Chichester District Council's Level 2 Strategic Flood Risk Assessment

Detailed Site Summary Tables

<table>
<tr><td rowspan="5">Site details</td><td>Site Code</td><td colspan="4">AL3</td></tr>
<tr><td>Address</td><td colspan="4">Land East of Chichester</td></tr>
<tr><td>Area</td><td colspan="4">54.6ha</td></tr>
<tr><td>Current land use</td><td colspan="4">Former landfill and quarry (currently vacant)</td></tr>
<tr><td>Proposed land use</td><td colspan="4">Urban extension consisting of primarily residential usage with some ancillary community and commercial/leisure.
.</td></tr>
<tr><td rowspan="5">Sources of flood risk</td><td>Topography</td><td colspan="4">• The site generally falls from west to east. However, the slope is not consistent, with the east of the site generally reasonably flat.
• The linear depressions within the site correlate with the locations of the drainage ditch network (dissecting the site north to south) as well as the location of the 6.9ha lake to the south-east of the site There is a second smaller pond to the west of the site, approximately 0.14ha in size.
• Please see the topographic map in Appendix B1.1 for further context.</td></tr>
<tr><td>Location of site within catchment</td><td colspan="4">The site is located within the upstream portion of the Pagham Rife Operational Catchment to the east of Chichester. The west, north and east of the site is adjacent to three roads – respectively the A27 Chichester-By-Pass, Shopwyke Road (including the New Fields Housing Development), and Drayton Lane. The West Coastway Line (from Portsmouth to Brighton) forms the southern site boundary.</td></tr>
<tr><td>Existing drainage features</td><td colspan="4">The nearest main river to the site is the Chichester Flood Relief Channel, located 600m to the east of the site. Within the site itself there are also several existing drainage features:
• A 6.9ha lake associated with the historic use of the site for aggregate extraction and operation of a sand and gravel quarry.
• A network of drainage ditches within western section of site – including a 1,500m drainage ditch running parallel to the site boundaries adjacent to the West Coastway railway line, and a 400m ditch running north-to-south from the New Fields Housing Development to the West Coastway Line. These drain into the 6.9ha lake. Drainage features are shown in Appendix B1.2.</td></tr>
<tr><td rowspan="4">Fluvial</td><td colspan="4">Proportion of site at risk (Appendix B1.3)</td></tr>
<tr><td>FZ3b</td><td>FZ3a</td><td>FZ2</td><td>FZ1</td></tr>
<tr><td>0%</td><td>0%</td><td>1%</td><td>99%</td></tr>
<tr><td colspan="4">The % Flood Zones quoted show the % of the site at flood risk from that particular Flood Zone/event, including the percentage of the site at flood risk at a higher risk zone, e.g. FZ2 includes the FZ3 %. FZ1 is the remaining area outside FZ2 (FZ2 + FZ1 = 100%)</td></tr>
<tr><td colspan="4">Proportion of the site at risk in the defended scenario (Appendix B1.4)</td></tr>
</table>

		3.3% AEP	**1% AEP**	**0.1% AEP**
		0%	0%	1%
		Proportion reported are for the area of land occupied by each flood extent between larger or smaller return period events, and therefore not cumulative. Percentages rounded to the nearest 1%.		
		Available data: The 2018 Chichester Lavant 1D-2D hydraulic model has been used to assess the fluvial flood risk to the site. **Flood characteristics:** The modelled data indicates that most of the site is not at risk from fluvial flooding. The western boundary of the site is at low flood risk, located within the defended 0.1% AEP flood extent as shown in Appendix B1.4. The modelling shows the site is not predicted to flood in a defended fluvial event in the climate change scenarios as shown in Appendix B1.5.		
	Surface Water	**Proportion of site at risk (RoFSW)**		
		3.3% AEP	**1% AEP**	**0.1% AEP**
		0%	1%	6%
		Max depths (m)		
		0.3-0.6m	0.6-0.9m	>1.2m
		Max velocity (m/s)		
		<0.25	>0.25	>0.25
		The % SW extents quoted show the % of the site at surface water risk from that particular event, including the percentage of the site at flood risk at a higher risk zone (e.g. 1% AEP includes the 3.3% AEP %)		
		Description of surface water flow paths: Risk of Flooding from Surface Water data for this site shows that the majority of the site is free of surface water flood risk in the 3.3%, 1% and 0.1% AEP extents (Appendix B1.7). Small areas of ponding accumulation are present across the site in areas of low-lying topography, the pathway that leads to the north of the site, and within the small pond to the north-west of the site. Flood depths, velocities and hazard maps for the 1% AEP flood event can be found in Appendices B1.9-B1.11. With climate change (30% AEP plus 40% climate change allowance and 1% AEP plus 45% climate change allowance), surface water flood extents (Appendix B1.8), depths, velocities and hazard are reasonably consistent with the present day.		
	Groundwater	A separate assessment of groundwater flood risk has been undertaken for this site. Please see the Level 2 SFRA Report Appendix C.		
	Reservoir	The site is not shown to be at risk of reservoir flooding, as indicated in Appendix B1.14		
	Flood history	No flooding has been recorded within the site boundary. However, according to the Environment Agency's Historic Flooding and Recorded Flood Outlines dataset (Appendix B1.15), the site was		

<table>
<tr><td></td><td></td><td colspan="3">within 15m of the December 1993/January 1994 River Lavant flood. This flood event was caused by heavy rain in December 1993, where the River Lavant overtopped its channel, flooding the City of Chichester and surrounding regions prior to the construction of the Pagham Rife relief channel.

No other flooding incidents within or nearby the site are recorded within the West Sussex County Council Flood Records.</td></tr>
<tr><td rowspan="4">Flood risk management infrastructure</td><td rowspan="3">Defences</td><td>Defence Type</td><td>Design Standard of Protection</td><td>Condition</td></tr>
<tr><td>River Lavant Flood Alleviation Scheme</td><td>1% AEP</td><td>'Unknown'</td></tr>
<tr><td>'Natural High Ground'</td><td>'20-1.25% AEP'</td><td>Either 'fair' or 'unknown'</td></tr>
<tr><td colspan="3">The River Lavant Flood Alleviation Scheme was built in 2000, after the 1993-94 floods. It is noted that these floods did not impact the site. The scheme was designed to reduce the risk of flooding in Chichester and the surrounding areas. It diverts flows from the River Lavant to the north of Chichester at Westhampnett Mill, through a series of tunnels and gravel pits, until reaching Forebridge Rife. The channel eventually discharges into Pagham Harbour via Pagham Rife. The design standard was to alleviate flooding in Chichester up to the 1% AEP event.

Additionally, discontinuous natural high ground is recorded on the banks of the River Lavant adjacent to the western boundary of the site. The design standard of protection these offer is between 20% AEP and 1.25% AEP, with their condition classified as either 'fair' or 'unknown.' Please see Appendix B2.27 for further details.</td></tr>
<tr><td>Residual risk</td><td colspan="3">The undefended 1% +64% climate change extent runs along the western boundary of the site. This shows that if there is a non-performance of the River Lavant Flood Alleviation Scheme, the far western boundary could be impacted in the future.</td></tr>
<tr><td rowspan="2">Emergency planning</td><td>Flood warning</td><td colspan="3">This site is not located within any Environment Agency Flood Warning or Flood Alert areas.</td></tr>
<tr><td>Access and egress</td><td colspan="3">Safe access and egress at this site is possible via the B2144 road to the north or to Drayton Lane to the east. Safe access to the site may not be achievable from the A27 due to the risk of fluvial and surface water flooding.</td></tr>
</table>

Climate Change	**Implications for the site**	Increased storm intensities due to climate change may increase the extent, depth, velocity, hazard and frequency of both fluvial and surface water flooding. **Fluvial** • Detailed fluvial modelling is available at the site from the River Lavant fluvial modelling of the defended 1% AEP +25%, +35% and +64% climate change scenarios. Flooding for these scenarios is not predicted within the site extent. **Surface water** • For surface water flooding, the 3.3% AEP +40% and 1% AEP +45% climate change scenarios follow a similar spatial extent to the present-day scenarios, with small isolated patches and areas of ponding across the site, their locations generally corresponding with the locations of the small watercourses across the site. Surface water depths, velocities and hazards for the climate change scenarios still generally correspond with the present-day events.

Requirements for drainage control and impact mitigation	**Broad scale assessment of possible SuDS**	Implementation of SuDS at the site could provide opportunities to deliver multiple benefits including volume control, water quality, amenity and biodiversity. Evidence should be provided where multiple benefits are not provided to show that this is not possible. Preference should be given to multi-functional sustainable drainage systems, and to solutions that allow surface water to be discharged according to the hierarchy of drainage options listed in the PPG Flood Risk and Coastal Change paragraph 056. The layout and function of drainage systems needs to be considered at the start of the design process for new development, as integration with road networks and other infrastructure can maximise the availability of developable land. **Site considerations** • High groundwater indicated by Site Investigation undertaken for application 22/00869/EIA. • Groundwater flood risk shown to be moderate in the groundwater assessment • Historic landfill (1980-1990) under western part of the site which could be underlain by a geotextile lining • Historic gravel extraction in eastern part of site and onsite lake • Drainage channels within the site are not shown in the Risk of Flooding from Surface Water dataset • Nitrate vulnerable zone • Low Groundwater vulnerability **Suitability and considerations for sustainable drainage** From the available evidence, groundwater is likely to be high at this location. Groundwater flooding could occur at the surface which may flow to and pool within topographic low spots during very wet winters. Refer to the assessment of groundwater flood risk in Appendix C for the matters to be addressed with respect to groundwater. Detention and attenuation features should be designed to prevent groundwater ingress from impacting hydraulic capacity and structural integrity. Below ground development is not appropriate at this site. Groundwater may be encountered during site preparation works and construction methodologies should account for this possibility. There is a potential of groundwater contamination due to historic usage, however groundwater vulnerability is considered low in this area and no aquifers were identified within the vicinity of the site. Ground Investigation will be required as part of a detailed site-specific Flood Risk Assessment to determine potential mitigation for contamination and the likely impact of contaminate transmission on the appropriateness of SuDS techniques. Due to the risk of contamination, Southern Water have confirmed that the efficacy of "on surface" SuDS may be an issue. There needs to be a focus on above ground rainwater management (e.g. green roofs) where the development can "slow the flow" of rainwater and also provide Biodiversity Net Gains. Pre-application discussions with the LPA, LLFA and EA are advised. Southern Water have also confirmed that rainwater harvesting should be mandatory for local re-use, including grey water recycling. This will reduce the pressure on drainage and

		wastewater systems and avoid high future carbon costs. In turn this could contribute to net zero. Existing drainage channels and features are not well-resolved by the generalised methodology in the national Risk of Flooding from Surface Water (NaFRA) dataset. Existing flow paths should be retained and integrated with blue-green infrastructure and public open space. Further information of the impact of the groundwater level on the on-site ponds/lakes will be required if development is to take place towards the south of the site. Fluctuations of water levels within the pond should be included in consideration of the site-wide drainage approach.
NPPF and planning implications	**Exception Test requirements**	The Local Authority have carried out the Sequential Test in line with national guidance. The Sequential Test will need to be passed before the Exception Test is applied. Proposed development should be sequentially located within Flood Zone 1 areas of the site. Development should not be placed close to the western boundary of the site where Flood Zone 2 encroaches beyond the site boundary. Residential dwelling houses are classified as 'more vulnerable' development so in Flood Zones 1 and 2 this consideration does not trigger the requirement for the Exception Test (see Table 2 of the National Planning and Policy Framework). However, the flood risk component of the Exception Test will need to be addressed so that the matters relating to groundwater flood risk, drainage and cumulative impacts are appropriately addressed for the lifetime of the development.
	Requirements and guidance for site-specific Flood Risk Assessment	**Flood Risk Assessment:** • A site-specific FRA is recommended for this site to determine the extent of flooding from surface water due to the existing ditch network (which is not well presented in the Risk of flooding from surface water mapping) and potential for groundwater. • All sources of flooding, particularly the risk of fluvial, surface water and groundwater flooding should be considered. • Any FRA should be carried out in line with the National Planning Policy Framework; Flood Risk and Coastal Change Planning Practice Guidance; Chichester District Council's Local Plan policies, and Chichester District Council's **Surface Water and Drainage: Supplementary Planning Document** and **SuDS design guidance for developers** which was prepared by West Sussex County Council and other partners. • The development should be designed using a sequential approach, avoiding areas at risk of flooding and preserving existing drainage pathways. • Development must be in line with NPPF Annex 3: Flood risk vulnerability classification. **Guidance for site design and making development safe:**

		• The developer will need to show, through an FRA, that future users of the development will not be placed in danger from flood hazards throughout its lifetime and the development meets the objectives of the NPPF's policy on flood risk.
		• Safe access and egress will need to be demonstrated in the 1% AEP plus climate change fluvial and rainfall events, using the depth, velocity and hazard outputs.
		• The risk from surface water flow routes should be quantified as part of a site-specific FRA, including a drainage strategy, to ensure that runoff from the development is not increased by placing development across any surface water flow routes. A drainage strategy should help inform site layout and design to ensure there is no increase in runoff beyond the current greenfield rates.
		• New or re-development should adopt exemplar source control SuDS techniques to reduce the risk of flooding due to post-development runoff. Assessment for runoff should include allowance for climate change effects.
		• Developers should refer to West Sussex County Council's Surface Water Management Plan
		• New development must seek opportunities to reduce overall level of flood risk at the site, for example by:
		  ○ Reducing volume and rate of runoff
		  ○ Creating space for flooding.
		• Green infrastructure should be considered within the mitigation measures for surface water runoff from potential development and consider using Flood Zones 2 and 3 as public open space.
		• Consideration should be given to flow volumes and the implications with respect to cumulative impacts (refer to Appendix D)
		• Refer to groundwater requirements in Appendix C.

Key messages		Most of the site is at very low risk of river flooding according to the existing flood risk mapping, however drainage ditches within the site boundary are not well represented in the existing modelling. On the basis of the assessment the principle of development is supported at the site, subject to the preparation of an appropriate site specific FRA. The following flood risk issues were identified and should be considered in further detail. • Assessment of existing surface water drainage pathways within the site boundary • A sequential approach to development demonstrating that higher vulnerability uses are situated in the areas of the site at the lowest risk of flooding, based on the additional assessment of surface water pathways • Safe access and egress for all developed areas of the site in the 1% plus climate change flood event. • Consideration of appropriate surface water drainage techniques, in line with the drainage hierarchy and

	including groundwater monitoring and infiltration testing to demonstrate the viability of the proposed scheme. • Refer to the requirements to address groundwater flood risk in Appendix C and cumulative impacts in Appendix D. Refer to the detailed 'guidance for developers' section for further information on the measures that are appropriate for this site.

Mapping Information	
The key datasets used to make planning recommendations regarding this site were the Chichester Lavant Flood Model, Environment Agency's 'Flood Map for Planning' and the 'Risk of Flooding from Surface Water' map. More details regarding data used for this assessment can be found below.	
Flood Zones	Flood Zones 2, 3a and 3b originate from the Environment Agency's 'Flood Map for Planning' dataset, which is based on the 2018 Chichester Lavant Flood Model. The Chichester Lavant Flood Model is a 1D-2D model using the industry standard software Flood Modeller-TUFLOW.
Climate change	The climate mapping was produced using the 2018 Chichester Lavant Flood Model, run for a present day 1% AEP (1-in-100 year) flood event upscaled by 25%, 35% and 64% respectively.
Fluvial depth, velocity, and hazard mapping	The fluvial depth, velocity and hazard mapping was produced using the 2018 Chichester Lavant Flood Model, run for a present day 1% AEP (1-in-100 year) flood event.
Surface Water	The Environment Agency dataset 'Risk of Flooding from Surface Water' has been used to define areas at risk from surface water flooding.
Surface water depth, velocity and hazard mapping	The surface water depth, velocity and hazard mapping for the 1% AEP (considered to be medium risk) is taken Environment Agency's Risk of Flooding from Surface Water dataset.
Groundwater	Refer to Appendix C.

Chichester District Council's Level 2 Strategic Flood Risk Assessment

Detailed Site Summary Tables

<table>
<tr><td rowspan="5">Site details</td><td>Site Code</td><td colspan="4">AL5</td></tr>
<tr><td>Address</td><td colspan="4">AL5 Southern Gateway</td></tr>
<tr><td>Area</td><td colspan="4">12.4 ha</td></tr>
<tr><td>Current land use</td><td colspan="4">Mixed urban and built-up land – including residential, commercial, recreation and transport infrastructure.</td></tr>
<tr><td>Proposed land use</td><td colspan="4">Mixed-use – residential and commercial.</td></tr>
<tr><td rowspan="6">Sources of flood risk</td><td>Topography</td><td colspan="4">• The site is approximately 10m -12m above sea level and is reasonably flat.
• There is limited variation in gradient across the site (generally under 1-in-90 fall from north to south).
• However, there is a 2m decrease in elevation at the South-West of the site at Canal Wharf Road adjacent to the Chichester Ship Canal (which is beyond the site boundary).
• Please see the topographic map in Appendix B2.1 for further context.</td></tr>
<tr><td>Location of site within catchment</td><td colspan="4">The site is located in Chichester city centre across two different catchments. The north and western sections of the site is located in the downstream portion of the Lavant (Sussex) catchment. The southern and eastern sections of the site is located in the upstream portion of the Bremere Rife catchment.</td></tr>
<tr><td>Existing drainage features</td><td colspan="4">As shown in Appendix B2.2, there are two existing watercourses adjacent to the site:
• The River Lavant follows the North-West boundary of the site by the Avenue De Chartres and Chichester Station Car Park for approximately 220m. The River Lavant is a winterbourne, and has been heavily modified by humans since the Roman era. The river is mainly hidden in culverts through the city centre.
• The Chichester Ship Canal is located to the South-West of the site, with the 0.42 ha Chichester Ship Canal Basin directly bordering the site. This was built in 1822, and it is unknown whether the site is an artificial or a heavily modified existing watercourse.</td></tr>
<tr><td rowspan="6">Fluvial</td><td colspan="4">Proportion of site within Flood Zones (Appendix B2.3)</td></tr>
<tr><td>FZ3b</td><td>FZ3a</td><td>FZ2</td><td>FZ1</td></tr>
<tr><td>0%</td><td>36%</td><td>2%</td><td>62%</td></tr>
<tr><td colspan="4">The % Flood Zones quoted show the % of the site at flood risk from that particular Flood Zone/event, including the percentage of the site at flood risk at a higher risk zone, e.g. FZ2 includes the FZ3 %. FZ1 is the remaining area outside FZ2 (FZ2 + FZ1 = 100%)</td></tr>
<tr><td colspan="4">Proportion of the site at risk in the defended scenario (Appendix B2.4)</td></tr>
<tr><td>3.3% AEP</td><td colspan="2">1% AEP</td><td>0.1% AEP</td></tr>
<tr><td>0%</td><td colspan="2">0%</td><td>37%</td></tr>
</table>

		Proportion reported are for the area of land occupied by each flood extent between larger or smaller return period events, and therefore not cumulative. Percentages rounded to the nearest 1%.
		Available data: The 2018 Chichester Lavant 1D-2D hydraulic model has been used to assess the fluvial flood risk to the site. **Flood characteristics:** As shown in Appendix B2.3, the south-east of the site is located within Flood Zones 2 (undefended 0.1% AEP) and 3a (undefended 1% AEP). Flood Zone 3b borders the north western boundary. However, Level 2 SFRA's assess the actual risk to the site with defences in place. The River Lavant south of the Avenue de Chartres is predicted to remain in bank during the present day defended 3.3% AEP flood event but also the 1% AEP defended flood event due to the presence of defences. The south-eastern portion of the site is predicted to flood in the 0.1% AEP defended flood event. Present day defended flood extents can be found in Appendix B2.4. The River Lavant hydraulic modelling was also used to assess defended fluvial flood risk for the 1% AEP plus 25%, plus 35% and plus 64% climate change scenarios. In a climate change scenario, the south-east portion of the site is affected by fluvial flooding for all scenarios. The climate change 1% AEP defended modelled flood depths are between 0-0.51m for the +25% scenario, 0-0.55m for the +35% scenario, and 0-0.57m for the +64% scenario. The 1% AEP climate change velocities are between 0-0.25m/s with isolated pockets of 0.25-0.60m/s for all climate change scenarios. The resulting hazard for the 1% AEP climate chance scenarios is low (danger for some) across the east of the site, with small, isolated pockets of moderate to significant hazard (danger for most and danger for all). There is a larger area of moderate to significant hazard in the south-east of the site. Flood depth, velocity and hazard mapping can be found in Appendices B2.5 - B2.16

<table>
<tr><td rowspan="10"></td><td rowspan="9">Surface Water</td><td colspan="3">Proportion of site at risk (RoFSW)</td></tr>
<tr><td>3.3% AEP</td><td>1% AEP</td><td>0.1% AEP</td></tr>
<tr><td>0%</td><td>4%</td><td>17%</td></tr>
<tr><td colspan="3">Max depths (m)</td></tr>
<tr><td>0.3-0.9m</td><td>0.3-0.9m</td><td>>0.9m</td></tr>
<tr><td colspan="3">Max velocity (m/s)</td></tr>
<tr><td><0.25</td><td>>0.25</td><td>>0.25</td></tr>
<tr><td colspan="3">The % SW extents quoted show the % of the site at surface water risk from that particular event, including the percentage of the site at flood risk at a higher risk zone (e.g. 1% AEP includes the 3.3% AEP)</td></tr>
<tr><td colspan="3">Description of surface water flow paths:
Risk of Flooding from Surface Water data (Appendix B2.18) for this site indicates isolated areas of ponding for the 3.3% AEP flood event, mainly concentrated at the centre of the site near the Chichester railway station.

For the 1% AEP and 0.1% AEP flood events, surface water ponding over the site is predicted to be more extensive, and there are small, constrained flow paths across the site. For the 1% AEP event, flooding is shown and to the north of Low Row Lane and Kingsham Road. Flow depths in the 1% AEP event are generally less than 0.3m in depth. (Appendix B2.20).

In the 0.1% AEP flood event, surface water flooding is more extensive with flood depths to the north of Low Row Lane. Further small areas of surface water ponding are seen in the Basin Road area.</td></tr>
<tr><td>Groundwater</td><td colspan="3">A separate assessment of groundwater flood risk has been undertaken for this site. Please see the Level 2 SFRA Report Appendix C.</td></tr>
<tr><td>Reservoir</td><td colspan="3">The site is not shown to be at risk of reservoir flooding, as indicated in Appendix B2.25.</td></tr>
<tr><td>Flood history</td><td colspan="3">No flooding has been recorded within the site boundary according to the Environment Agency historic flooding (Appendix B2.26) and recorded flood outline mapping.

However, the West Sussex County Council Flood Records detail a flood event approximately 170m to the northeast of the site, where the River Lavant is culverted through the Lavant Tunnel. The extent or date of the flood event was not listed.</td></tr>
</table>

<table>
<tr><td rowspan="4">Flood risk management infrastructure</td><td rowspan="3">Defences</td><td>Defence Type</td><td>Design Standard of Protection</td><td>Condition</td></tr>
<tr><td>River Lavant Flood Alleviation Scheme</td><td>1% AEP</td><td>‘Unknown’</td></tr>
<tr><td>‘Natural High Ground’</td><td>‘20-1.25% AEP’</td><td>Either ‘fair’ or ‘unknown’</td></tr>
<tr><td colspan="3">The River Lavant Flood Alleviation Scheme was built in 2000, after the 1993-94 floods. It is noted that these floods did not impact the site. The scheme was designed to reduce the risk of flooding in Chichester and the surrounding areas. It diverts flows from the River Lavant to the north of Chichester at Westhampnett Mill, through a series of tunnels and gravel pits, until reaching Forebridge Rife. The channel eventually discharges into Pagham Harbour via Pagham Rife. The design standard was to alleviate flooding in Chichester up to the 1% AEP event. The modelling predicts that the site does not flood during the defended 1% AEP event, which is indicative of the standard of protection afforded by the scheme.

The</td></tr>
<tr><td>Residual risk</td><td colspan="3">The residual risk of 40% and 70% blockage of the culverted River Lavant was assessed in the River Lavant 1D-2D hydraulic modelling study (Appendices B2.28-B2.38)
Two scenarios (blockage of Needlemakers culverts and blockage of Market Avenue culvert) were modelled for both the 1% AEP and 1% AEP plus 45% climate change scenarios.

The site was not flooded with a 40% blockage at either location. However, when Needlemakers culvert was 70% blocked during a 1% AEP flood event, the south-east portion of the site adjacent to Kingsham Road was flooded to a depth of 0.5m.

Additionally, when Market Avenue culvert was 70% blocked during a 1% AEP flood event, the same south-east corner of the site adjacent to Kingsham Road was also flooded, to a similar depth of 0.5m. Therefore, culvert blockage is only a residual risk to the north and east of the site.

The Chichester Ship Canal borders the southern boundary of the site. However, as this is topographically lower (2m lower) than the rest of the site, there is no residual risk of the canal overtopping into the site.</td></tr>
</table>

Emergency planning	**Flood warning**	The site is partially covered within the Environment Agency's 'River Lavant' Flood Alert Area (065WAF413) and Flood Warning Area (065FWF4604) 'Chichester on the River Lavant.'
	Access and egress	Safe access and egress at this site can be achieved via the A286 which runs through the north and west of the site, and avoids Flood Zone 2 and 3a to the east of the site. There are small areas of flooding predicted within the present day 3.3% AEP, 1% AEP and 0.1% AEP surface water extents, as well as the 1% AEP plus 45% climate change surface water extents. However, maximum depths for the 0.1% AEP event does not exceed 0.30m. The surface water hazard rating is classed as 'very low,' with some areas rated as 'danger for some.' A site-specific Flood Risk Assessment should be undertaken to evaluate accessibility to pedestrians and vehicles at these access points and this assessment should take account of the performance of the local drainage system, as this is not considered in the predictions shown in the surface water mapping

Climate Change	**Implications for the site**	Increased storm intensities due to climate change may increase the extent, depth, velocity, hazard and frequency of both fluvial and surface water flooding. **Fluvial** • Detailed fluvial modelling is available at the site from the River Lavant modelling of the defended 1% AEP +25%, +35% and 64% climate change scenarios. • For a 1% AEP plus 25% climate change defended scenario, the south-east portion of the site is flooded to a shallow depth up to 0.3m, with hazard mainly classed as 'low hazard,' with small areas as 'danger for some' and 'danger for most.' • For a 1% AEP plus 35% climate change defended scenario, the south-east portion of the site is also flooded, although this is to a deeper 0.4m, with hazard mainly classed as 'low hazard,' with small areas as 'danger for some' and 'danger for most.' • Finally, for a 1% AEP plus 64% climate change defended scenario, the south-east portion of the site is also flooded to a 0.6m depth, with hazard mainly classed as 'low hazard,' with small areas as 'danger for some' and 'danger for most.' • To maintain the existing standard of protection an appropriate commitment will have to be made to the maintenance and management of the River Lavant FAS or alternative provision made so the development is safe for the intended life. **Surface water** • With climate change (3.3% AEP plus 40% climate change; 1% AEP plus 45% climate change, Appendix B2.19), the extent of the site at risk of flooding from surface water does increase slightly, notably at the southern section of the site. However, flood depths and hazard ratings remain extremely similar to the present day scenarios.

Requirements for drainage control and impact mitigation	**Broad scale assessment of possible SuDS**	Site considerations: • The winterbourne river Lavant is adjacent to the northern and western site boundaries adjacent to Deanery Close (culverted adj. to Deanery Close?) • Stockbridge Road and Southgate are listed within the draft DWMP investment plan for internal flooding. • An infiltration reduction plan is under development for Chichester by Southern Water Development at this site should be implemented so as not to increase flood risk either on or off site now and in the future. The design of the surface water management proposals should take into account the impacts of future climate change over the projected lifetime of the development. The layout and function of drainage systems needs to be considered at the start of the design process for new development, as integration with road networks and other infrastructure can maximise the availability of developable land. Southern Water have confirmed that development will need to have regard to the Apuldram Position Statement and as a result, in order to demonstrate 'no net increase in flows' to the sewer network, surface water will not be permitted to connect to the foul or combined sewer. Due to the risk of contamination, Southern Water have confirmed that the efficacy of "on surface" SuDS may be an issue. There needs to be a focus on above ground rainwater management (e.g. green roofs) where the development can "slow the flow" of rainwater and also provide Biodiversity Net Gains. Southern Water have also confirmed that rainwater harvesting should be mandatory for local re-use, including grey water recycling. This will reduce the pressure on drainage and wastewater systems and avoid high future carbon costs. In turn this could contribute to net zero. Surface water discharge rates should not exceed pre-development discharge rates for the site and should be designed to be as close to greenfield runoff rates as reasonably practical in consultation with the LLFA. It may be possible to reduce site runoff by maximising the permeable surfaces on site using a combination of permeable surfacing and soft landscaping techniques. Planners should look for opportunities to daylight watercourses and reduce runoff into the watercourse. If a sustainable drainage system involves works on or near a river, flood defence or sea defence, separate permissions may be required from the Environment Agency or Lead Local Flood Authority.

NPPF and planning implications	**Exception Test requirements**	The Local Authority have carried out the Sequential Test in line with national guidance. The Sequential Test will need to be passed before the Exception Test is applied when it should also be demonstrated that the development will provide wider sustainability benefits to the community that outweigh flood risk. In the PPG, residential development is classified as 'more vulnerable' development, and commercial development as 'less vulnerable.' The proposed development should be sequentially located within Flood Zone 1 areas of the site. For the proposed residential development, the Exception Test is not required for proposed development in flood zones 1 and 2. However, the Exception Test is required if residential development is planned in the Flood Zone 3a sections of the site. For the proposed commercial development the Exception Test is not required in flood zones 1, 2 and 3a but it might still be necessary to prepare an FRA To demonstrate that the proposals are safe and do not have an adverse effect on third parties.

	Requirements and guidance for site-specific Flood Risk Assessment	**Flood Risk Assessment:** • At the planning application stage, a site-specific Flood Risk Assessment will be required if any development is located within Flood Zones 2 or 3 or is greater than one hectare. • Consultation with the Local Authority, Local Lead Flood Authority and the Environment Agency should be undertaken at an early stage. • All sources of flooding should be considered as part of a site-specific Flood Risk Assessment. • Any FRA should be carried out in line with the National Planning Policy Framework; Flood Risk and Coastal Change Planning Practice Guidance; Chichester District Council's Local Plan policies, Chichester District Council's **Surface Water and Drainage: Supplementary Planning Document** and **SuDS design guidance for developers** which was prepared by West Sussex County Council and other partners. • The development should be designed using a sequential approach. The most vulnerable development should be steered away from areas of fluvial flood risk in the south-east of the site, and surface water flood risk in the centre and south-east of the site, utilising these areas as water compatible development where possible. **Guidance for site design and making development safe:** • The site is currently not shown to be protected from fluvial flooding for the lifetime of the development (allowing for climate change) or from surface water flooding. Developers will need to show, through an FRA, that future users of the development will not be placed in danger from flood hazards throughout its lifetime and that flood risk is not exacerbated elsewhere. • The applicant must demonstrate that the development meets the objectives of the NPPF's policy on flood risk. • Safe access and egress will need to be demonstrated in the 1% AEP plus climate change fluvial and rainfall events, using the depth, velocity and hazard outputs. • Raising of access routes must not impact on surface water flow routes. • Resilience measures will be required if buildings are situated in the flood risk area or in the area at residual risk of flooding in a blockage scenario for culverted River Lavant. Raising Finished Floor Levels above the design event may remove the need for additional resilience measures. • The risk from surface water flow routes should be quantified as part of a site-specific FRA, including a drainage strategy, to ensure that runoff from the development is not increased by placing development across surface water flow routes. • New or re-development should adopt exemplar source control SuDS techniques to reduce the risk of flooding due to post-development runoff. Assessment for runoff should include allowances for increased peak rainfall intensities in line with UKCP18 climate change predications. • The existing site runoff rate should be fully attenuated to meet the requirements of the LLFA (**SuDS design guidance for developers**) and Chichester District Council's SPD (**Surface Water and Drainage: Supplementary Planning Document**). Consideration should be given to flow volumes and the implications

		with respect to cumulative impacts (refer to Appendix D).
		• Small scale source control measures at the building level should be considered to reduce the cumulative runoff rate in this urban catchment.
		• Developers should refer to West Sussex County Council's Surface Water Management Plan.
		• New development must seek opportunities to reduce overall level of flood risk at the site, for example by:
		  ○ Reducing volume and rate of runoff.
		  ○ Relocating development to zones with lower flood risk.
		  ○ Creating space for flooding.
		• Green infrastructure should be considered within the mitigation measures for surface water runoff from potential development and consider using Flood Zones 2 and 3 as public open space.

Key messages		The assessment indicates that the principle of development can be supported. The site is shown on the available modelling to be defended from fluvial flood risk for the present day 1% AEP flood, however future fluvial flooding is possible due to the impact of climate change during the lifetime of the development. The flood risk element of the Exception Test is likely to be passed if an appropriate commitment should be secured for the improvement of the River Lavant flood alleviation scheme to provide a standard of protection for the life time of the development that includes climate change. • Safe access and egress should be secured in areas at residual risk or in a climate change scenario. • On-site flood mitigation measures will be required to protect occupants for the lifetime of the development and allowing for climate change, in both climate change and residual risk scenarios. This may include raising Finished Floor Level and other forms of property flood resilience • Space for green infrastructure should be considered in the areas of highest flood risk. • Refer to Appendix C for groundwater flood risk considerations and Appendix D for cumulative impact considerations Refer to the detailed 'guidance for developers' section for further information on the measures that are appropriate for this site
Mapping Information		
The key datasets used to make planning recommendations regarding this site were the Chichester Lavant Flood Model, Environment Agency's 'Flood Map for Planning' and the 'Risk of Flooding from Surface Water' map. More details regarding data used for this assessment can be found below.		
Actual fluvial flood risk		Fluvial flood data is based on the 2018 Chichester Lavant Flood Model.
Climate change		The climate mapping was produced using the 2018 Chichester Lavant Flood Model, run for a present day 1% AEP flood event upscaled by 25%, 35% and 64% respectively.
Fluvial depth, velocity and hazard mapping		The fluvial depth, velocity and hazard mapping was produced using the 2018 Chichester Lavant Flood Model, run for a present day 1% AEP flood event.
Surface Water		The Environment Agency dataset 'Risk of Flooding from Surface Water' has been used to define areas at risk from surface water flooding.

Surface water depth, velocity and hazard mapping	The surface water depth, velocity and hazard mapping for the 1% AEP event (considered to be medium risk) is taken Environment Agency's Risk of Flooding from Surface Water dataset.
Groundwater	Refer to Appendix C.

Chichester District Council's Level 2 Strategic Flood Risk Assessment

Detailed Site Summary Tables

<table>
<tr><td rowspan="5">Site details</td><td>Site Code</td><td colspan="4">HWH0014</td></tr>
<tr><td>Address</td><td colspan="4">Land north of Maudlin Farm</td></tr>
<tr><td>Area</td><td colspan="4">14.1 ha</td></tr>
<tr><td>Current land use</td><td colspan="4">Greenfield</td></tr>
<tr><td>Proposed land use</td><td colspan="4">Residential</td></tr>
<tr><td rowspan="5">Sources of flood risk</td><td>Topography</td><td colspan="4">The site is reasonably flat, gently sloping from north to south with an average gradient 2%. Refer to mapping in Appendix B3.1.</td></tr>
<tr><td>Location of site within catchment</td><td colspan="4">The site is located within the upstream portion of the Pagham Rife Operational Catchment. It is within the Westhampnett suburb northeast of Chichester, between the City and Tangmere. The site lies adjacently to the A27 Arundel Road and Maudlin Farm, forming the southern boundary of the site. Both the north and west of the site is bounded by roads – specifically Dairy Lane to the West, and Old Arundel Road to the north.</td></tr>
<tr><td>Existing drainage features</td><td colspan="4">The site is located approximately 1km from the River Lavant
Localised drainage features include:
• A 0.3 ha pond to the south of the site.
• A mapped watercourse on the eastern site boundary, which is likely to be culverted under the Roman Road to the north and the A27 to the south. The precise location and diameter of the culvert are unknown. A watercourse map displaying this watercourse and likely culverted locations is available at the end of the report.
• A 20 ha lake 500m west of the site, and
• A 9.5 ha lake 200m south of the site.
Please see Appendix B3.2 for mapping</td></tr>
<tr><td rowspan="6">Fluvial</td><td colspan="4">Proportion of site at risk (Appendix B3.3)</td></tr>
<tr><td>FZ3b</td><td>FZ3a</td><td>FZ2</td><td>FZ1</td></tr>
<tr><td>0%</td><td>0%</td><td>0%</td><td>100%</td></tr>
<tr><td colspan="4">The % Flood Zones quoted show the % of the site at flood risk from that particular Flood Zone/event, including the percentage of the site at flood risk at a higher risk zone, e.g. FZ2 includes the FZ3 %. FZ1 is the remaining area outside FZ2 (FZ2 + FZ1 = 100%)</td></tr>
<tr><td colspan="4">Proportion of the site at risk in the defended scenario (Appendix B3.4)</td></tr>
<tr><td>3.3% AEP</td><td>1% AEP</td><td>0.1% AEP</td><td></td></tr>
<tr><td>0%</td><td>0%</td><td>0%</td><td></td></tr>
<tr><td colspan="4">Proportion reported are for the area of land occupied by each flood extent between larger or smaller return period events, and therefore not cumulative. Percentages rounded to the nearest 1%.</td></tr>
</table>

<table>
<tr><td></td><td></td><td>Available data:
The 2018 Chichester Lavant 1D-2D hydraulic model has been used to assess the fluvial flood risk to the site.
Flood characteristics:
Flood mapping indicates that the site is not at risk from fluvial flooding from the River Lavant or other modelled watercourses in the defended or undefended scenarios. The closest extents of Flood Zone 2, 3a and 3b are located approximately 200 metres south of the site.
The modelling shows the site is not predicted to flood in a defended fluvial event in the climate change scenarios.
The watercourse adjacent to the eastern site boundary has not been included in the Flood Map for Planning, however it has been partially resolved in the Risk of Flooding from Surface Water mapping.</td></tr>
<tr><td></td><td>Surface Water</td><td>
<table>
<tr><th colspan="3">Proportion of site at risk (RoFSW)</th></tr>
<tr><th>3.3% AEP</th><th>1% AEP</th><th>0.1% AEP</th></tr>
<tr><td>3%</td><td>7%</td><td>10%</td></tr>
<tr><td colspan="3">Max depths (m)</td></tr>
<tr><td>0.3-0.9m</td><td>0.3-0.9m</td><td>>0.9m</td></tr>
<tr><td colspan="3">Max velocity (m/s)</td></tr>
<tr><td><0.25</td><td>>0.25</td><td>>0.25</td></tr>
<tr><td colspan="3">The % SW extents quoted show the % of the site at surface water risk from that particular event, including the percentage of the site at flood risk at a higher risk zone (e.g. 1% AEP includes the 3.3% AEP %)</td></tr>
</table>
Description of surface water flow paths:
Risk of Flooding from Surface Water data for this site shows that areas in the north-east and south-west corners of the site are at risk of flooding in the 3.3%, 1% and 0.1% AEP surface water flood event as shown in Appendix B3.7

Modelled flooding in the northeast corner originates from the watercourse adjacent to the site boundary. This is shown in the modelled flood outline as a flow path flow paths which originates from Stane Street to the north of the site.

It is likely that the watercourse is culverted under the A27 which would not have been included as a feature in the modelling, causing modelled flows to back up north of the A27.

Surface water ponding is shown in the south-west corner of the site. This is largely limited to the existing pond in the present day 3.3% AEP event. In the 1% and 0.1% AEP event flooding of land on the southern boundary of the site is shown. The larger accumulation here may be connected to flow paths and lower lying land that cover the roadways and the farm and to the south of the site.</td></tr>
<tr><td></td><td>Groundwater</td><td>A separate assessment of groundwater flood risk has been undertaken for this site. Please see the Level 2 SFRA Report Appendix C.</td></tr>
</table>

Chichester District Council's Level 2 Strategic Flood Risk Assessment

Detailed Site Summary Tables

	Reservoir	The site is not shown to be at risk of reservoir flooding, as indicated mapping found in Appendix B1.12.
	Flood history	According to the Environment Agency's historic flooding and recorded flood outlines dataset, the south-west section of the site has previously flooded between December 1993 and January 1994 (Appendix B3.15). This flood event was caused by heavy rain in December that resulted in exceptionally high groundwater levels in the underlying chalk strata and during which the River Lavant exceeded its channel capacity, flooding the City of Chichester and surrounding areas. Additionally, West Sussex County Council records also include a reported flooding incident on the A27 Arundel Road approximately 500m from the site, although the cause of this incident has not been recorded.
Flood risk management infrastructure	**Defences**	There are no flood risk management features that affect the flood risk at the site
	Residual risk	There is a watercourse at the eastern site boundary which is likely culverted under highways to the north and south of the site. If the entrance to the culvert were to become blocked or collapse flooding may occur within the site. As the culverts are likely not included in the existing modelling, it is considered that the existing modelling is indicative of the residual risk. The pond within the site boundary is undefended and at the lowest point within the site. The residual risk of flooding from the pond within the site is therefore considered to be low.
Emergency planning	**Flood warning**	The site is partially covered by the Environment Agency's 'River Lavant' Flood Alert Area (065WAF413) and the 'Westhampnett on the River Lavant' (065FWF4603) Flood Warning Area.
	Access and egress	Access and egress at the site is possible via the northern section of Dairy Lane and Old Arundel Road. These sections do not flood during a 1% AEP plus 40% climate change surface water flood, nor a 1% AEP plus 64% climate change fluvial flood. The southern section of Dairy Lane would not be suitable for access and egress during a flood, as this area is susceptible to high flood depths (up to 1.2m) during a 1% AEP surface water flood.

Climate Change	**Implications for the site**	• Increased storm intensities due to climate change may increase the extent, depth, velocity, hazard and frequency of surface water flooding. • Climate change should also be considered for surface water events; at the site-specific stage, the 1% AEP +45% event is considered as part of surface water drainage strategies, or surface water modelling. This extends along the northeast and southwest of the site with a similar extent, depth, velocity and hazard to the present-day scenarios as shown in Appendix B3.8. • This would require a detailed FRA to assess the site layout and design. • Developers should consider SuDS strategies to reduce the impacts of climate change from surface water in a detailed site-specific FRA.

Requirements for drainage control and impact mitigation	**Broad scale assessment of possible SuDS**	Implementation of SuDS at the site could provide opportunities to deliver multiple benefits including volume control, water quality, amenity and biodiversity. Evidence should be provided where multiple benefits are not provided to show that this is not possible. Preference should be given to multi-functional sustainable drainage systems, and to solutions that allow surface water to be discharged according to the hierarchy of drainage options listed in the PPG Flood Risk and Coastal Change paragraph 056. The layout and function of drainage systems needs to be considered at the start of the design process for new development, as integration with road networks and other infrastructure can maximise the availability of developable land. **Site considerations** • A mapped watercourse is present adjacent to the eastern site boundary. **Suitability and considerations for sustainable drainage** Refer to Appendix C for groundwater flood risk considerations. Detention and attenuation features should be designed to prevent groundwater ingress from impacting structural capacity and structural integrity. This may include groundwater monitoring to demonstrate that sufficient headroom is present between the base of development and groundwater levels. Shallow source control methods may be appropriate for this site. Pollution protection in the unsaturated soil layer cannot be assumed in this case. Due to the risk of contamination, Southern Water have confirmed that the efficacy of "on surface" SuDS may be an issue. There needs to be a focus on above ground rainwater management (e.g. green roofs) where the development can "slow the flow" of rainwater and also provide Biodiversity Net Gains. Southern Water have also confirmed that rainwater harvesting should be mandatory for local re-use, including grey water recycling. This will reduce the pressure on drainage and wastewater systems and avoid high future carbon costs. In turn this could contribute to net zero. In the absence of site-specific flood modelling, a precautionary approach should be taken with all sustainable drainage features outside of the 1% annual probability flood outline for surface water allowing for climate change. The LPA should be satisfied that minimum standards of operation for the proposed sustainable drainage system are appropriate, and that there are clear maintenance and adoption arrangements in place for the lifetime of the development. Where cost is a reason for not including sustainable drainage systems, provide information to enable comparison with the lifetime costs of a conventional public sewer connection. If it is shown through site investigation work such as infiltration testing and borehole monitoring that infiltration is not feasible for this site, it may be possible to connect to the watercourse adjacent to the site boundary, however the natural drainage

		routes and catchments should be considered such that existing flow volumes and discharge rates are not exceeded. If it is proposed to discharge runoff to a watercourse or sewer system, the condition and capacity of the receiving watercourse or asset should be confirmed through surveys and the discharge rate agreed with the asset owner.
NPPF and planning implications	**Exception Test requirements**	The development is within Flood Zone 1 according to the Flood Map for Planning and therefore the Exception Test does not need to be met as the Sequential Test for Main Rivers and the sea has been passed. A Flood Risk Assessment should be carried out to understand the measures required to address groundwater and cumulative flood risk, as identified in Appendices C and D respectively Areas of high surface water flood risk have been located on the northeast and southwest boundaries. The applicant should demonstrate, through a site-specific FRA, how a sequential approach to development will be taken to avoid flood risks from all sources of flooding.

	Requirements and guidance for site-specific Flood Risk Assessment	**Flood Risk Assessment:** • A site-specific FRA is recommended for this site to determine the extent of flooding from watercourse in the northeast corner and potential for groundwater. • All sources of flooding should be considered. • Consultation with the Local Authority and the Local Lead Flood Authority should be undertaken at an early stage. • Any FRA should be carried out in line with the National Planning Policy Framework; Flood Risk and Coastal Change Planning Practice Guidance; Chichester District Council's Local Plan policies, and Chichester District Council's **Surface Water and Drainage: Supplementary Planning Document** and **SuDS design guidance for developers** which was prepared by West Sussex County Council and other partners. • The development should be designed using a sequential approach. The watercourse to the east of the site is currently not included in the Flood Map for Planning and therefore flood zones are not currently available for this site. The generalised modelling methodology used for the Risk of Flooding from Surface Water mapping means that the channel and the culverts under Stane Street and the A27 are not well defined. Modelling of the watercourse is recommended to refine the flood outlines generated in the Risk of Flooding from Surface Water mapping which are the current best available information for flooding from this watercourse. Early engagement and clarification from the Highway Authority should be undertaken. • Development should be steered away from areas of surface water flooding preserving these spaces as green infrastructure. Development must be in line with NPPF Annex 3: Flood risk vulnerability classification. **Guidance for site design and making development safe:** • Safe access and egress from the site is likely to be achievable at this site given the location and limited extent of surface water flooding shown in the available data. • A drainage strategy should help inform site layout and design demonstrating that current greenfield runoff rates and volumes have not increased. • On site attenuation schemes would need to be tested to ensure flows are not exacerbated downstream within the catchment. If a connection is made to the watercourse to the east of the site, the capacity of the culvert downstream of the site should be assessed to demonstrate that the surface water drainage strategy can be achieved as there is the potential for submersion of the outfall. • New or re-development should adopt exemplar source control SuDS techniques to reduce the risk of frequent low impact flooding due to post-development runoff. Assessment for runoff should include allowance for climate change effects. • Developers should refer to West Sussex County Council's Surface Water Management Plan • Green infrastructure should be considered within the mitigation measures for surface water runoff from potential development and consider using areas at risk of surface water flooding as public open space.

		• Consideration should be given to flow volumes and the implications with respect to cumulative impacts (refer to appendix D) • Refer to groundwater requirements in Appendix C
Key messages		The Flood Map Planning shows the site is in Flood Zone 1 for Main Rivers and the Sea, therefore the site passes the Sequential Test for these sources of flooding. The Risk of Flooding from Surface Water mapping shows flooding to the site is possible in the southwest and northeast corners of the site. The extent and location of flooding is unlikely to significantly impact on the viability of the site. Consideration must be given to all sources of flood risk. A sequential approach to development should be taken, demonstrating that development is located in areas at the lowest risk of flooding within the site boundary. There is uncertainty in the extent of flooding in the northeast of the site due to limitations in the modelling approach. Site specific modelling of the watercourse adjacent to the site and the associated culverts would allow for greater confidence in the predicted flood extents, depths and velocities. Space for green infrastructure should be considered in the areas of highest surface water flood risk.
Mapping Information		
The key datasets used to make planning recommendations regarding this site were the Chichester Lavant Flood Model, Environment Agency's 'Flood Map for Planning' and the 'Risk of Flooding from Surface Water' map. More details regarding data used for this assessment can be found below.		
Flood Zones		Flood Zones 2, 3a and 3b originate from the Environment Agency's 'Flood Map for Planning' dataset, which is based on the 2018 Chichester Lavant Flood Model.
Climate change		The climate mapping was produced using the 2018 Chichester Lavant Flood Model, run for a present day 1% AEP (1-in-100 year) flood event upscaled by 25%, 35% and 64% respectively.
Fluvial depth, velocity and hazard mapping		The fluvial depth, velocity and hazard mapping was produced using the 2018 Chichester Lavant Flood Model, run for a present day 1% AEP (1-in-100 year) flood event.
Surface Water		The Environment Agency dataset 'Risk of Flooding from Surface Water' has been used to define areas at risk from surface water flooding.
Surface water depth, velocity and hazard mapping		The surface water depth, velocity and hazard mapping for the 1% AEP (considered to be medium risk) is taken Environment Agency's Risk of Flooding from Surface Water dataset.
Groundwater		Refer to Appendix C.

Chichester District Council's Level 2 Strategic Flood Risk Assessment

Detailed Site Summary Tables

<table>
<tr><td rowspan="5">Site details</td><td>Site Code</td><td colspan="4">AL6</td></tr>
<tr><td>Address</td><td colspan="4">Land south of Bognor Road</td></tr>
<tr><td>Area</td><td colspan="4">19.5 ha.</td></tr>
<tr><td>Current land use</td><td colspan="4">Agricultural</td></tr>
<tr><td>Proposed land use</td><td colspan="4">Employment (mainly industrial and logistics)</td></tr>
<tr><td rowspan="4">Sources of flood risk</td><td>Topography</td><td colspan="4">The site is reasonably flat, gently sloping from North to South with an average gradient of 1 in 80 (equivalent to 1.3%). Refer to mapping in Appendix B4.1.</td></tr>
<tr><td>Location of site within catchment</td><td colspan="4">The site is located within the upstream portion of the Pagham Rife Operational Catchment to the South-East of Chichester, between the City and Bognor Regis.

The north and east of the site are boarded by the A259 Bognor Road as well as Brick Kiln Farm and Garden Centre. The western site boundary borders Vinnetrow Road. Agricultural fields border the site at the southern boundary.</td></tr>
<tr><td>Existing drainage features</td><td colspan="4">The nearest main river to the site is Pagham Rife, located 250m to the South-West of the site. Additionally, there are several lakes, as follows:
The 1.5ha Peckham Lake, 1.8ha Leythorne Lake and 5.7ha Vinnetrow Lake are situated on the western boundary of the site adjacent to Vinnetrow Road. These artificial lakes are associated with historic gravel extraction around Quarry Lane and the A27 Chichester Bypass.
Two mapped artificial lakes (approximately 9ha and 8.3ha) are situated on the northern boundary of the site adjacent to the opposite side of the A259 Bognor Road
Please see Appendix B4.2 for mapping</td></tr>
<tr><td>Fluvial</td><td colspan="4">Proportion of site at risk (Appendix B4.3)<table><tr><th>FZ3b</th><th>FZ3a</th><th>FZ2</th><th>FZ1</th></tr><tr><td>0%</td><td>0%</td><td>0%</td><td>100%</td></tr></table>As there are no flood risk management features that affect flood risk the Flood Zones also describe the actual risk. The % Flood Zones quoted show the % of the site at flood risk from that particular Flood Zone/event, including the percentage of the site at flood risk at a higher risk zone, e.g. FZ2 includes the FZ3 %. FZ1 is the remaining area outside FZ2 (FZ2 + FZ1 = 100%)
Proportion of the site at risk in the defended scenario (Appendix B4.4)<table><tr><th>3.3% AEP</th><th>1% AEP</th><th>0.1% AEP</th></tr><tr><td>0%</td><td>0%</td><td>0%</td></tr></table>Proportion reported are for the area of land occupied by each flood extent between larger or smaller return period events, and therefore not cumulative. Percentages rounded to the nearest 1%.</td></tr>
</table>

Chichester District Council's Level 2 Strategic Flood Risk Assessment

Detailed Site Summary Tables

<table>
<tr><td rowspan="8"></td><td></td><td>Available data:
The 2018 Chichester Lavant 1D-2D hydraulic model has been used to assess the fluvial flood risk to the site.

Flood characteristics:
Flood mapping indicates that the site is not at risk from fluvial flooding from the River Lavant or other modelled watercourses in the defended or undefended scenarios. The closest extents of flood zone 2, 3a and 3b are located approximately 200 metres south of the site.</td></tr>
<tr><td rowspan="7">Surface Water</td><td>
<table>
<tr><th colspan="3">Proportion of site at risk (RoFSW)</th></tr>
<tr><th>3.3% AEP</th><th>1% AEP</th><th>0.1% AEP</th></tr>
<tr><td>0%</td><td>0%</td><td>2%</td></tr>
<tr><td colspan="3">Max depths (m)</td></tr>
<tr><td>0.3-0.9m</td><td>0.3-0.9m</td><td>>0.9m</td></tr>
<tr><td colspan="3">Max velocity (m/s)</td></tr>
<tr><td><0.25</td><td>>0.25</td><td>>0.25</td></tr>
</table>
</td></tr>
<tr><td>The % SW extents quoted show the % of the site at surface water risk from that particular event, including the percentage of the site at flood risk at a higher risk zone (e.g. 1% AEP includes the 3.3% AEP %)</td></tr>
<tr><td>Description of surface water flow paths:
Risk of Flooding from Surface Water data for this site (Appendix B4.7) shows that the site is almost entirely free of surface water flood risk in the 3.3%, 1% and 0.1% AEP present day extents. Small areas of ponding accumulation are present across the site in areas of low-lying topography, a drainage channel in the south-west of the site, and small areas in the east of the site.</td></tr>
<tr><td>Groundwater</td><td>A separate assessment of groundwater flood risk has been undertaken for this site. Please see the Level 2 SFRA Report Appendix C.</td></tr>
<tr><td>Reservoir</td><td>The site is not shown to be at risk of reservoir flooding, as indicated in Appendix B4.14</td></tr>
<tr><td>Flood history</td><td>According to West Sussex County Council data and Environment Agency's Historic Flooding and Recorded Flood Outlines dataset there have been no recorded incidents at or within 800m of the site as shown in Appendix B4.15.</td></tr>
<tr><td rowspan="2">Flood risk management infrastructure</td><td>Defences</td><td>There are no flood risk management features that affect the flood risk at the site</td></tr>
<tr><td>Residual risk</td><td>No residual risk from breach or overtopping of flood defences have been identified at this site</td></tr>
<tr><td rowspan="2">Emergency planning</td><td>Flood warning</td><td>This site is not located within the Environment Agency's Flood Warning or Flood Alert areas.</td></tr>
<tr><td>Access and egress</td><td>Access and egress at this site is possible via a gateway off an unnamed road, which links to the A259 to the north or Vinnetrow Road to the west. These routes are not within surface water flood extents.</td></tr>
</table>

Climate Change	**Implications for the site**	• Detailed fluvial modelling is available from the Lavant river modelling for the 1% AEP +25%, +35% and +64% climate change scenarios. These scenarios show no predicted flooding at this site. • Climate change should also be considered for surface water events; the 1% AEP +45% and 3.3% AEP +40% climate change scenarios show minimal increases in flood extents, depths and velocities and the overall risk of surface water flooding remains low in climate change scenarios. • Developers should consider SuDS strategies to reduce the impacts of climate change from surface water in a detailed site-specific FRA.

Requirements for drainage control and impact mitigation	**Broad scale assessment of possible SuDS**	Implementation of SuDS at the site could provide opportunities to deliver multiple benefits including volume control, water quality, amenity, and biodiversity. Evidence should be provided where multiple benefits are not provided to show that this is not possible. Preference should be given to multi-functional sustainable drainage systems, and to solutions that allow surface water to be discharged according to the hierarchy of drainage options listed in the PPG Flood Risk and Coastal Change paragraph 056. The layout and function of drainage systems needs to be considered at the start of the design process for new development, as integration with road networks and other infrastructure can maximise the availability of developable land. **Site Considerations:** • Historic gravel extraction and multiple lakes in surrounding area. • Superficial river terrace deposits. • No channels or drainage ditches identified within or adjacent to site boundary. • BGS online borehole logs indicate a resting water level of 2.04m BGL. • Secondary A Aquifer. • Nitrate Vulnerable Zone. • Low Groundwater vulnerability. • Groundwater flood risk mapping shows medium/low risk **Suitability and considerations for sustainable drainage** Refer to Appendix C for considerations with respect to groundwater flood risk. Detention and attenuation features should be designed to prevent groundwater ingress from impacting hydraulic capacity and structural integrity. Due to the risk of contamination, Southern Water have confirmed that the efficacy of "on surface" SuDS may be an issue. There needs to be a focus on above ground rainwater management (e.g. green roofs) where the development can "slow the flow" of rainwater and also provide Biodiversity Net Gains. Southern Water have also confirmed that rainwater harvesting should be mandatory for local re-use, including grey water recycling. This will reduce the pressure on drainage and wastewater systems and avoid high future carbon costs. In turn this could contribute to net zero. Below ground development is not appropriate at this site. Groundwater may be encountered during site preparation works and construction methodologies should account for this possibility. There are no watercourses within or adjacent to this site. Should infiltration not be possible permission would need to be sought from landowners for infrastructure to cross third party land.
NPPF and planning implications	**Exception Test requirements**	The Flood Map for Planning shows the site entirely in flood zone 1 and therefore is at very low risk of flooding from Main rivers and the sea, therefore the Exception Test will not be required for these sources of flood risk.

		The Risk of Flooding from Surface Water mapping shows that the site is generally at very low risk of flooding from surface water with no surface water flow routes shown in the modelling. A site specific FRA will be required to address drainage, groundwater, cumulative effects and climate change matters.
	Requirements and guidance for site-specific Flood Risk Assessment	**Flood Risk Assessment:** • At the planning application stage, a site-specific Flood Risk Assessment will be required as the site is greater than one hectare. • Consultation with the Local Lead Flood Authority should be undertaken at an early stage regarding surface water drainage requirements • The FRA should be carried out in line with the National Planning Policy Framework; Flood Risk and Coastal Change Planning Practice Guidance; Chichester District Council's Local Plan policies, and Chichester District Council's **Surface Water and Drainage: Supplementary Planning Document** and **SuDS design guidance for developers** which was prepared by West Sussex County Council and other partners. **Guidance for site design and making development safe:** • A drainage strategy should help inform site layout and design to ensure there is no increase in runoff beyond the current greenfield rates. • On site attenuation schemes would need to be tested to ensure flows are not exacerbated downstream within the catchment. • Developers should refer to West Sussex County Council's Surface Water Management Plan • Consideration should be given to flow volumes and the implications with respect to cumulative impacts (refer to appendix D) • Refer to groundwater requirements in Appendix C.
Key messages		Flood risk from fluvial and surface water flooding is considered to be very low for this development. Refer to the requirements to address groundwater flood risk in Appendix C and cumulative impacts in Appendix D. Additionally, there are opportunities to incorporate source control techniques such as green roofs, permeable surfaces and rainwater harvesting which could be considered in the design of the site. A surface water drainage strategy should be prepared detailing how methods for the sustainable drainage of surface water from the site. The strategy should follow the drainage hierarchy in line with national local planning policies and guidance. The strategy should be fully integrated into planning of the site at an early stage.

Chichester District Council's Level 2 Strategic Flood Risk Assessment

Detailed Site Summary Tables

Mapping Information	
The key datasets used to make planning recommendations regarding this site were the Chichester Lavant Flood Model, Environment Agency's 'Flood Map for Planning' and the 'Risk of Flooding from Surface Water' map. More details regarding data used for this assessment can be found below.	
Flood Zones	Flood Zones 2, 3a and 3b originate from the Environment Agency's 'Flood Map for Planning' dataset, which is based on the 2018 Chichester Lavant Flood Model.
Climate change	The climate mapping was produced using the 2018 Chichester Lavant Flood Model, run for a present day 1% AEP (1-in-100 year) flood event upscaled by 25%, 35% and 64% respectively.
Fluvial depth, velocity and hazard mapping	The fluvial depth, velocity and hazard mapping was produced using the 2018 Chichester Lavant Flood Model, run for a present day 1% AEP (1-in-100 year) flood event.
Surface Water	The Environment Agency dataset 'Risk of Flooding from Surface Water' has been used to define areas at risk from surface water flooding.
Surface water depth, velocity and hazard mapping	The surface water depth, velocity and hazard mapping for the 1 in 100-year event (considered to be medium risk) is taken Environment Agency's Risk of Flooding from Surface Water dataset.
Groundwater	Refer to Appendix C

Chichester District Council's Level 2 Strategic Flood Risk Assessment

Detailed Site Summary Tables

Site details	**Site Code**	**HSY0010b**
	Address	Land West of Park Farm, Selsey
	Area	11.8 ha
	Current land use	Agricultural.
	Proposed land use	Residential.
Sources of flood risk	**Topography**	The site is on a slight ridge but generally low lying, with LiDAR DTM showing heights between approximately 4.8m AOD and 8.6m AOD. The site is generally flat, with an average gradient of 1 in 120 (0.8%) sloping from the south-east to the north-west. The slope in the northern part of the site is generally steeper than in the southern part of the site. Refer to mapping in Appendix B5.1.
	Location of site within catchment	The site is located within the town of Selsey to the south of Chichester within the upstream portion of the Broad Rife River Catchment. The B2145 Chichester Road is adjacent to the north and eastern borders of the site. Adjacent to the southern edge of the site is a residential development on Golf Links Lane. A watercourse is included on Ordnance Survey mapping adjacent to the west and north-west of the site. This is considered to be a drainage ditch. Refer to watercourse mapping in Appendix B5.2 for further context.
	Existing drainage features	The nearest main river to the site is Broad Rife watercourse, approximately 900m west of the site. A 500m-long drainage ditch is situated parallel to the north western border of the site, stretching from the north-west corner of the site at Norton Corner to the south-west. This ditch is connected to another small drainage ditch on the south-west edge of the site, perpendicular to the site's border and travelling westward towards the Selsey Golf Club.
	Tidal	**Proportion of site at risk (Appendix B5.3)**

FZ3b	**FZ3a**	**FZ2**	**FZ1**
0%	0%	0%	100%

The % Flood Zones quoted show the % of the site at flood risk from that particular Flood Zone/event, including the percentage of the site at flood risk at a higher risk zone, e.g. FZ2 includes the FZ3 %. FZ1 is the remaining area outside FZ2 (FZ2 + FZ1 = 100%)

Chichester District Council's Level 2 Strategic Flood Risk Assessment

Detailed Site Summary Tables

<table>
<tr><td rowspan="11"></td><td></td><td colspan="3">Available data:
The Flood Zones and actual flood risk have been based on the updated Arun to East Head Tidal Model which was undertaken as part of the Level 1 SFRA. Predicted present day defended flood extents can be found in Appendix B5.4 which show the site is not predicted to be at risk of flooding from tidal sources.

Flood characteristics:
The present day actual flood risk data indicates that the site is not at risk from tidal flooding. The closest extents of the 0.1% AEP flood extent is located approximately 430m metres south-east of the site.</td></tr>
<tr><td rowspan="9">Surface Water</td><td colspan="3">Proportion of site at risk (RoFSW)</td></tr>
<tr><td>3.3% AEP</td><td>1% AEP</td><td>0.1% AEP</td></tr>
<tr><td>0%</td><td>0%</td><td>1%</td></tr>
<tr><td colspan="3">Max depths (m)</td></tr>
<tr><td>0.3-0.9m</td><td>0.3-0.9m</td><td>>0.9m</td></tr>
<tr><td colspan="3">Max velocity (m/s)</td></tr>
<tr><td><0.25</td><td>>0.25</td><td>>0.25</td></tr>
<tr><td colspan="3">The % SW extents quoted show the % of the site at surface water risk from that particular event, including the percentage of the site at flood risk at a higher risk zone (e.g. 1% AEP includes the 3.3% AEP)</td></tr>
<tr><td colspan="3">Description of surface water flow paths:
Risk of Flooding from Surface Water data (Appendix B5.20) for this site shows that the majority of the site is free of surface water flood risk in the 3.3%, 1%, and 0.1% AEP extents (present day).

Isolated areas of ponding in the south of the site are shown in the 0.1% AEP surface water extent. The ditch on the northwest boundary of the site is also represented in the 0.1% AEP surface water mapping.</td></tr>
<tr><td>Groundwater</td><td colspan="3">A separate assessment of groundwater flood risk has been undertaken for this site. Please see the Level 2 SFRA Report Appendix C.</td></tr>
<tr><td>Reservoir</td><td colspan="3">The site is not shown to be at risk of reservoir flooding, as indicated in Appendix B5.27</td></tr>
<tr><td>Flood history</td><td colspan="3">According to the Environment Agency's Historic Flooding and Recorded Flood Outlines dataset there have been no recorded flooding incidents at this site as shown in Appendix B5.28. Additionally, whilst Selsey has been flooded according to the West Sussex County Council database, none of these have floods have impacted the site.</td></tr>
<tr><td>Flood risk management infrastructure</td><td rowspan="3">Defences</td><td>Defence Type</td><td>Standard of Protection</td><td>Condition</td></tr>
<tr><td>Embankment</td><td>5% AEP</td><td>'Fair'</td></tr>
<tr><td>Embankment</td><td>1% AEP</td><td>'Fair'</td></tr>
</table>

		Coastal flood defences at Selsey provide a measure of protection to surrounding land from flooding from the sea, however, as the land at the site is slightly elevated above surrounding areas these measures do not affect the risk at the site. However, there are two embankments (one with a 5% AEP standard of protection stretching 2km, and the other with 1% AEP standard of protection stretching 0.5km) extending 2.5km protecting the B2145 Chichester Road. The location of these defences can be found in Appendix B5.29. These defences are important because they protect the main access road out of Selsey (see 'Access and Egress' section for further details).
	Residual risk	If the network of small drainage ditches in close proximity of the site became blocked, the surface water drainage within the site would be affected, potentially causing surface water flooding within the site. The residual risk of failure or overtopping of the coastal defences would potentially result in flooding of the B2145.
	Flood warning	The site is not located within the Environment Agency's Flood Alert or Flood Warning Areas.

Emergency planning	**Access and egress**	Selsey is considered to be a dry island in the event tidal flooding. Therefore, whilst the risk of flooding to the site itself is low, consideration must be given to the ability of emergency services to reach the site, or for residents to seek help should flooding occur in line with paragraph 047 of the PPG Flood Risk and Coastal Change. The B2145 (Chichester Road) forms the main access road into Selsey, located approximately 1.5 kilometres north-west of the site. However, during a tidal flood event, maximum flood depths on the road for a defended tidal flooding event are: • No flooding along the road in a 5% AEP flood event as shown in Appendix B5.5. • Shallow flood depths (up to 0.1m) during a 0.5% AEP flood event (Appendix B5.6), with hazard rated as 'danger for some' (Appendix B5.16). • Considerable flooding across most of the road during a 0.1% AEP flood event, with flood depths up to 1.5m (Appendix B5.7) and hazard rated as 'danger for most' (Appendix B5.17) • Extensive flooding across most of the road during the 2121 Higher Central 0.5% AEP climate change flood event, with flood depths up to 2.0m (Appendix B5.8) and hazard rated as 'danger for all' (Appendix B5.18). • Extensive flooding across most of the road during the 2121 Upper End 0.5% AEP climate change event, with flood depths of up to 2.6m (Appendix B5.9) and hazard rated as 'danger for all' (Appendix B5.19). The Sussex Resilience Forum's Multi-Agency Selsey Flood Plan states the road could be flooded for 4-6 hours over the period of high tide and depending on the depth and flow of water the road could be damaged by flooding. As stated in paragraph 044 of the PPG Flood Risk and Coastal Change, the practicality of safe evacuation from such areas will depend on: • The type of risk present and the extent to which advance flood warning can be given in a flood event. • The number of people that would require evacuation from the area potentially at risk. • The adequacy of both evacuation routes and identified places that people from evacuated places use/are taken to (taking account of the length of time the evacuation may need to last). • Sufficiently detailed and up-to-date multi-agency flood plans being in place for the locality. The Emergency Planning Officer should be consulted prior to allocation of this site due to the potential impact, or refer to any local guidelines which set out requirements for flood warning, evacuation and places of safety against which the application can be judged. Developers should seek to minimise reliance on emergency services to make development safe. Consideration should also be given to the predicted duration of flooding and the likely impacts of flooding on essential services.
Climate Change	**Implications for the site**	Increased storm intensities due to climate change may increase the extent, depth, velocity, hazard and frequency of tidal and surface water flooding. **Tidal** • In line with guidance on the use of climate change allowances at GOV.UK, flood risk assessment and strategic

		flood risk assessments should assess both the higher central and upper end allowances. • Detailed tidal modelling is available at the site from the Arun to East Head Tidal modelling of the 0.5% AEP higher central and upper end climate change scenarios. The higher central and upper end scenarios do not affect the site. • However, access to and from the site is an important consideration as this is severely limited during climate change scenarios (see 'access and egress' section for more details). **Surface water** • The site is also not within the 1% AEP +45% and 3.3% AEP +40% Risk of Flooding from Surface Water climate change scenario (Appendix B5.21)

Requirements for drainage control and impact mitigation	**Broad scale assessment of possible SuDS**	Preference should be given to multi-functional sustainable drainage systems and to solutions that allow surface water to be discharged according to the hierarchy of drainage options listed in the PPG Flood Risk and Coastal Change paragraph 056. The layout and function of drainage systems needs to be considered at the start of the design process for new development, as integration with road networks and other infrastructure can maximise the availability of developable land. The site is situated upon sand silt and clay bedrock with superficial river terrace deposits, indicating that infiltration to ground may be possible in this area. Site specific infiltration testing should be undertaken to demonstrate infiltration rates for sustainable drainage design. For details of provisions to be made with respect to groundwater flood risk refer to Appendix C. The site slopes towards a ditch on the northern edge of the land parcel. Should infiltration rates be too low, or groundwater levels too high for effective infiltration to occur, the discharge water to a watercourse may be considered. The condition and capacity of the receiving watercourse or asset should be confirmed through surveys and the discharge rate agreed with the asset owner. Although the site is not situated within a Source Protection Zone (SPZ) this site is in close proximity to Pagham Harbour, a designated SSSI/Ramsar site. Prior to infiltration or discharge from the site, an appropriate treatment train should be implemented. Due to the risk of contamination, Southern Water have confirmed that the efficacy of "on surface" SuDS may be an issue. There needs to be a focus on above ground rainwater management (e.g. green roofs) where the development can "slow the flow" of rainwater and also provide Biodiversity Net Gains. Southern Water have also confirmed that rainwater harvesting should be mandatory for local re-use, including grey water recycling. This will reduce the pressure on drainage and wastewater systems and avoid high future carbon costs. In turn this could contribute to net zero. The Local Planning Authority should be satisfied that the minimum standard of operation for the proposed sustainable drainage system are appropriate and that there are clear maintenance and adoption arrangements in place for the lifetime of the development. Where sustainable drainage is not proposed on cost grounds, the applicant should provide information to enable comparison with the lifetime costs of a conventional public sewer system.
NPPF and planning implications	**Exception Test requirements**	The Local Authority have carried out the Sequential Test in line with national guidance. The Sequential Test will need to be passed before the Exception Test is applied. The site is situated within Flood Zone 1 for risk of flooding from main rivers and the sea and is not shown to be at risk of surface water. Additionally, the sites proposed usage is residential, which is classed as 'more vulnerable' infrastructure. However,

		as the site is a dry island and safe access and egress is affected by residual risk and climate change consideration should be given to the Exception Test. As the site is greater than 1ha in size, a flood risk assessment is required.
	Requirements and guidance for site-specific Flood Risk Assessment	**Flood Risk Assessment:** • Any FRA should be carried out in line with the National Planning Policy Framework; Flood Risk and Coastal Change Planning Practice Guidance; Chichester District Council's Local Plan policies, and Chichester District Council's **Surface Water and Drainage: Supplementary Planning Document** and **SuDS design guidance for developers** which was prepared by West Sussex County Council and other partners. All sources of flooding should be considered as part of a site-specific Flood Risk Assessment. • Consultation with the Local Authority, the Environment Agency, and the Sussex Flood Resilience Forum should be undertaken at an early stage regarding any emergency planning implications of the site and the wider Selsey area. **Guidance for site design and making development safe:** • The developer will need to show, through an FRA, that future users of the development will not be placed in danger from flood hazards throughout its lifetime • The applicant must demonstrate that the development meets the objectives of the NPPF's policy on flood risk. • Safe access and egress will need to be demonstrated as the B2145 road to the northwest of the site is flooded during the tidal climate change events. This should be considered in line with local emergency response plans and following consultation with the emergency planning team. • Raising of access routes must not impact on surrounding surface water flow routes. Consideration should be given to the siting of access points with respect to areas of surface water flood risk. • Surface water runoff should be fully attenuated to the greenfield rate. Assessment for runoff should include allowance for climate change effects. • Developers should refer to West Sussex County Council's Surface Water Management Plan. • The assessment should address the groundwater flood risk matters identified in Appendix C.

Chichester District Council's Level 2 Strategic Flood Risk Assessment

Detailed Site Summary Tables

Key messages	For the flood risk element of the Exception Test to be satisfied: • Safe access and egress must be achieved as the B2145 road to the north of the site is within the modelled tidal flood extent. • The matters identified in the detailed 'guidance for developers' section for further information on the measures that are appropriate for this site should be addressed. • The groundwater flood risk matters identified in Appendix C must be addressed
Mapping Information	
The key datasets used to make planning recommendations regarding this site were the Environment Agency's Flood Map for Planning and the Risk of Flooding from Surface Water map. More details regarding data used for this assessment can be found below.	
Flood Zones	Flood Zones 2, 3a and 3b are based on the updated Arun to East Head Coastal Model undertaken in 2022 as part of the Level 1 SFRA.
Climate change	The climate change mapping was produced using the updated 2022 Arun to East Head Model, run for the 2121 0.5% AEP (1-in-200 year) Higher Central and Upper End climate change events.
Tidal depth, velocity, and hazard mapping	The tidal depth, velocity and hazard mapping was produced using the updated 2022 Arun to East Head Model, run for the present day 5% (1-in-20 years), 0.5% (1-in-200 years), 0.1% AEP (1-in-1000 year) flood events and the 0.5% AEP (1-in-200 year) Higher Central and Upper End climate change events.
Surface Water	The Environment Agency dataset 'Risk of Flooding from Surface Water' has been used to define areas at risk from surface water flooding.
Surface water depth, velocity and hazard mapping	The surface water depth, velocity and hazard mapping for the 0.1% AEP (1 in 100-year event) (considered to be medium risk) is taken Environment Agency's Risk of Flooding from Surface Water dataset.
Groundwater	Please see Appendix C for further details.