

Charlton Riverside - Greenwich Shopping Park, Maritime Industrial Estate and Makro

Summary Information	
Site Reference	P3-C3
Address	Bugsby's Way, New Charlton, London SE7
Area (ha)	11.7
Current Use	Retail, (comparison and convenience), cash and carry wholesaler, surface level parking.
Current Vulnerability	Less Vulnerable
Proposed Use	Residential led, with light industrial (including affordable workspace) and commercial uses.
Proposed Vulnerability	More Vulnerable

Current Risk Summary					
Fluvial / Tidal			Groundwater		
FZ2	13.99	% of site	Limited potential for flooding to occur	29.54	% of site
FZ3a	86.01	% of site	Potential for flooding of properties below ground level	70.46	% of site
FZ3b	0.00	% of site	Potential for flooding to occur at surface	0.00	% of site
Surface Water			Sewer Flooding		
High	20.80	% of site	Number of incidents within the predominant postcode	20 - 30	
Medium	26.32	% of site	Is the site located within the Thamesmead area?	No	
Low	51.99	% of site			
Flood Defences			Flood Warning Area		
The site is at risk of flooding from rivers taking into account the presence and condition of flood defences according to the EA's RoFRS layer.			The EA Flood Warning Service is available at this site.		

See webmap supporting assessment: [Greenwich - Level 1 and 2 SFRA](#)



1.1 Tidal

Description of Flood Mechanism
The site is at risk of tidal breach flooding from the River Thames which is located approximately 500m north of the site at its closet point. - During the 2005 Thames Upriver modelled event, tidal flood risk is concentrated in the southeastern and western areas of the site, and along the southern boundary. - During the 2100 Thames Upriver modelled event, the 2005 extent extends slightly further into the site in the western section, and further north from the southeastern area of the site. - During the 1 in 200 year (2005) Thames Downriver modelled event, tidal flood risk is concentrated in the southeastern, eastern and western sections of the site, and along the southern boundary. - During the 1 in 1000 year (2005) Thames Downriver modelled event, tidal flood risk covers the majority of the site other than the central-northern section. - During the 1 in 200 and 1 in 1000 year (2115) Thames Downriver modelled events, the site becomes inundated.
Mitigation / FRA Requirements
- A FRA must be submitted as part of a planning application. - Include appropriate flood resistance or resilience measures to address predicted flood depths. - See SFRA Level 2 Report mitigation requirement numbers 4.3 and 4.4, Policies E2 and E3 of the existing Greenwich Local Plan, and Policy EN6 of the draft Local Plan for further development stipulations. - Site users should be signed up to the EA's Flood Alert and Flood Warning Service. - Sea Level Allowances, provided by the EA, should be considered to inform flood resilient construction and design measures. - The development should allow for safe, dry access to high ground as the extent of inundation covers the majority of the site.
Climate Change Considerations
The Thames Breach Upriver and Downriver scenarios show an increase in the extent of inundated area due to climate change, with the Upriver scenario showing a further increase from the western and southeastern sections of the site, and the Downriver 1 in 200 year and 1 in 1000 year scenarios increasing to inundate the site. The Downriver modelled scenario was used for the analysis below as this represents the worst-case scenario. During the Thames Breach Downriver 1 in 200 year events, climate change is expected to increase the maximum depth from 2.74m to 4.03m, the maximum velocity from 2.20m/s to 3.22m/s, the maximum flood level from 4.60mAOD to 5.89mAOD and the maximum hazard from 3.94 to 7.54.



During the Thames Breach Downriver 1 in 1000 year events, climate change is expected to increase the maximum depth from 3.47m to 4.31m, the maximum velocity from 2.60m/s to 3.54m/s, the maximum flood level from 5.34mAOD to 6.17mAOD and the maximum hazard from 5.82 to 8.35.

Risk Assessment (Tidal – Thames Breach Downriver 2018)					
Parameter	2005_0200	2005_1000	2115_0200	2115_1000	Units
Max. Depth	2.74	3.47	4.03	4.31	m
Max. Velocity	2.20	2.60	3.22	3.54	m/s
Max Flood Level	4.60	5.34	5.89	6.17	m AOD
Max Ground Level	6.57	6.57	6.57	6.57	m AOD
Min Ground Level	1.74	1.74	1.74	1.74	m AOD
Max Flood Hazard	3.94	5.82	7.54	8.35	N/A

1.2 Surface Water

Description of Flood Mechanism	
The risk of surface water flooding across the site is primarily concentrated along the western and southeastern sections of the site and the southern boundary. The highest risk areas are located in the southeastern and western areas of the site.	
Mitigation – Flood Risk Requirements	Mitigation – Surface Water Drainage
Development should be directed away from the southeastern and western areas of the site, with development being directed towards the central and some of the northern areas of the site.	See SFRA Level 2 Report mitigation requirement 5.0 for further development stipulations.
Development should comply with SFRA - Level 2 Report Section 4 mitigation requirement numbers 4.3, and 4.9.	Developments should apply the Sustainable Drainage Hierarchy set out in Policy SI 13 of the London Plan as well as Policy E2 of the existing Greenwich Local Plan and Policy EN6 of the draft Local Plan.
	Ground investigations are required to confirm whether infiltration SuDS are suitable.
Climate Change Considerations	
During the high risk events, the extent increases around the pre-existing areas of high surface water flood risk, particularly along the eastern border and in the western areas of the site. However, the maximum depth, velocity, and hazard remain unchanged.	
During the medium risk events, the extent increases in the northeast of the site and along the eastern site boundary following the road network. There is an additional area of medium risk in the southern section of the site and further increases around the pre-	



existing areas of medium risk in the western areas of the site. The maximum depth, velocity, and hazard remain unchanged.

During the low risk events, the extent expands across the western part of the site and slightly further into the northeastern areas and the southern boundary. The maximum depth, velocity, and hazard remain unchanged.

Risk Assessment				
Parameter	High	Medium	Low	Units
Max. Depth	1.2	1.2	1.2	m
Max. Velocity	1.0	1.0	2.0	m/s
Max. Hazard	1.25	1.25	2.0	N/A

Risk Assessment – with Climate Change				
Parameter	High	Medium	Low	Units
Max. Depth	1.2	1.2	1.2	m
Max. Velocity	1.0	1.0	2.0	m/s
Max. Hazard	1.25	1.25	2.0	N/A

1.3 Sewer

Risk Assessment	Mitigation Requirements
The site falls within a postcode area where there are 20 - 30 reported flood incidents from sewer flooding. The site is assumed to be served by separate combined, surface water, and foul sewer networks, given their proximity to the site.	The applicant must consult with TWUL to confirm if the development site has historically flooded. TWUL must agree to any proposed sewer connections. If historic flooding has occurred, the applicant must demonstrate how this risk will be managed throughout the development's lifetime.



1.4 Groundwater

Risk Assessment	Mitigation Requirements
The site has limited potential for flooding over the northern and central areas of the site. There is potential for flooding of properties below ground level along the eastern, western, and southern areas of the site.	For new developments that involve groundworks, especially if basements are planned, the applicant should carry out a screening study (as a minimum) to establish if there are any subterranean flood risk issues that may require further investigation.
The site is underlain by the Sussex White Chalk Formation bedrock geology and the superficial deposits are comprised of Alluvium for the majority of the site other than the northern border where there is no information.	If there is a potential level of impact, mitigation actions must be proposed. This must be prepared by a chartered professional or specialist.

1.5 Artificial

Risk Assessment	Mitigation Requirements
This site is at risk of flooding from the Banbury, High Maynard, Lockwood, Queen Elizabeth II, and William Girling reservoirs. The reservoir extent map predicts that if any of these reservoirs breach on a wet day, the site will be at risk of flooding.	Propose appropriate and proportionate risk management measures. A suitable emergency response plan should be put in place, including an emergency warning system in the event of a reservoir flooding incident. Local Authority Emergency Planning Officers must be consulted to create a reservoir failure emergency and evacuation plan.

1.6 Planning Considerations – Safety of Development

A. Can the development be future proofed for climate change considerations?
- Surface water flood risk extent is expected to increase in the high, medium and low risk events due to climate change. The maximum depth, velocity and hazard remain the same within the risk categories. - The tidal breach scenarios show an increase in extent in both the Downriver and Upriver models. The maximum depth, velocity and hazard increase in a climate change scenario. - See SFRA - Level 2 Report Section 4 mitigation requirement number 4.4 for the required flood resistant / resilient building stipulations.



B. Can the development be designed safe throughout its lifetime without increasing flood risk elsewhere?
• The development must use surface water drainage techniques to manage surface water runoff onsite through above ground SuDS and / or below ground attenuation. • Green drainage infrastructure should be prioritised to provide wider ecological / biodiversity benefits as per London Plan Policy SI 13. • See SFRA Level 2 Report mitigation requirement numbers 4.3, 4.7, 4.8 and 4.9 and Policies E2, E3 of the Greenwich Local Plan and Policy EN6 of the draft Local Plan for further development stipulations.
C. What is the cumulative impact of the development land use change and will flood risk increase?
• The development land use is changing from 'Less Vulnerable' to 'More Vulnerable'. • The site is largely impermeable, with limited permeable areas located along the northern and western boundaries and within the car parking areas. This offers an opportunity to improve flood attenuation through the new development. • Development must mitigate any increase in impermeable area to the site with runoff storage to prevent any increase in flood risk. An increase in impermeable area coverage on site will increase surface water runoff and flood risk if not managed properly.
D. How can the development reduce risk overall?
• Development should be directed towards the central and some of the northern areas of the site, where there is lower risk of surface water flooding. • By complying with Policy E2 of the Greenwich Local Plan and Policy EN6 of the draft Local Plan through demonstrating that the development will avoid or minimise all sources of flood risk to people and property taking climate change into account, and incorporating SuDS measures in order to manage surface water runoff as close to its source as possible and to meet the required SuDS performance standards. • By complying with SFRA - Level 2 Report Section 4 mitigation requirement 4.4.
E. Which safe access and egress routes are recommended?
• Safe access and egress routes should be directed towards Bugsby's Way to the north of the site where there is limited risk of surface water flooding. • Given the risk of tidal flooding to the available access and egress routes, the applicant should provide a Flood Risk Emergency Plan in line with Adept guidance.
F. Will development require a flood risk permit / watercourse consent?
No, the site is not within 16m of a Tidal River, 8m of a Main River or 5m of an Ordinary Watercourse.
G. Can the site pass the Exception Test?
The site is located within Flood Zone 3a and the proposed vulnerability classification is 'More Vulnerable', therefore the Exception Test is required.



