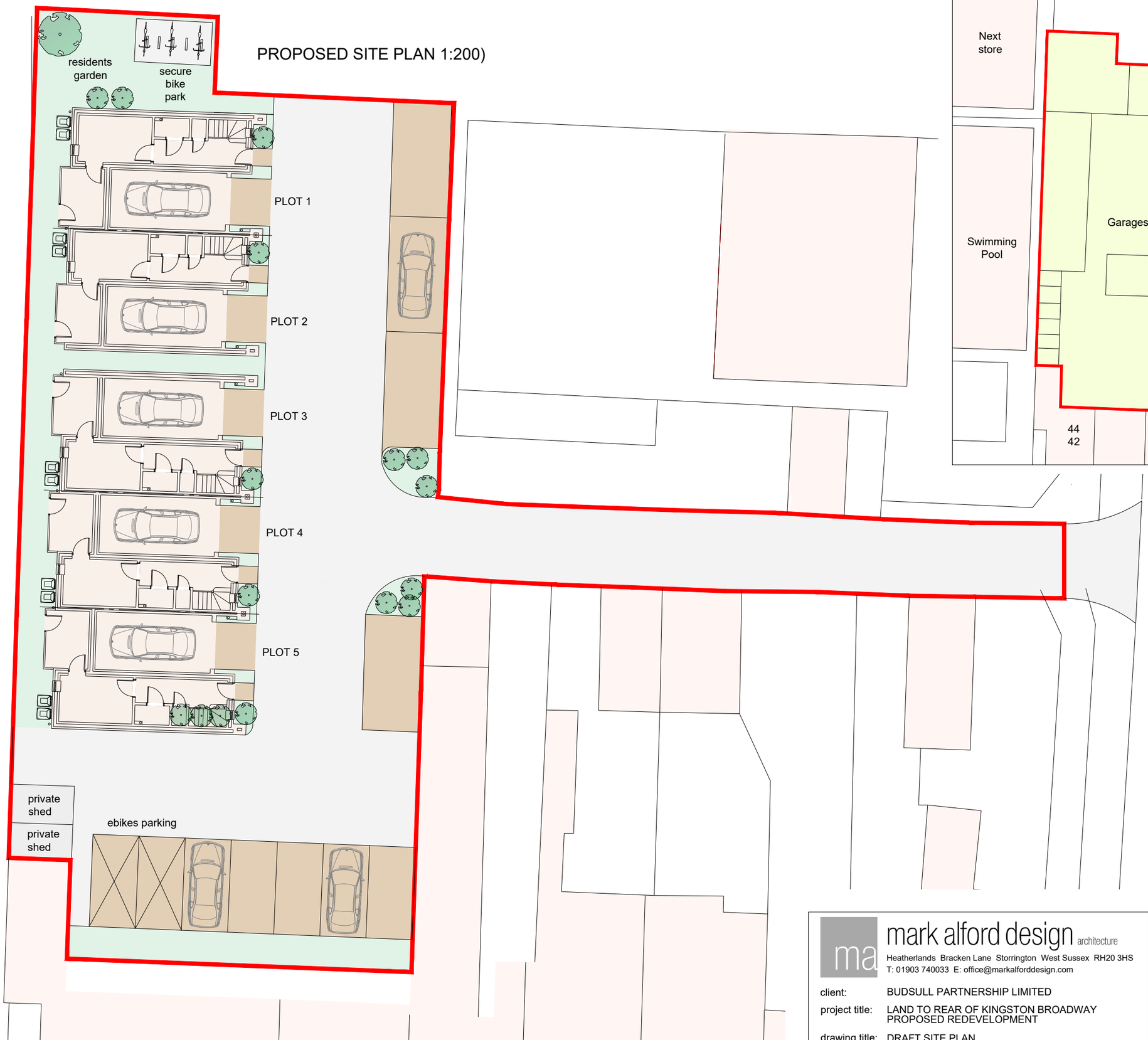
- New drainage should be designed in accordance with Building Regulations Part H, SuDS Manual and 'DCG' guidance, ensuring drainage proposals include an allowance for climate change;
- The dwellings should have FFLs raised 150mm above existing ground levels, with external ground levels to be graded to fall away from building threshold;
- Any additional flows to be directed into the Local Sewer Authorities public sewers to receive confirmation of capacity and connection approvals prior to detailed design and construction;
- Users sign up to the EA Flood Warning and Alert System and are aware of points of safe refuge and evacuation;
- Adopt the measures (as applicable) within Local Government (CLG) 2007 'Improving the Flood Performance of New Buildings' publication and BS 85500:2025.

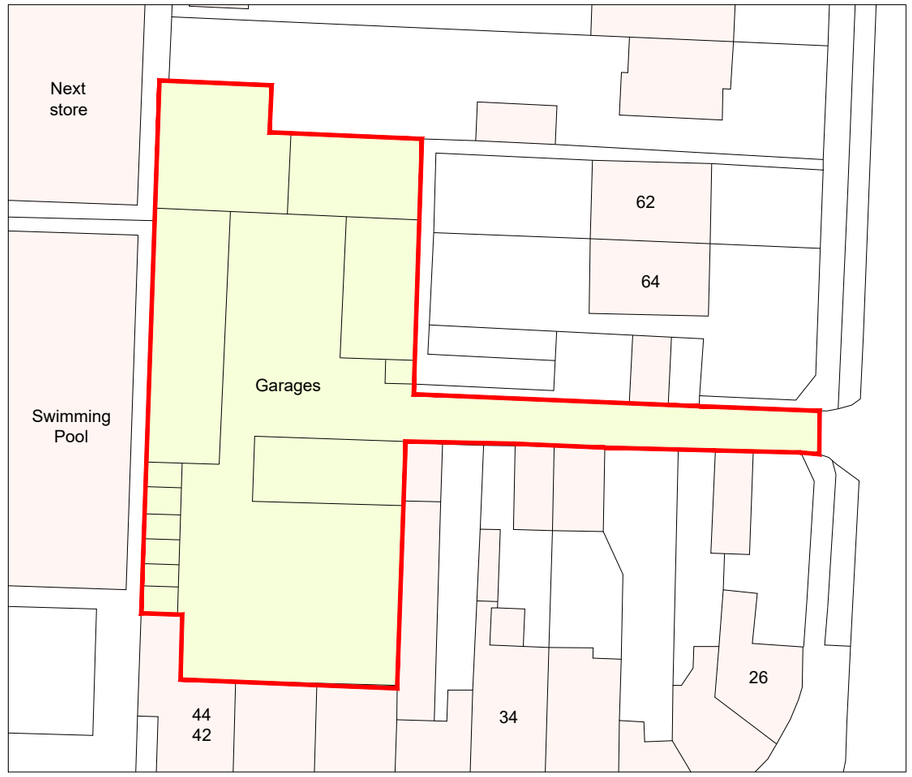
10.4 This report demonstrates that the proposals could be accommodated within the site by in accordance with the EA guidance, Council SFRA, and the NPPF. It is considered that as long as the development follows the advice presented in this report, that the development proposals may be considered appropriate at this location.

APPENDIX 1 – ARCHITECTURAL PROPOSALS

Eave Ht 24.89
Ridge Ht 26.98
Eave Ht 24.93
Workshop
Eave Ht 24.87
NEXT
Ridge Ht 26.41
Ridge Ht 26.48
Eave Ht 27.36
STN 23.339
STN 23.378
Eave Ht 24.93
21.58
21.72
21.55
Eave Ht 25.01
Conc.
Workshop
21.45
IC CL 21.41
21.46
Ridge Ht 26.64
20.97
Ridge Ht 26.43
Eave Ht 24.90
G CL 21.53
21.47
21.44
Ridge Ht 25.30
IC CL 21.38
G CL 21.48
Garages
21.52
21.43
21.46
21.45
Eave Ht 23.87
STN 23.251
Eave Ht 24.68
21.53
21.40
21.51
21.52
20.95
Garages
CB 2.0mh
21.55
STN 21.476
21.40
21.51
21.38
21.33
Conc Wall 1.0mh
21.21
21.18
Ridge Ht 25.34
IC CL 21.37
21.45
21.30
21.25
21.20
21.15
21.20
21.14
21.10
21.07
21.05
20.87
Roofline 23.5mAOD
Roofline 24.7mAOD
Sports Centre
21.57
21.55
21.51
21.45
IC CL 21.35
21.39
21.31
21.27
21.22
21.20
21.15
21.12
21.22
21.21
21.06
Conc.
IC CL 21.10
STN 20.863
20.79
Eave Ht 24.58
Eave Ht 24.57
Conc.
STN 22.888
21.40
21.41
Ridge Ht 26.00
20.99
Workshop
21.32
21.30
21.33
21.34
21.37
21.37
Ridge Ht 25.33
STN 23.264
21.25
21.26
21.28
21.28
21.28
21.29
Ridge Ht 26.62
21.07
Sheds
21.22
STN 21.254
21.21
21.23
21.28
21.22
Conc.
IC CL 21.15
21.18
21.19
21.24
21.17
21.27
21.07
21.17
21.15
21.17
21.19
21.21
OHB 29.849m AOD
21.18
IC CL 21.19
IC CL 21.20
IC CL 21.19
IC CL 21.22
21.21
21.22
21.28
BR 0.2mh
BR 0.2mh
21.16
20.62
21.07
20.63
21.08
20.66
20.66
STN 22.628
DPC 20.737m AOD
OHB 29.924m AOD
OHB 30.363m AOD
Eave Ht 26.58
Ridge Ht 30.76
Eave Ht 26.60
Ridge Ht 30.80
Eave Ht 26.56

PROPOSED SITE PLAN 1:200)





EXISTING BLOCK PLAN 1:500)

N

0m 2m 5m 10m
Scale 1:200

0m 5m 12.5m 25m
Scale 1:500

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client: BUDSULL PARTNERSHIP LIMITED

project title: LAND TO REAR OF KINGSTON BROADWAY
PROPOSED REDEVELOPMENT

drawing title: DRAFT SITE PLAN

drawn by: MSA date: JAN 24 scale: 1:200 / 1:500 @ A3

issue status: DRAFT FOR COMMENT

drawing number: **23521 / SK100** revision: **1**

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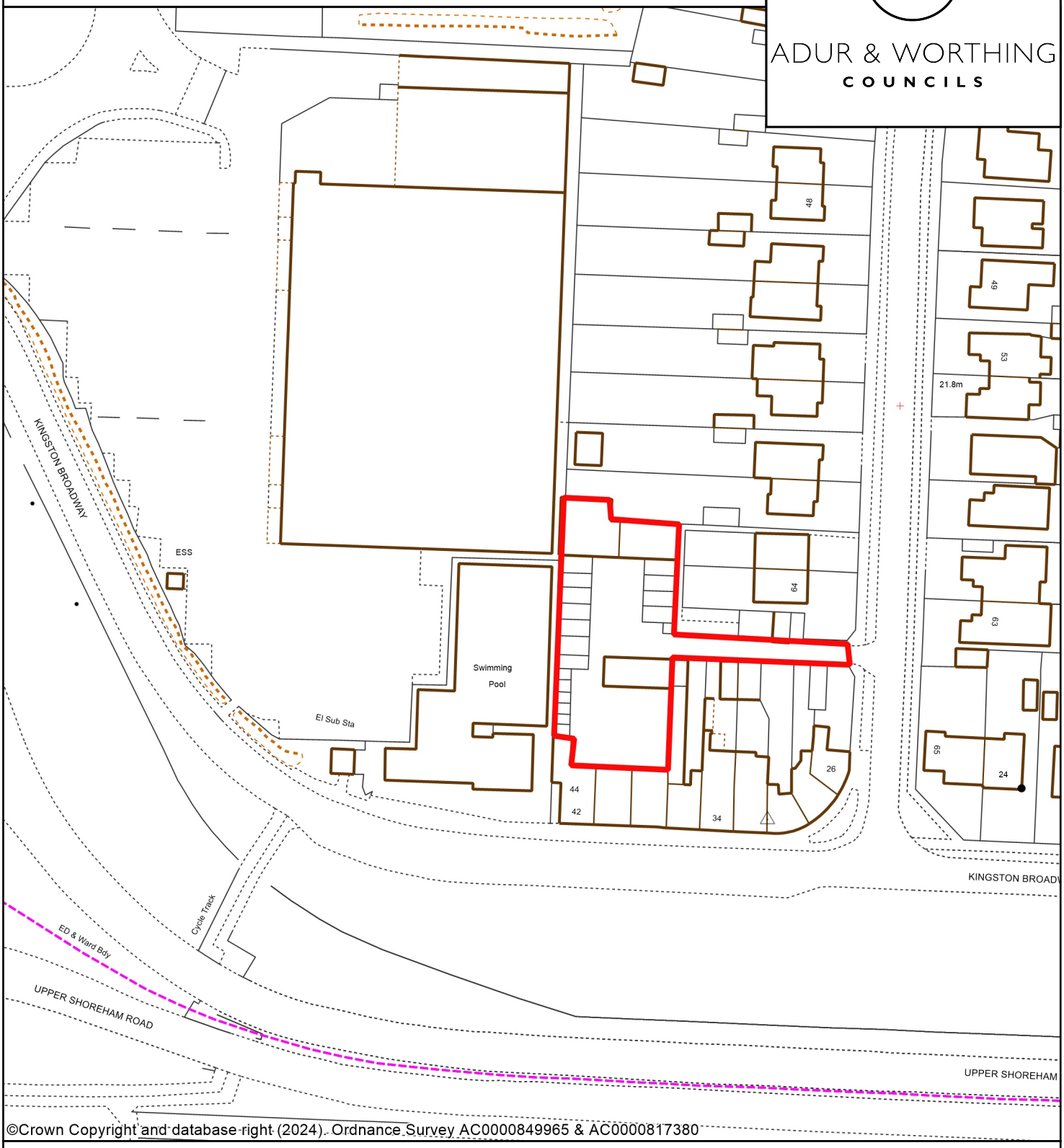
ADCBR/40 Garage Compound Rear Of Kingston Broadway Hawkins Road Shoreham-by-sea

ADUR & WORTHING COUNCILS



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Brown Field Sites

ADCBR40

Adur Worthing Boundary

Boundaries

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APPENDIX 2 – EA DATA

Flood map for planning

Your reference	Location (easting/northing)	Created
Unspecified	**523553/106182**	**7 April 2025 06:55**

Your selected location is in flood zone 1, an area with a low probability of flooding.

You will need to do a flood risk assessment if your site is **any of the following**:

- bigger than 1 hectare (ha)
- in an area with critical drainage problems as notified by the Environment Agency
- identified as being at increased flood risk in future by the local authority's strategic flood risk assessment
- at risk from other sources of flooding (such as surface water or reservoirs) and its development would increase the vulnerability of its use (such as constructing an office on an undeveloped site or converting a shop to a dwelling)

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence which sets out the terms and conditions for using government data. https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3

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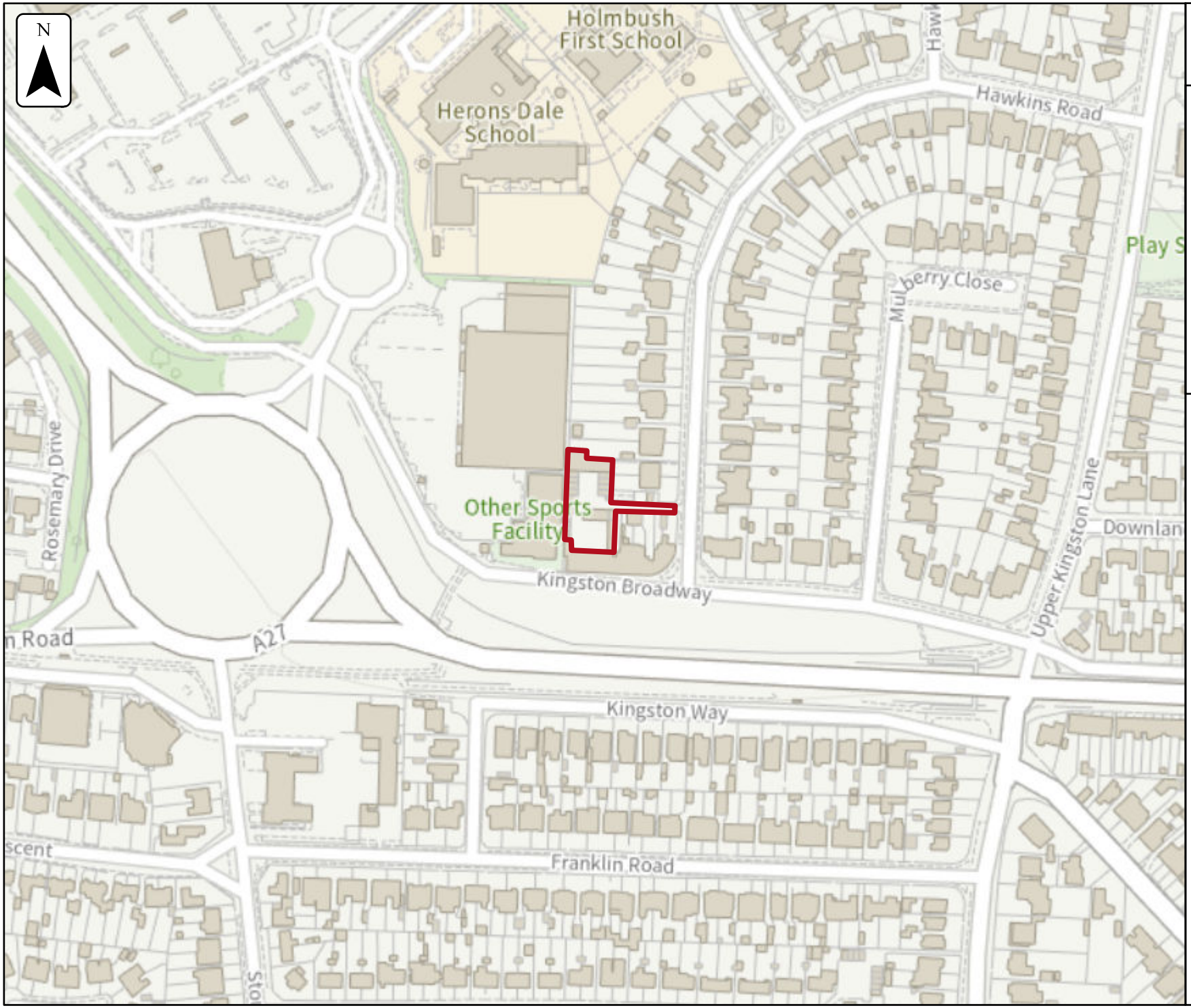

Environment Agency

Flood map for planning

Your reference
Unspecified

Location (easting/northing)
523553/106182

Scale
1:2,500

Created
7 Apr 2025 06:55

- Selected area
- Flood zone 3
- Flood zone 2
- Flood zone 1
- Flood defence
- Main river
- Water storage area

0 20 40 60 m

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