

SITE ASSESSMENT - Eden Walk Shopping Centre

Address: Eden Walk Shopping Centre, Eden Walk, Kingston upon Thames

Area: 1.84 Ha
Site Reference: KNK12

Current Use	Proposed Use
Commercial, business and service uses	Mixed-use development, including commercial, business and residential use

Current Vulnerability Classification	Proposed Vulnerability Classification
Less Vulnerable	More Vulnerable

Current Risk Summary					
Fluvial / Tidal			Groundwater		
FZ2	97.74	% of Site	<25	87.78	% of Site
FZ3a	22.89	% of Site	25-50	0	% of Site
FZ3b	9.51	% of Site	50-75	12.22	% of Site
Surface Water			>75	0	% of Site
1 in 30*	0.94	% of Site	Artificial		
1 in 100*	1.70	% of Site	Reservoir	YES	At risk?
1 in 1000*	16.55	% of Site			
Sewer Flooding					
No. Incidents					74

Flood Defences
Site is not in an area benefitting from flood defences.
Flood Warning Area
The EA Flood Warning Service is available at this site.

* return periods for potential flood events

FLUVIAL / TIDAL

Risk Assessment (Defended, Hogsmill)				
Parameter	FZ3b	FZ3a	*FZ3a+CC	Units
Time of Onset	11.00	8.75	7.75	Hrs
Min. Depth	N/A	N/A	N/A	m
Max. Depth	0.48	0.82	1.35	m
Max. Velocity	0.36	0.41	0.42	m/s
Max Flood Level	7.50	7.84	8.03	m AOD
Max Ground Level	8.68	8.68	8.68	m AOD
Min Ground Level	5.94	5.94	5.94	m AOD
Max Flood Hazard	1.24	1.42	1.69	N/A
Duration of Flood	>16.75	>19	>18	Hrs

* The +25% Climate Change Allowance event is reviewed

Risk Assessment (Undefended, Hogsmill)			
Parameter	FZ3a	*FZ3a+CC	Units
Time of Onset	N/D	N/D	Hrs
Min. Depth	N/D	N/D	m
Max. Depth	N/D	N/D	m
Max. Velocity	N/D	N/D	m/s
Max. Hazard	N/D	N/D	N/A
Duration of Flood	N/D	N/D	Hrs

Description of Flood Mechanism

- The site is at risk from fluvial flooding from the River Hogsmill on the southern area of the site.
- The flood risk extent for the climate change scenario for the River Thames covers the majority of the site area and for the River Hogsmill covers the east of the site.
- Climate change is predicted to increase the time of onset, duration of flood, flood depth, hazard, velocity and flood levels in the defended (worst case) scenario for the River Hogsmill.
- The site will be partially flooded from the onset and will remain flooded for in excess of 19 hours.

[Figure 1 - Fluvial Flood Depth Map](#)

Site Access / Egress

Site access and egress routes will be directed to the north-east of the site towards Eden Street where there is a lower risk of fluvial flooding.

[Figure 2 - Fluvial Flood Hazard Map](#)

Mitigation / FRA Requirements

- Only water compatible or essential uses (subject to the Exception Test) are permitted in FZ3b, which covers the south-east of the site.
- Self-contained basement dwellings and bedrooms are not permitted in FZ3a, which covers the south-east of the site. See SFRA Level 2 Report mitigation requirement numbers 4.10 for additional basement stipulations.
- 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 4.2 and 4.3 for further development stipulations.
- Develop a Flood Emergency and Evacuation Plan for the site.
- Site users should be signed up to the EA's Flood Warning Service.

SURFACE WATER

Risk Assessment				
Parameter	1 in 30	1 in 100	1 in 1000	Units
Min. Depth	0.00 - 0.15	0.00 - 0.15	< 0.15	m
Max. Depth	0.60 - 0.90	0.90 - 1.20	0.90 - 1.20	m
Max. Velocity	0.50 - 1.00	0.50 - 1.00	0.50 - 1.00	m/s
Max. Hazard	1.25 - 2.00	1.25 - 2.00	1.25 - 2.00	N/A

*The 1 in 1000 annual probability extent represents the potential climate change adjusted impact of current risk

Description of Flood Mechanism

The north-eastern area of the site has a small area at high risk of flooding and the south-eastern edge of the site area between Union Street and Eden Street is at medium risk of surface water flooding. Parts of Eden Road are at risk from surface water flooding.

Site Access / Egress

Safe access and egress routes should be directed to the west of the site towards Union Street where there is a lower risk of flooding.

[Figure 3 - RoFSW Flood Depth Map](#)

Mitigation - Flood Risk Requirements

Development should be directed away from the northeastern areas of the site where there is higher risk of surface water flooding.

[Figure 4 - RoFSW Flood Hazard Map](#)

Mitigation - Surface Water Drainage

- All planning applications need a flood risk assessment and/or drainage strategy with a completed SuDS/Drainage proforma.
- Developments should apply the Sustainable Drainage Hierarchy set out in Policy SI 13 of the London Plan.
- Ground investigations are required to confirm whether infiltration SuDS are suitable.

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SEWER	GROUNDWATER	ARTIFICIAL
Risk Assessment	Risk Assessment	Risk Assessment
<ul style="list-style-type: none"> The site falls within postcode area where 74 sewer flood incidents have been reported. The site is assumed to be served by separate surface water and foul sewer networks, given their proximity to the site. 	<ul style="list-style-type: none"> The site is predominantly classified as having < 25% susceptibility to groundwater flooding. However, the west of the site is classified as having >= 50% < 75% susceptibility to groundwater flooding. The site is mostly underlain by London Clay Formation bedrock geology and Langley Silt Member superficial deposits. 	<ul style="list-style-type: none"> This site is at high risk of flooding from the reservoirs based on the EA Reservoir Wet Day Extent data.
Mitigation Requirements	Mitigation Requirements	Mitigation Requirements
<ul style="list-style-type: none"> Applicant must consult with TWUL to confirm if the development site has historically flooded. TWUL must agree to any proposed sewer connections. Where historic flooding has occurred, the applicant must show how this risk will be managed for the lifetime of the development. 	<ul style="list-style-type: none"> 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. If there is a potential level of impact, mitigation actions must be proposed. Must be prepared by a chartered professional or specialist. 	<ul style="list-style-type: none"> 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

[Figure 6 - Areas Susceptible to Groundwater Flooding Map](#)

[Figure 7 - Outline Reservoir Flood Map](#)

PLANNING CONSIDERATIONS

Safety of Development

<p>A. Can the development be future proofed for climate change considerations?</p> <ul style="list-style-type: none"> Yes. See SFRA - Level 2 Report Section 4 mitigation requirement number 4.2 for the required flood resistant / resilient building stipulations. <p>B. Can the development be designed safe throughout its lifetime without increasing flood risk elsewhere?</p> <ul style="list-style-type: none"> Yes. 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 Section 4 mitigation requirement number 4.5 for compensatory flood storage stipulations. <p>C. What is the cumulative impact of the development land use change and will flood risk increase?</p> <ul style="list-style-type: none"> The development land use will change from 'Less Vulnerable' to 'More Vulnerable'. The site is predominantly covered by impermeable 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 flood plain compensation and 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. <p>D. How can the development reduce risk overall?</p> <ul style="list-style-type: none"> Direct development away from northeastern areas of the site. Safe access and egress routes should be directed to the south of the site towards Union Street where there is a lower risk of flooding. By complying with Policy DM4 of the Kingston Core Strategy (2012) through including SuDS to ensure that the development is not vulnerable to surface water, sewer and groundwater flooding and to reduce the overall level of flood risk in the borough and beyond. By complying with SFRA - Level 2 Report Section 4 mitigation requirement numbers 4.2, 4.3 and 4.5. <p>E. Will development require a flood risk permit/watercourse consent?</p> <ul style="list-style-type: none"> No. The site is not located within 8m of a Main River or ordinary watercourse. <p>F. Can the site pass the Exception Test?</p> <ul style="list-style-type: none"> Yes. The Exception Test is required for this site as 22.89% of the site area is in Flood Zone 3a (fluvial) and the proposed vulnerability classification is 'More Vulnerable'. This can be passed by making the site safe throughout its lifetime without increasing flood risk elsewhere (see questions A, B and C). The site could also reduce flood risk overall with appropriate SuDS and flood storage compensation measures implemented (see 'Mitigation - Flood Risk Requirements' and 'Mitigation - Surface Water Drainage' boxes).
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