SITE ASSESSMENT - Cocks Crescent

Address:	Cocks Crescent, New Malden, KT3 4AH

Area:	2.37 **Ha**
Site Reference:	SA 060

Current Use	Proposed Use
Community, Leisure, Commercial, Residential	Mixed Use (Residential, D-Uses, Town Centre) - 343 residential units

Current Vulnerability Classification	Proposed Vulnerability Classification
Less Vulnerable	More Vulnerable

Current Risk Summary					
Fluvial / Tidal			**Groundwater**		
FZ2	0	% of Site	<25	0	% of Site
FZ3a	0	% of Site	25-50	100	% of Site
FZ3b	0	% of Site	50-75	0	% of Site
Surface Water			>75	0	% of Site
1 in 30	0.3	% of Site	**Artificial**		
1 in 100	5.8	% of Site	Reservoir	N	At risk?
1 in 1000	22.4	% of Site	Canal	N	At risk?
Sewer Flooding			**Town Centre**		
No. Incidents		105	Y/N	Y	

Flood Defences

The site is not in an area benefitting from flood defences.

Flood Warning Area

This site is not within a flood warning area.

FLUVIAL / TIDAL

Risk Assessment (Defended)				
Parameter	**FZ3b**	**FZ3a**	***FZ3a+CC**	**Units**
Speed of inundation	N/A	N/A	N/A	Hrs
Min. Depth	N/A	N/A	N/A	m
Max. Depth	N/A	N/A	N/A	m
Max. Velocity	N/A	N/A	N/A	m/s
Max Flood Level	N/A	N/A	N/A	m AOD
Max Ground Level	N/A	N/A	N/A	m AOD
Min Ground Level	N/A	N/A	N/A	m AOD
Max Flood Hazard	N/A	N/A	N/A	N/A
Duration of Flood	N/A	N/A	N/A	Hrs

* The +35% Climate Change Allowance event (upper end allowance extreme case) is reviewed

Risk Assessment (Undefended)			
Parameter	**FZ3a**	***FZ3a+CC**	**Units**
Speed of inundation	N/A	N/A	Hrs
Min. Depth	N/A	N/A	m
Max. Depth	N/A	N/A	m
Max. Velocity	N/A	N/A	m/s
Max. Hazard	N/A	N/A	N/A
Duration of Flood	N/A	N/A	Hrs

Description of Flood Mechanism

N/A - No fluvial / tidal risk is predicted at this site.

Figure 1 - Fluvial Flood Depth Map

Site Access / Egress

N/A - No fluvial / tidal risk is predicted at this site.

Figure 2 - Fluvial Flood Hazard Map

Mitigation / FRA Requirements

N/A - No fluvial / tidal risk is predicted at this site.

SURFACE WATER

Risk Assessment				
Parameter	**1 in 30**	**1 in 100**	**1 in 1000**	**Units**
Min. Depth	0	0.00-0.15	0.00-0.15	m
Max. Depth	0.30-0.60	0.30-0.60	0.60-0.90	m
Max. Velocity	0.25-0.50	0.50-1.00	1.00-2.00	m/s
Max. Hazard	0.75-1.25	0.75-1.25	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 site is currently at risk of surface water flooding, particularly on the western section of the site.
- Blagdon Road to the north of the site, and Burlington Road to the south of the site are predicted to be at risk from surface water flooding.
- Climate change is predicted to increase the flood extent, depth, velocity, and hazard.

Site Access / Egress

Safe egress routes should be directed towards Cocks Crescent to the north west of the site 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 northern, western and southern edges of the site where there is higher risk of surface water flooding.
- See also SFRA Level 2 Report mitigation requirement numbers 4.2, 4.3, 4.4, 4.5 and 4.6 for further development stipulations.

Figure 4 - RoFSW Flood Hazard Map

Mitigation - Surface Water Drainage

- A Kingston SuDS Proforma must be submitted with the planning application.
- Developments should apply the Sustainable Drainage Hierarchy set out in Policy SI13 of the London Plan.
- Ground investigations are required to confirm whether infiltration based SuDS are suitable.

SITE ASSESSMENT - Cocks Crescent

SEWER

Risk Assessment

• The site falls within a postcode area where there are 105 reported flood incidents from sewer flooding.
• The site is served by separate surface water and foul sewer networks.

Figure 5 - Thames Water Sewer Flood Map

Mitigation Requirements

• 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.

GROUNDWATER

Risk Assessment

• The site is classified as having >=25% <50% susceptibility to groundwater flooding.
• The site is underlain by London Clay bedrock geology.

Figure 6 - Areas Susceptible to Groundwater Flooding Map

Mitigation Requirements

• 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.

ARTIFICIAL

Risk Assessment

The site is not at risk from artificial flooding.

Figure 7 - Outline Reservoir Flood Map

Mitigation Requirements

No mitigation measures required.

PLANNING CONSIDERATIONS

Safety of Development

A. Can the development be future proofed for climate change considerations?
• Yes. See SFRA - Level 2 Report mitigation requirement number 4.2 and 4.4 for the required finished floor levels and flood resistant / resilient building stipulations.

B. Can the development be designed safe throughout its lifetime without increasing flood risk elsewhere?
• 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 mitigation requirement number 4.5 for compensatory flood storage stipulations.

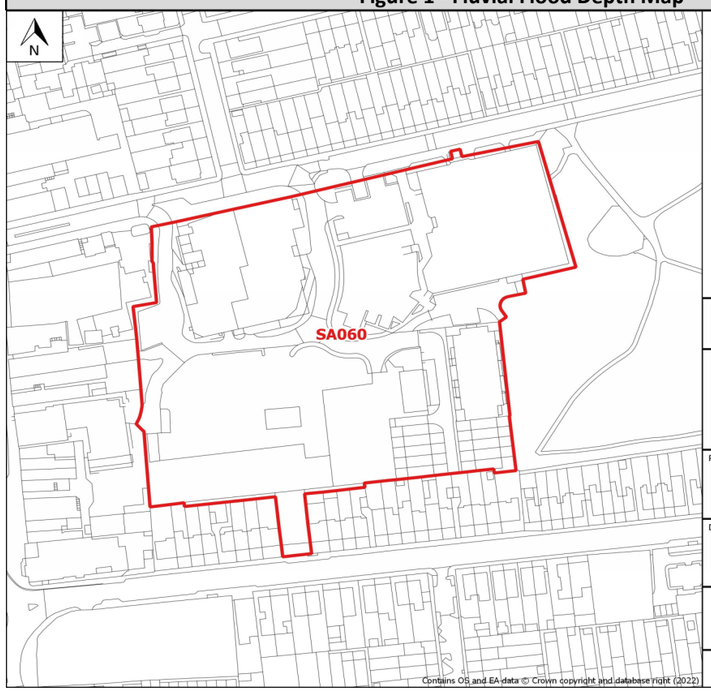
C. What is the cumulative impact of the development land use change and will flood risk increase?
• The development land use is changing from the 'Less Vulnerable' to the 'More Vulnerable' classification, as residential uses have been proposed.
• The site is currently a brownfield site with hardstanding areas. 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?
• Direct development away from the western section of the site.
• Include SuDS to manage surface water runoff and reduce run-off rates to comply with Policy DM 4 in Kingston's Core Strategy.
• By complying with SFRA - Level 2 Report mitigation requirement numbers 4.2, 4.3, 4.4 and 4.5.

E. Will development require a flood risk permit/watercourse consent?
• No. The site is not within 8m of a Main River or 5m of an Ordinary Watercourse.

F. Is the Exception Test required?
• The Exception Test is required for 'More Vulnerable' development in Flood Zone 3a (some areas around the edge of the site).
• 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 - Surface Water Drainage and Mitigation - Flood Risk Requirements boxes).

Figure 1 - Fluvial Flood Depth Map



Legend
- Kingston borough boundary
- Site Allocations

Fluvial maximum flood depth (m) - 1 in 100 year+35% event
- 0.00 - 0.15
- 0.15 - 0.30
- 0.30 - 0.60
- 0.60 - 0.90
- 0.90 - 1.20
- > 1.20

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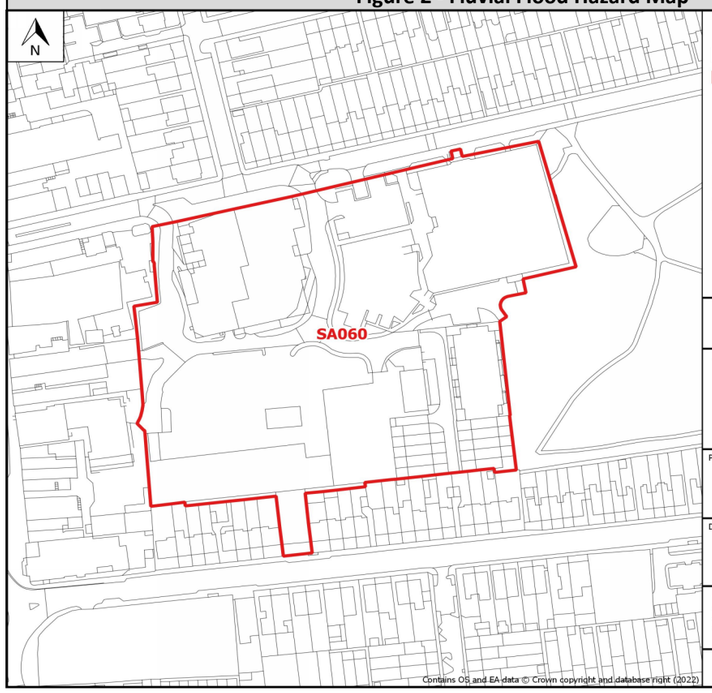
Client: The Royal Borough of Kingston upon Thames

Project Title: Level 2 Strategic Flood Risk Assessment

Drawing Title: Fluvial flood depth (1 in 100-year + 35% Climate Change Allowance Event)

1:1,500	Drawing Size A3	Drawing Number Figure No.1

Figure 2 - Fluvial Flood Hazard Map



Legend
- Kingston borough boundary
- Site Allocations

Fluvial maximum flood hazard rating (1 in 100 year+35% event)
- Low Hazard
- Danger for Some
- Danger for Most
- Danger for All

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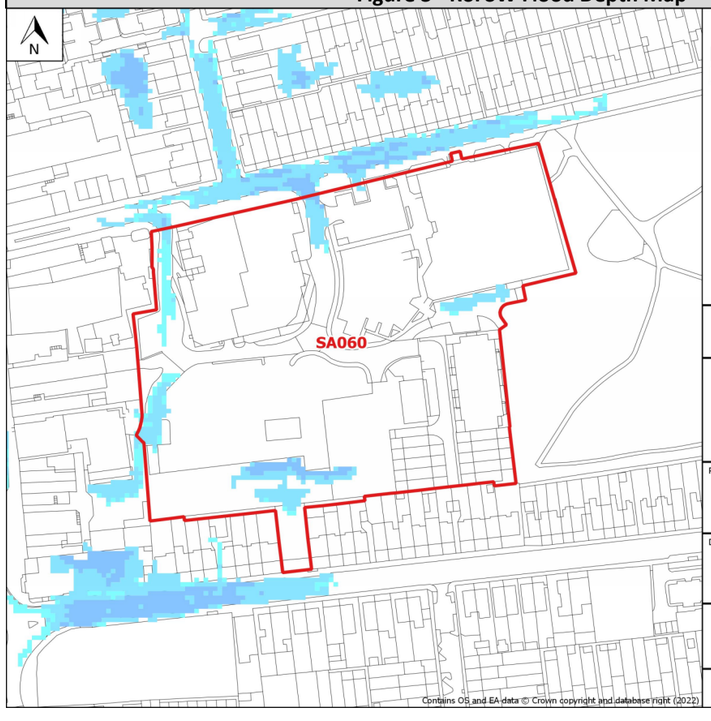
Client: The Royal Borough of Kingston upon Thames

Project Title: Level 2 Strategic Flood Risk Assessment

Drawing Title: Fluvial flood hazard (1 in 100-year + 35% Climate Change Allowance Event)

1:1,500	Drawing Size A3	Drawing Number Figure No.2

Figure 3 - RoFSW Flood Depth Map



Legend
- Kingston borough boundary
- Site Allocations

Surface Water flood depth (m) 1 in 100-year flood
- 0.00 - 0.15
- 0.15 - 0.30
- 0.30 - 0.60
- 0.60 - 0.90
- 0.90 - 1.20
- > 1.20

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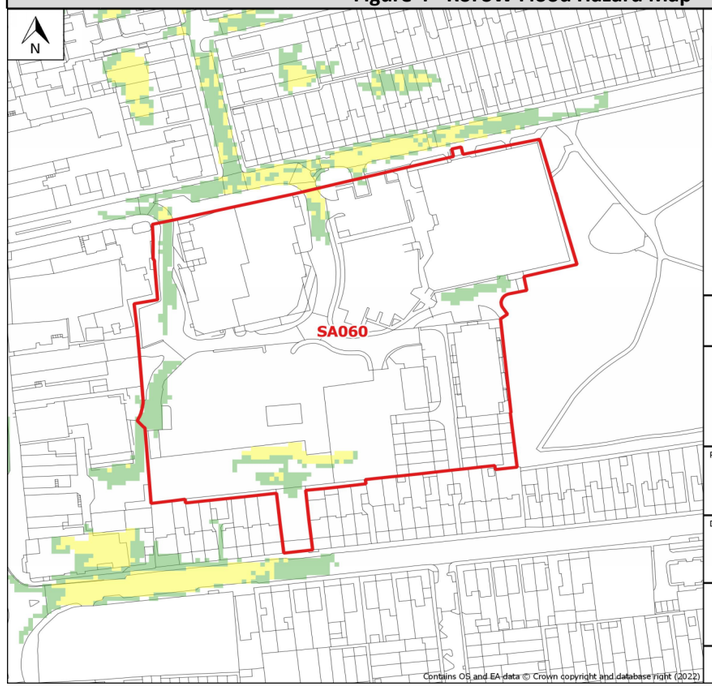
Project Title: Level 2 Strategic Flood Risk Assessment

Drawing Title: Surface Water flood depth

1:1,500	Drawing Size A3	Drawing Number Figure No.3

Figure 4 - RoFSW Flood Hazard Map



Legend
- Kingston borough boundary
- Site Allocations

Surface Water Hazard 1 in 100-year flood
- Low Hazard
- Danger for Some
- Danger for Most
- Danger for All

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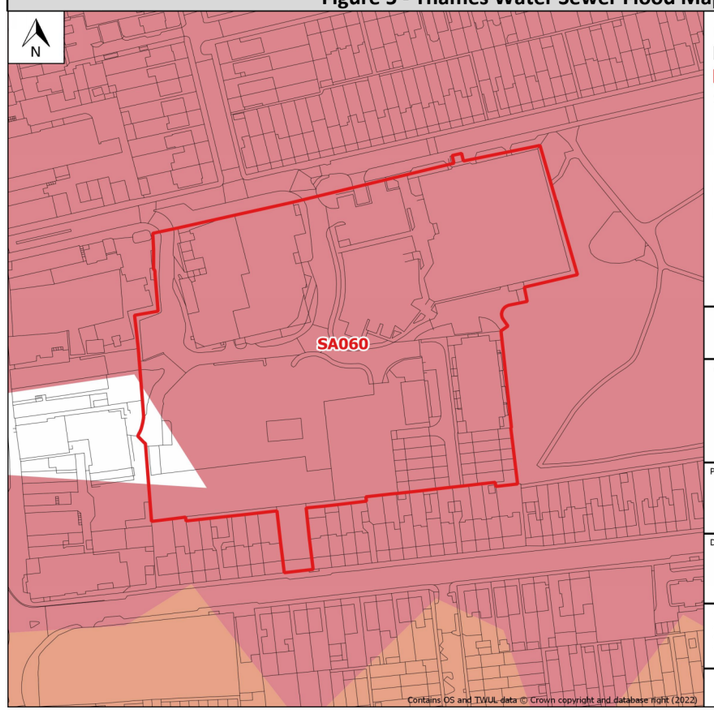
Client: The Royal Borough of Kingston upon Thames

Project Title: Level 2 Strategic Flood Risk Assessment

Drawing Title: Surface Water flood hazard

1:1,500	Drawing Size A3	Drawing Number Figure No.4

Figure 5 - Thames Water Sewer Flood Map



Legend

- Kingston borough boundary
- Site Allocations

Sewer flooding

- 0 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200

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THE ROYAL BOROUGH OF KINGSTON UPON THAMES

Project Title

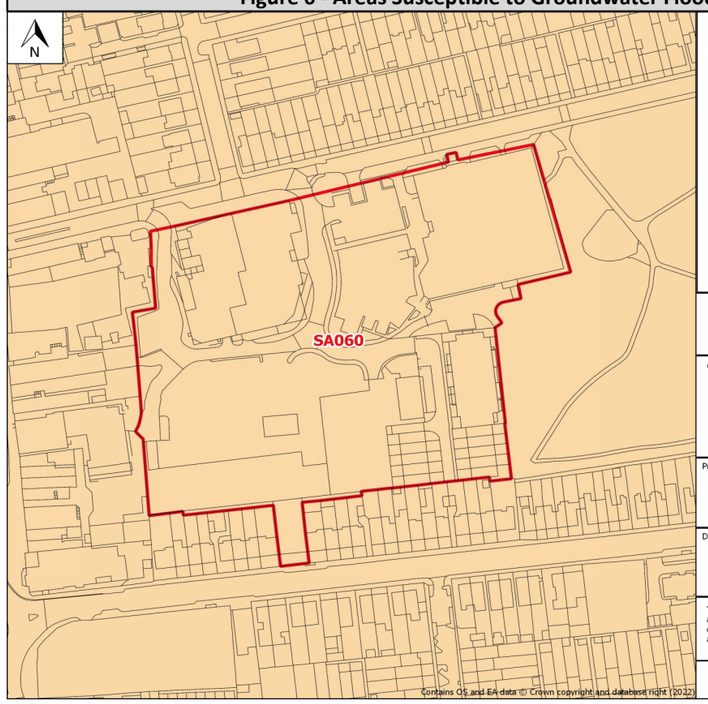
Level 2 Strategic Flood Risk Assessment

Drawing Title

Thames Water 2022 Sewer Flooding Records

1:1,500	Drawing Size A3	Drawing Number Figure No.5

Figure 6 - Areas Susceptible to Groundwater Flooding Map



Legend

- Kingston borough boundary
- Site Allocations

Areas Susceptible to Groundwater Flooding

- < 25%
- >= 25% <50%
- >= 50% <75%
- >= 75%

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THE ROYAL BOROUGH OF KINGSTON UPON THAMES

Project Title

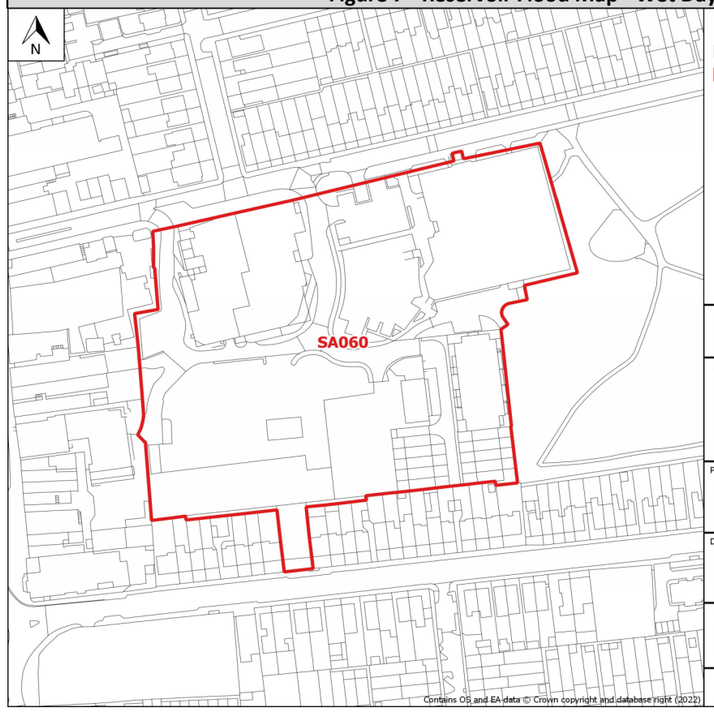
Level 2 Strategic Flood Risk Assessment

Drawing Title

Areas Susceptible to Groundwater Flooding

1:1,500	Drawing Size A4	Drawing Number Figure No.6

Figure 7 - Reservoir Flood Map - Wet Day



Legend

- Kingston borough boundary
- Site Allocations
- Reservoir Flood Extents (Wet Day)

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THE ROYAL BOROUGH OF KINGSTON UPON THAMES

Project Title

Level 2 Strategic Flood Risk Assessment

Drawing Title

Reservoir Flood Extents (Wet Day)

1:1,500	Drawing Size A3	Drawing Number Figure No.7