TECHNICAL NOTE



Job Name:	Kellogg College
Job No:	330511047
Note No:	330511047-2001-R001
Date:	9 th November 2023
Subject:	Surface Water Drainage Strategy

1. Introduction

- 1.1. Stantec UK Ltd (Stantec) have been commissioned by Oxford University Estate Services to prepare this surface water drainage strategy in support of a planning application to develop land at Kellogg College, Banbury Road, Oxford, Oxfordshire.
- 1.2. This report will outline the methods to intercept and dispose of surface water runoff generated from the proposed development in a sustainable manner and so as not to increase the risk of flooding at the site or elsewhere, in line with best Sustainable Drainage (SuDS) practice.

2. Site Context

- 2.1. The property is situated on Banbury Road and is owned by the University of Oxford, the purpose of the development is to add an extension to Kellogg College comprising storage rooms, an office space, and the kitchen to be reconfigured.
- 2.2. The proposed extension causes a 62m² increase in impermeable area producing a total of 211m² including the car park and rooftop catchment of the existing college.

DOCUMENT ISSUE RECORD

Technical Note No	Rev	Date	Prepared	Checked	Approved (Project Director)
330511047-2001-R001	Α	08/11/23	LP	JS	PS
330511047-2001-R001	В	09/11/23	LP	JS	PS

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3. Drainage Strategy

- 3.1. The footprint of the new building covers the northern portion of the grassed courtyard, totalling 62m². Within the footprint is presently located a soakaway; this serves a yard gully for a small area of car parking and one of the rainwater pipes from the existing kitchen building. No formal drainage of the soft landscaping is present.
- 3.2. The soakaway present will be abandoned and replaced to the south of the proposed extension, so it is no longer under the footprint of the proposed building. The existing connections to the yard gully and rainwater pipes will be redirected to the replacement soakaway which includes the used of geo-cellular crates.
- 3.3. Following the SuDS hierarchy as outlined in the Planning Policy Guidance, see Figure 4.1, the preferable outfall option is an infiltration system.

Generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as reasonably practicable:

- 1. into the ground (infiltration);
- 2. to a surface water body;
- 3. to a surface water sewer, highway drain, or another drainage system;
- 4. to a combined sewer.

Figure 4.1: Extract of Planning Policy Guidance on Flood Risk and Coastal Change.

- 3.4. On-site soakaway testing has been conducted in 2005 and 2015 providing infiltration rate measurements of 7.96x10⁻⁵ and 1.03x10⁻⁵m/s respectively. These rates are suitable for continued use of soakaways on-site so a new soakaway will be installed, picking up the new impermeable area and areas drained by the previous soakaway being relocated.
- 3.5. The soakaway has been modelled in MicroDrainage Source Control (calculations included in appendices) and designed to eliminate flooding up to and including the 1 in 100-year (+40% climate change) rainfall event. To reduce the footprint the geo-cellular crate it has been specified at 1.6m deep, 3m wide and 3.5m long, providing a total volume of 16.8m³.
- 3.6. As part of the scheme the maple tree in the southern portion of the courtyard is being removed, allowing this space to be available for the soakaway. It is not possible to keep it 5m from the nearby structures because of the size of the courtyard; however, all volumes being discharged to this courtyard at present discharge to this soil volume, and the stand-off from the proposed soakaway will be greater than the existing from buildings.

4. Conclusion

4.1. Following the proposed development, the geo-cellular crate will be upsized to pick up the new impermeable area and relocated to avoid buildings. The proposed crate will be 16.8m³ and constructed in the courtyard south of the extension to Kellogg College.

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Appendix A: Flood Map for Planning

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Flood map for planning

Your reference <Unspecified>

Location (easting/northing) **451156/207470**

Created **2 Nov 2023 16:06**

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

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

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

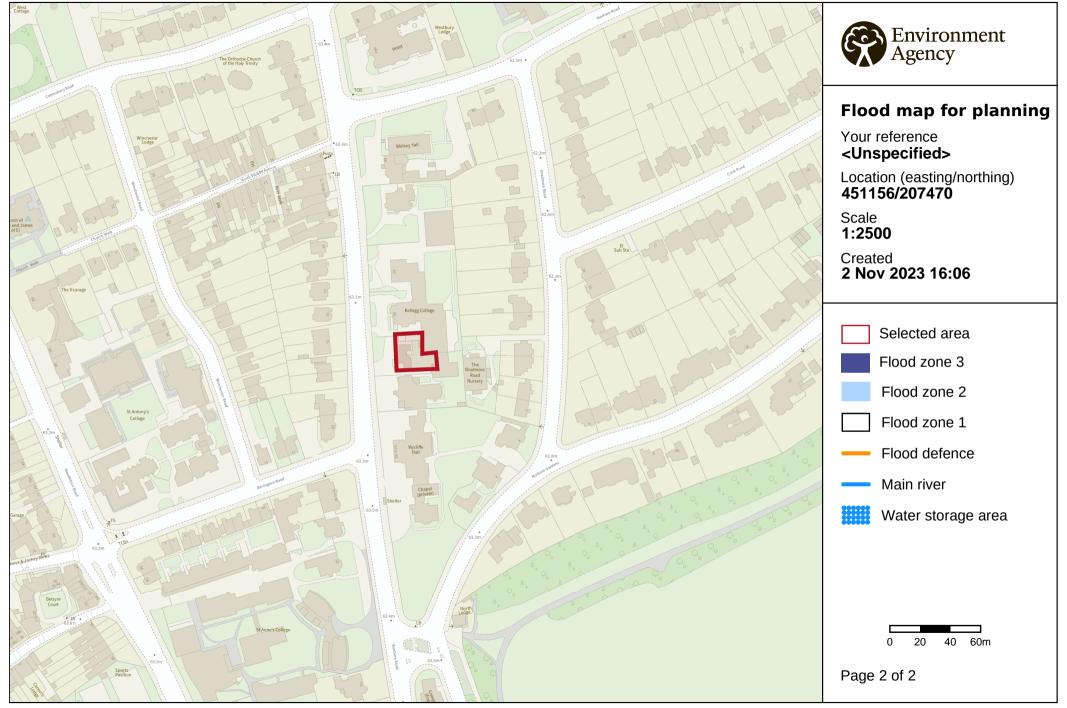
Notes

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

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

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

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2022 OS 100024198. https://flood-map-for-planning.service.gov.uk/os-terms



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Appendix B: MicroDrainage Source Control Calculations

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	30 min Summer			0.1	8.9		
	60 min Summer			0.1			
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	180 min Wint			0.1	14.0	ОК	
	240 min Wint			0.2	14.6		
	360 min Wint			0.2			
	480 min Wint 600 min Wint			0.2	15.6 15.7	O K	
	720 min Wint			0.2	15.7	OK	
	960 min Wint			0.2	15.7		
	960 min Wint 1440 min Wint			0.2	15.5	ОК	
	1440 MIN WINC 2160 min Wint			0.2	15.0	0 K	
	2880 min Wint			0.1	13.1	0 K	
	4320 min Wint			0.1	11.2	ОК	
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	<u>Rainfall Details</u>	
Rainfall Model Return Period (years) Region M5-60 (mm) Ratio R Summer Storms	0.400 Longest Storm (mins) 1008	0 0 5 0
	<u>Time Area Diagram</u>	
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Appendix C: Surface Water Layout Drawing

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- UTILITIES NOTE: The position of any existing public or private sewers, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty to this is expressed or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake their own investigation where the presence of any existing sewers, services, plant or apparatus may affect their operations.
- Do not scale from this drawing.
 This drawing has been produced in colour and should be reproduced in colour.
- 3. All dimensions are in metres unless otherwise stated.
- 4. All levels are in metres AOD unless otherwise stated.

Existing Key:

0	Surface Water Manhole
>	Surface Water Manhole
\otimes	Surface Water Manhole to be Abandoned
· ›‹›(›(›(›(›()))	Surface Water Pipe to be Abandoned
o	Surface Water RWP
	Surface Water Gully
•	Foul Water Manhole
>	Foul Water Pipe
	Tree to be Removed
Proposed Key:	
SW000 🔿	Surface Water Manhole
	Surface Water Pipe
•	Surface Water RWP
	Geocellular Attenuation Tank

New Building Footprint

P02 RWP POSITION AMENDED		LP	PS	2023.11.09
PO1 FIRST ISSUE		LP	PS	2023.11.08
Issued/Revision		Ву	Appd	YYYY.MM.DD
	LP	JS	PS	2023.11.08
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD
Issue Status				

S2 - FOR INFORMATION

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Client/Project Logo



Oxford University Estate Services

Kellogg College

Title

Surface Water Layout

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Project No.	
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Revision **P02**