

GENERAL NOTES

- This drawing is to be read in conjunction with Momentum Below Ground Drainage Specification.
- Pipes passing through new foundations or other structure to have 600mm long rocker pipes each side.
- All SVP / SS and RWP spurs to be Ø100 pipework laid at 140 for foul water, and 180 for surface water.
- Refer to Architects drawings for above-ground drainage locations and setting out.
- All gullies, channels, and manhole covers are to be set 5mm lower than indicated on the drawing (i.e. 5mm lower than the adjacent surface). All drain and sewer pipes are to be laid soffit to soffit, unless shown otherwise.
- All above ground drainage to incorporate rodding access facilities.
- Manholes deeper than 1m to have galvanised steel step irons or fixed ladders.
- Contractor to undertake a pre-construction CCTV drainage survey to confirm that no existing third party connections require maintaining, or diverting through the development site.

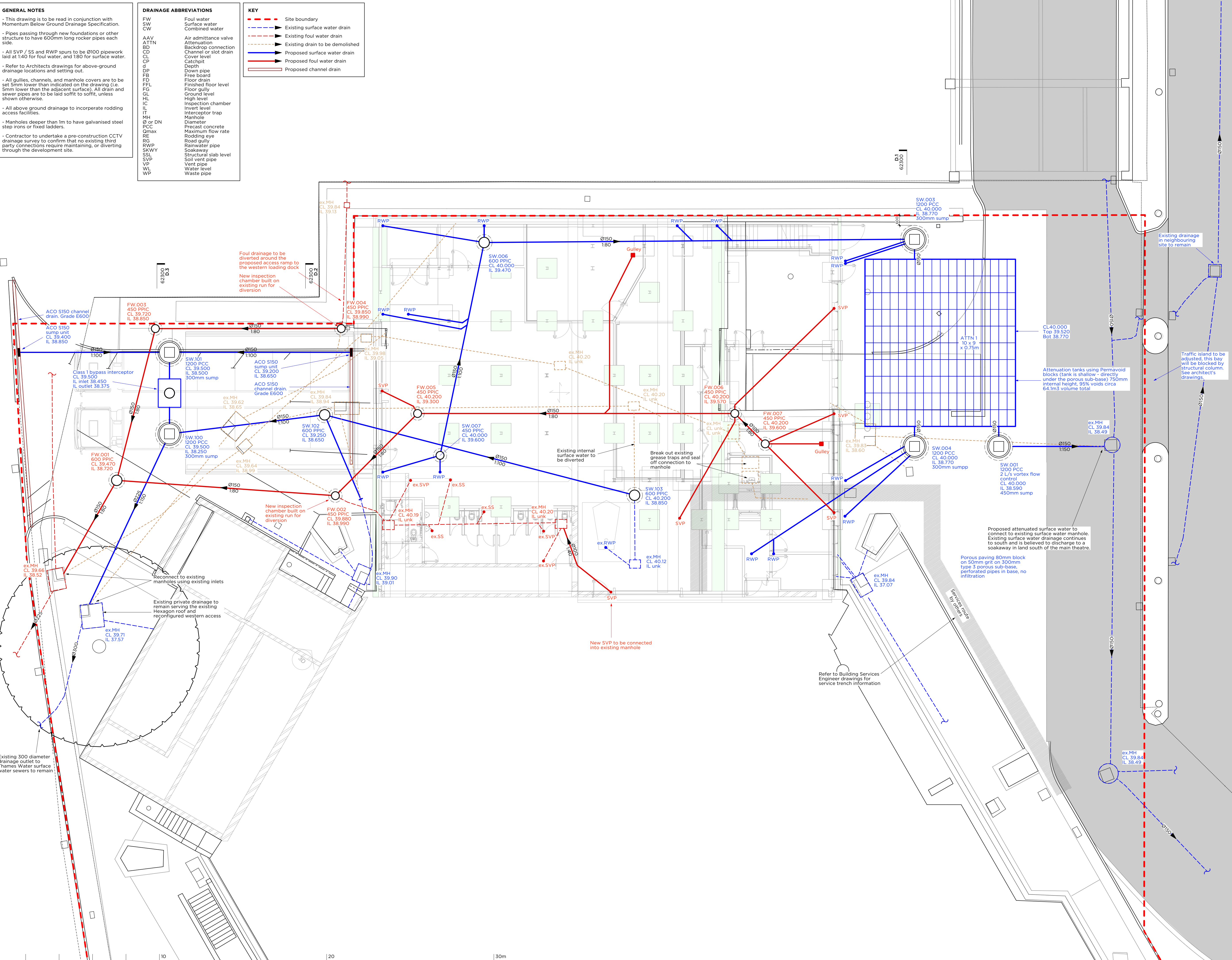
DRAINAGE ABBREVIATIONS

FW Foul water
SW Surface water
CW Combined water

AAV Air admittance valve
ATTN Attenuation
BD Backdrop connection
CL Channel or slot drain
CP Cover level
d Depth
DP Down pipe
FB Free board
FD Floor drain
FFL Finished floor level
FG Floor gully
GL Ground level
HL High level
IC Inspection chamber
IL Invert level
IT Interceptor trap
MH Manhole
Ø or DN Diameter
PCC Precast concrete
Qmax Maximum flow rate
RE Rodding eye
RG Road gully
RWP Rainwater pipe
SKWY Soakaway
SSI Structural slab level
SVP Soil vent pipe
VP Vent pipe
WL Water level
WP Waste pipe

KEY

- Site boundary
- - - Existing surface water drain
- - - Existing foul water drain
- - - Existing drain to be demolished
- Proposed surface water drain
- Proposed foul water drain
- Proposed channel drain



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This drawing shall not be reproduced in any form without prior permission being granted.

This drawing is to be read in conjunction with all other relevant contract documents and other consultants information.

Do not scale from this drawing or digital data contained within. Dimensional accuracy may not be a true representation of actual setting out.

Work only to figured dimensions. If in doubt, ask.

Unless noted otherwise, all dimensions in millimeters, all levels in meters.

All levels and dimensions to be checked on site by persons carrying out the work. Please report any discrepancies to Momentum.



Rev	Date	By	Description
P01	03.05.24	JP	Issued for tender
P02	09.05.24	JP	Issued for tender
P03	24.05.24	JP	Issued for tender
P04	07.06.24	CC	Site boundary details added
P05	18.10.24	JP	Issued for planning

NOT FOR CONSTRUCTION

Date	Scale	Format
May '24	1:100	A1
Drawn	Reviewed	Approved
JP	EA	RH

Work Stage & Reason For Issue
Stage 4
For planning
Architect
Haworth Tompkins
Client
Reading Borough Council

Project Number & Title
5544
Hexbox

Sheet Number & Title
62002
Below Ground Drainage
Proposed

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Document Reference
HEX-MOM-ZZ-XX-DR-S-62002
P05

Appendix E: Exceedance flow routes

Proposed parking falls away from building to tie into existing levels at edge of roadway

Proposed access ramp to the western loading dock - falls down toward building. In exceedance, this low area will flood until drained by channel drain but water will not enter building (Floor level is 820mm above base of loading dock ramp)
Water will escape to the west if levels rise to around 39.60m

NOTES

TO BE READ IN CONJUNCTION WITH GA PLANS, SECTIONS AND ELEVATIONS.

- Auditorium
- Studio
- FOH Support
- BOH
- BOH
- Plant

Existing roadway falls to north toward undercroft. No change from current exceedance route

Existing roadway falls to east from high point at 40.0m. No change from current exceedance route

Existing paving falls to west. Area to be repaved to similar levels. No change from current exceedance route

Existing highway falls to north past site entrance. No change from current exceedance route

Existing levels and large channel drain along face of existing theatre building retained. No change to levels or exceedance risk

Ground level exceedance flow routes

Project Number & Title

5544
HexBox

Sheet Number & Title

Exceedance flow routes

Drawn	Reviewed	Approved
TG	EA	RH
Date	Scale	Format
Dec 23	NTS	PDF

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Document Reference

HEX-MOM-ZZ-XX-RP-C-12001
APPENDIX E Rev 01

Appendix F: Long term surface water flood risk mapping

THE HEXAGON, QUEENS WALK, READING, RG1 7QF

Rivers and sea risk	Very low risk Very low risk means that this area has a chance of flooding of less than 0.1% each year.
Surface water risk	Very low risk Very low risk means that this area has a chance of flooding of less than 0.1% each year. Lead local flood authorities (LLFA) manage the risk from surface water flooding and may hold more detailed information. Your LLFA is Reading.
Reservoir risk	Flooding from reservoirs is unlikely in this area
Groundwater risk	Flooding from groundwater is unlikely in this area

Flood map for planning

Your reference
<Unspecified>

Location (easting/northing)
471116/173271

Created
21 Nov 2023 16:20

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 than 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>

Flood map for planning

Your reference

<Unspecified>

Location (easting/northing)

471116/173271

Scale

1:2500

Created

21 Nov 2023 16:20

Selected area

Flood zone 3

Flood zone 2

Flood zone 1

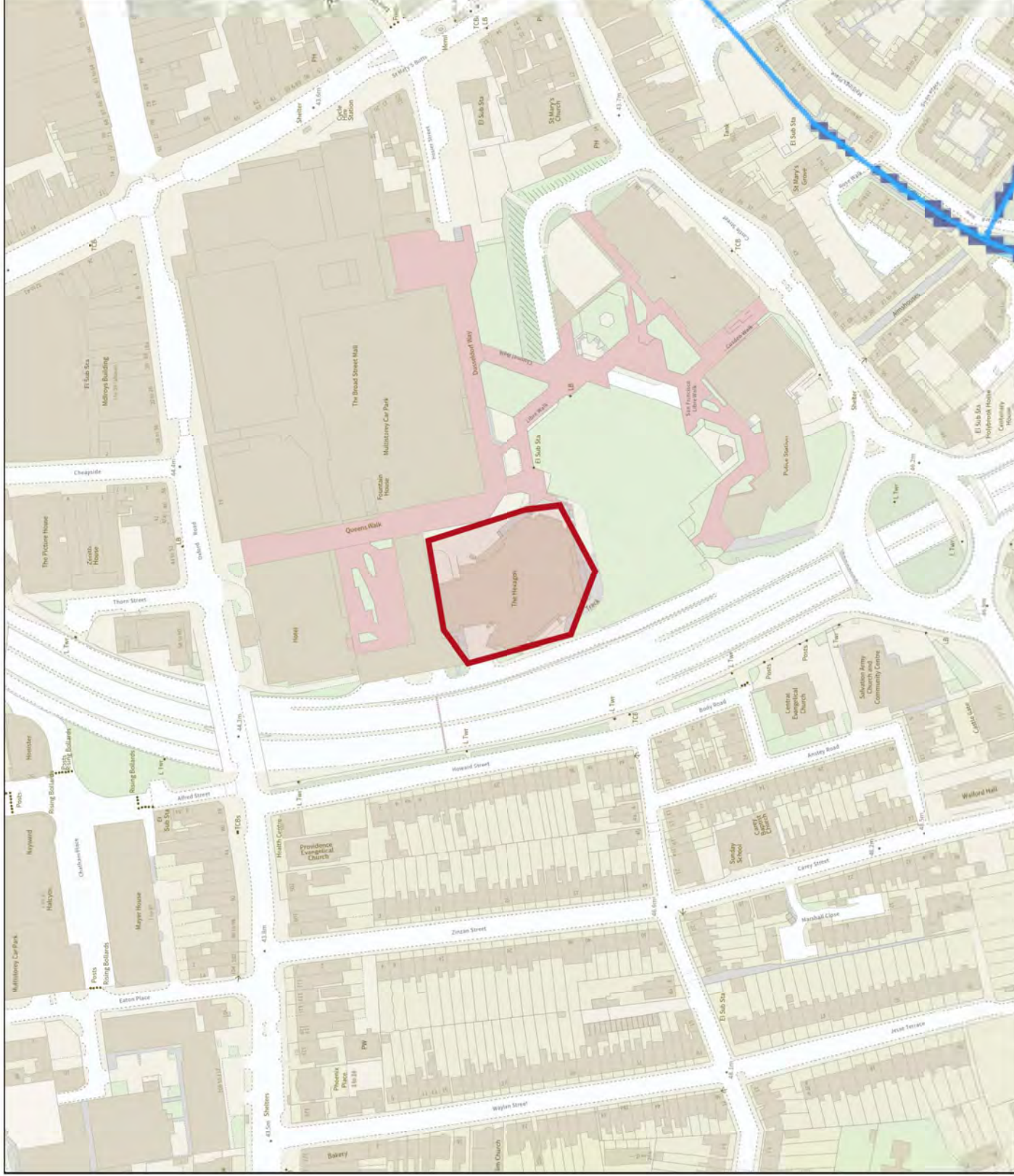
Flood defence

Main river

Water storage area



Page 2 of 2



Learn more about this area's flood risk

Select the type of flood risk information you're interested in. The map will then update.

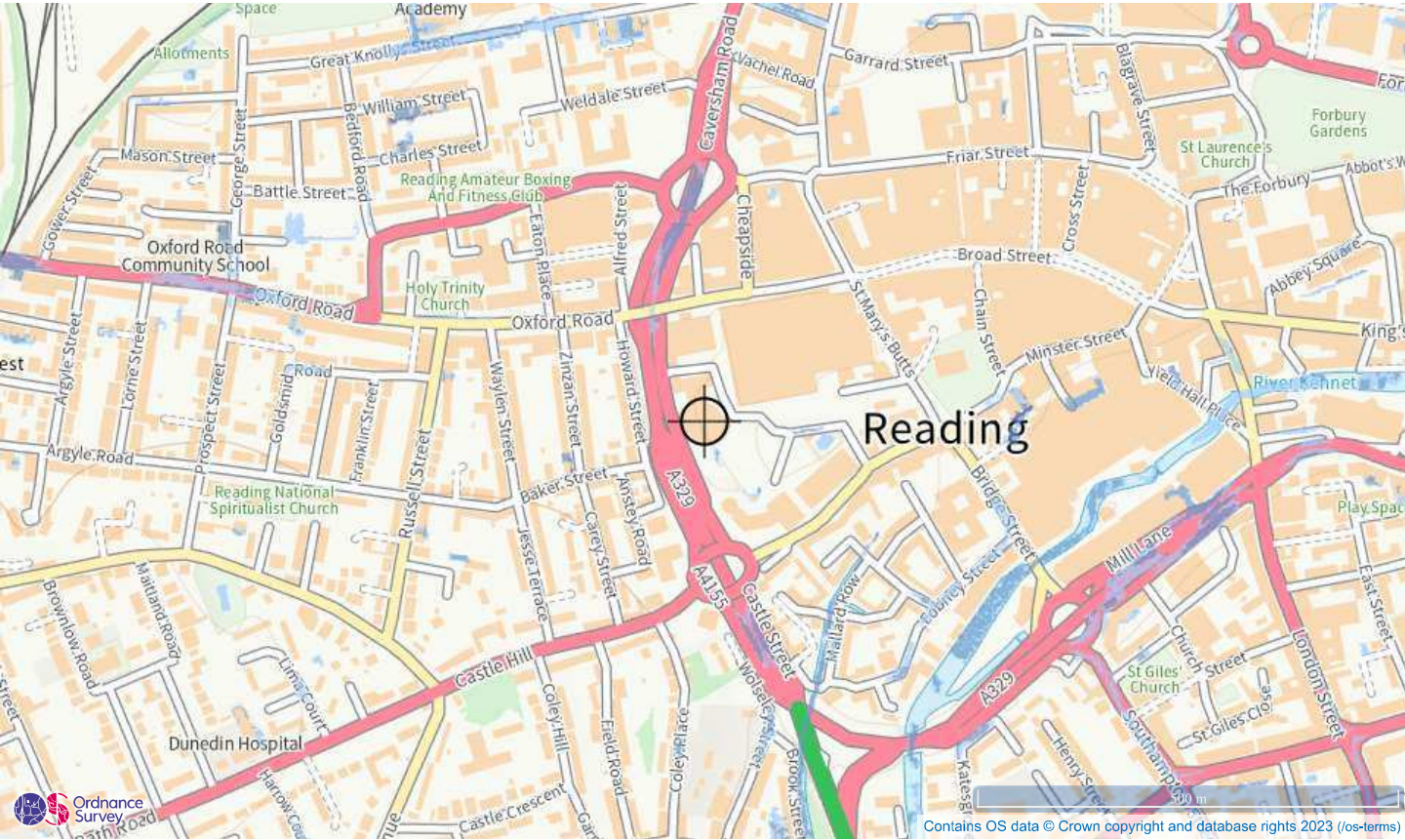
Flood risk

High risk: depth

▼

Location

Enter a place or postcode



Surface water flood risk: water depth in a high risk scenario

Flood depth (millimetres)

- Over 900mm
- 300 to 900mm
- Below 300mm
- Location you selected

[View the flood risk information for the location you originally searched for \(/risk\)](#)

[View the flood risk information for another location \(/postcode\)](#)

Learn more about this area's flood risk

Select the type of flood risk information you're interested in. The map will then update.

Flood risk

Low risk: depth

▼

Location

Enter a place or postcode



Surface water flood risk: water depth in a low risk scenario

Flood depth (millimetres)

- Over 900mm
- 300 to 900mm
- Below 300mm
- Location you selected

[View the flood risk information for the location you originally searched for \(/risk\)](/risk)

[View the flood risk information for another location \(/postcode\)](/postcode)

Learn more about this area's flood risk

Select the type of flood risk information you're interested in. The map will then update.

Flood risk

Medium risk: depth

▼

Location

Enter a place or postcode



Surface water flood risk: water depth in a medium risk scenario

Flood depth (millimetres)

- Over 900mm
- 300 to 900mm
- Below 300mm
- Location you selected

[View the flood risk information for the location you originally searched for \(/risk\)](#)

[View the flood risk information for another location \(/postcode\)](#)

Appendix G: Calculations

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EXCEPT BY WRITTEN PERMISSION.

TO BE READ IN CONJUNCTION WITH GA PLANS, SECTIONS
AND ELEVATIONS.

 Red line site boundary

A329 SLIP ROAD

NEW LOADING DOCK RAMP

EXISTING
HEXAGON THEATRE

EXISTING CAR PARK

EXISTING HEXAGON
BIN STORAGE AREA

PODIUM AB

EXISTING ACCESS ROAD

Redline boundary
5950 sq m

N



Scale 1:200

A horizontal line with vertical tick marks at the start, 1m, and 10m. The text '0 1m' is above the first two ticks, and '10m' is above the third tick.

D	30/01/24	Stage 3 - Employers Requirements
C	01/12/23	Stage 3 - Issued for Costing
B	21/11/23	Stage 3 - Issued for Coordination
A	14/11/23	Stage 3 - Issued for Information
REV	DATE	DESCRIPTION

HaworthTompkins

110 Golden Lane, London, EC1Y 0TL
+44 (0)20 7250 3225 | www.haworthtompkins.com

2323 HEXAGON THEATRE, READING

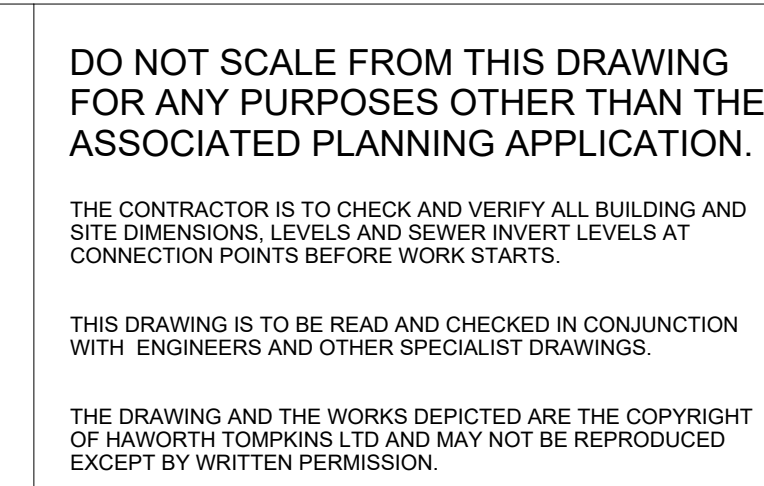
PROPOSED SITE PLAN

ORG No	HEX-HTL-ZZ-00-DR-A-00900	REV	D
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SCALE	1 : 200@A1	1 : 200@A3	DATE	30/01/24
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DRAWN	INSPECTED BY
RB	JM / LP

STAGE 3



TO BE READ IN CONJUNCTION WITH GA PLANS, SECTIONS
AND ELEVATIONS.

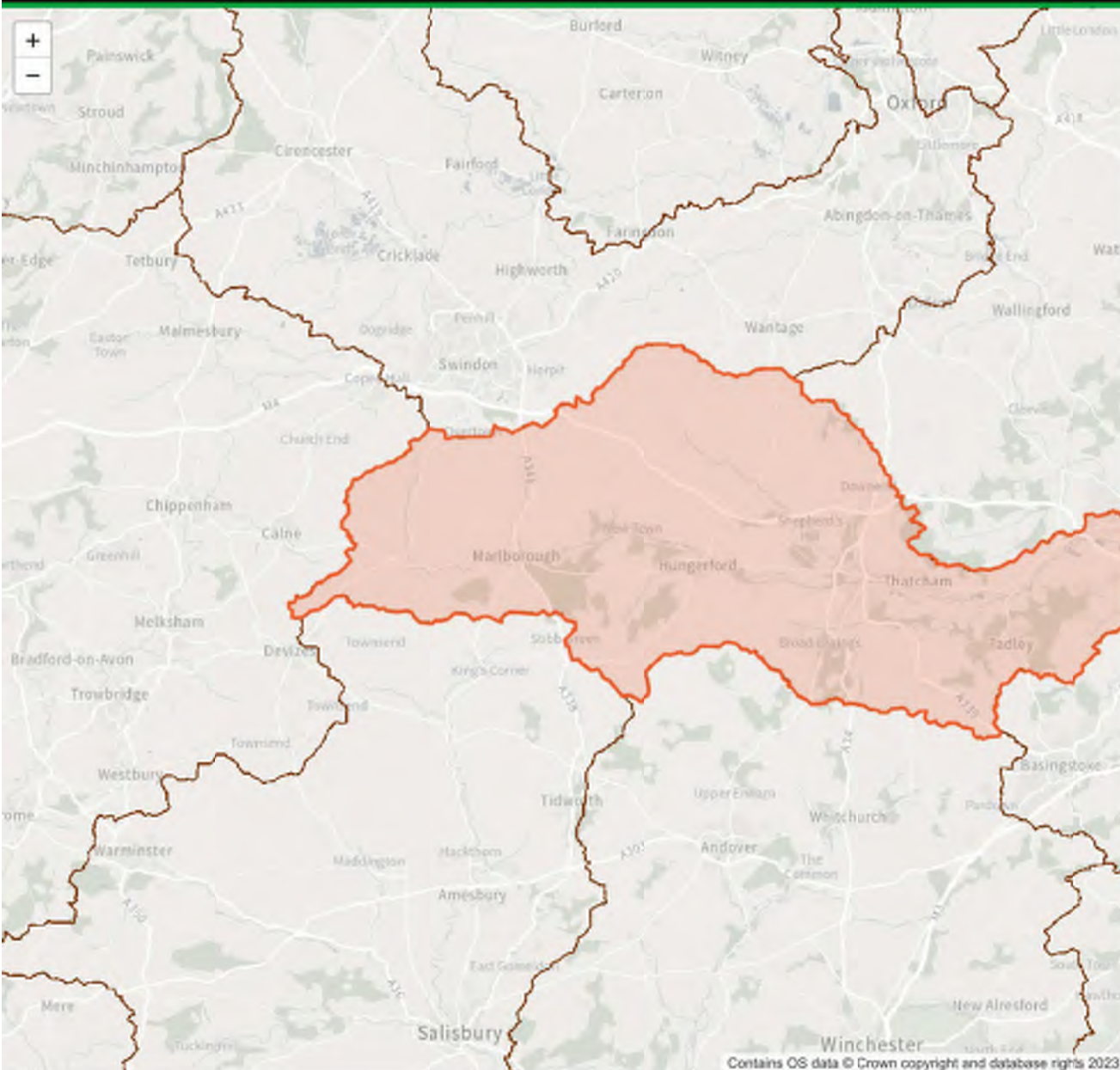
A	11/09/24	Stage 3 - GA Freeze
REV	DATE	DESCRIPTION

HaworthTompkins 110 Golden Lane, London, EC1Y 0TL +44 (0)20 7250 3225 www.haworthtompkins.com	
JOB	2323 HEXAGON THEATRE, READING
DRG	PROPOSED ROOF PLAN
DRG No	HEX-HTL-ZF-RF-DR-A-00110
SCALE	1 : 100@A1 1:200@A3 DATE 11/09/2011
DRAWN	HTL INSPECTED BY JM / LF
STATUS	STAGE 3

PLANNING



Hexbox Theatre Extension
Existing areas for
calculations



Kennet and tributaries Management Catchment peak rainfall allowances

3.3% annual exceedance rainfall event

Epoch

	Central allowance	Upper end allowance
2050s	20%	35%
2070s	25%	35%

1% annual exceedance rainfall event

Epoch

	Central allowance	Upper end allowance
2050s	20%	40%
2070s	25%	40%

*Use '2050s' for development with a lifetime up to 2060 and use the 2070s epoch for development with a lifetime between 2061 and 2125.

This map contains information generated by Met Office Hadley Centre (2019): UKCP Local Projections on a 5km grid over the UK for 1980-2080. Centre for Environmental Data Analysis, 2022

Calculated by:	Tony Goff
Site name:	Hexbox
Site location:	Reading

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013) , the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Site Details

Latitude:	51.45411° N
Longitude:	0.97791° W
Reference:	150616747
Date:	Dec 11 2023 15:25

Runoff estimation approach

IH124

Site characteristics

Indicative area (ha): 1

Methodology

Use estimation method:	Calculate from SPR and SAAR
SPR estimation method:	Calculate from SOIL type

Notes

(1) Is $Q_{BAR} < 2.0$ l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

Soil characteristics

	Default	Edited
SOIL type:	2	2
HOST class:	N/A	N/A
SPR/SPRHOST:	0.3	0.3

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

Hydrological characteristics

	Default	Edited
BAR (mm):	642	642
Hydrological region:	6	6
Growth curves factor 1 year:	0.85	0.85
Growth curves factor 50 years:	2.3	2.3
Growth curves factor 100 years:	3.19	3.19
Growth curves factor 200 years:	3.74	3.74

(3) Is $SPR/SPRHOST \leq 0.3$?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates

	Default	Edited
Q _{BAR} (l/s):	1.65	1.65
Q ₁ 1 year (l/s):	1.4	1.4
Q ₅₀ 50 years (l/s):	3.79	3.79
Q ₁₀₀ 100 years (l/s):	5.25	5.25
Q ₂₀₀ 200 years (l/s):	6.16	6.16

This report was produced using the greenfield runoff tool developed by HR Wallingford and available at www.uksuds.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement , which can both be found at www.uksuds.com/terms-and-conditions.htm. The outputs from this tool are estimates of greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, CEH, Hydrosolutions or any other organisation for the use of this data in the design or operational characteristics of any drainage scheme.