

CATALYST BICESTER, WENDLEBURY ROAD, BICESTER

TECHNICAL NOTE FW DRAINAGE STRATEGY

Bailey Johnson Hayes
Consulting Engineers

Tel: 01727 841172
Fax: 01727 841085
Email: wb@bjh.co.uk

S1358/June 2020
Issue 1

1.0 Introduction

- 1.1 This foul water drainage technical note has been prepared for Thames Water regarding the development proposals located at Catalyst Bicester, Wendlebury Road, Bicester. The development proposals are for a health and racquets club and thirteen knowledge industry type buildings.
- 1.2 A Flood Risk Assessment was undertaken in February 2020 by Bailey Johnson Hayes. Details of the existing drainage regime, proposed drainage strategy and risk assessment can be found online under planning application reference No. 19/01740/HYBRID.

2.0 Foul Water Drainage

- 2.1 The foul water drainage strategy is included on the accompanying BJH drawing number S1358-Ext-38A. Further details of the connection into the Thames Water adopted sewer can be found on S1358-Ext-56.
- 2.2 The foul water discharge from the new development site will be collected by a new on-site gravity pipe system which will outfall to a new private foul pumping station located in the center of the Catalyst Bicester development. Peak flows for the whole development are calculated at 28.5 l/s. Average dry weather flows generated by the development are calculated at 4.29 l/s. Foul water emergency storage to accommodate 24-hours of daily flows to meet building regulation requirements will be provided.
- 2.3 The foul flows will be pumped from a new pumping station at a flow of 30l/s via a rising main to the existing 600mm diameter Thames Water public sewer located in Lake View Drive approximately 1.0km to the north. A new manhole will be constructed to meet the requirements of Sewers for Adoption 8th edition in the footpath before gravity connecting into the public sewer. This is to prevent direct discharge of the pumped main into the public sewer and to ease further maintenance.
- 2.3 As part of the foul provision, offline storage of approx. 200 m³ has been calculated to meet 24-hour storage requirements. This will be formed in several underground storage tanks connected directly to the new pumping chamber and valve chamber.

3.0 Calculated Foul Flows

- 3.1 The following flows have been calculated using Thames Water DWF tables for the commercial, warehouse and office type buildings. The health and racquets club will be considered separately below:

Table 1 – Catalyst Bicester calculated DWF for thirteen industrial buildings

Property type	Dry weather Flow (l/day)	Existing Site Area	Proposed Gross Area	Total DWF (l/day)	Housing Equivalent
Offices (per 100m ²)	750 l/day	0 m ²	9450 m ²	70,875	118
Warehouse (per 100m ²)	150 l/day	0 m ²	8100 m ²	12,150	20
Commercial Premises (per 100m ²)	300 l/day	0 m ²	9450 m ²	28,350	47
Total =				111,375	185

- 3.2 Using Table 1, the thirteen units alone will generate the following flows:

- Total DWF Discharge (l/day) = 111,375 l/day = 1.29 l/s
- Peak Discharge (6*DWF + 10% Infiltration) = **8.5l/s**

- 3.3 The requirements for the health and racquets club have been outlined by the potential occupier, David Lloyd, as maximum wastewater discharge of 20 litres per second. The swimming pool and any possible trade effluent agreements will be the responsibility of the new tenants.

- Total DWF Discharge (l/day) = 259,200 l/day = 3.0 l/s
- Peak Discharge (6*DWF + 10% Infiltration) = **20.0 l/s**

- 3.4 The total foul flows to be used by Thames Water to assess the capacity requirements for this new development are as follows:



- Total DWF Discharge (l/day) = 370,575 l/day = 4.29 l/s
- Peak Discharge (6*DWF + 10% Infiltration) = **28.5 l/s**

4.0 Summary and Conclusion

- 4.1 It is concluded that the foul drainage strategy should meet the performance requirements of the new Catalyst Bicester development. BJH have used resources such as the site-specific FRA, Sewers for Adoption 8th Ed., UK Building Regulations and evaluated potential users of the site to give a conservative concept design for Thames Water to assess capacity, load and connection capability.
- 4.2 Following on from the submission of the Thames Water Pre-Planning Application in November 2019 it was agreed that the fundamental principles of 30 l/s outlet and connection on Lake View Drive were not a problem. The strategy and calculations together with the outflow details now confirm these figures are of the right order. The response received from TW is below:-

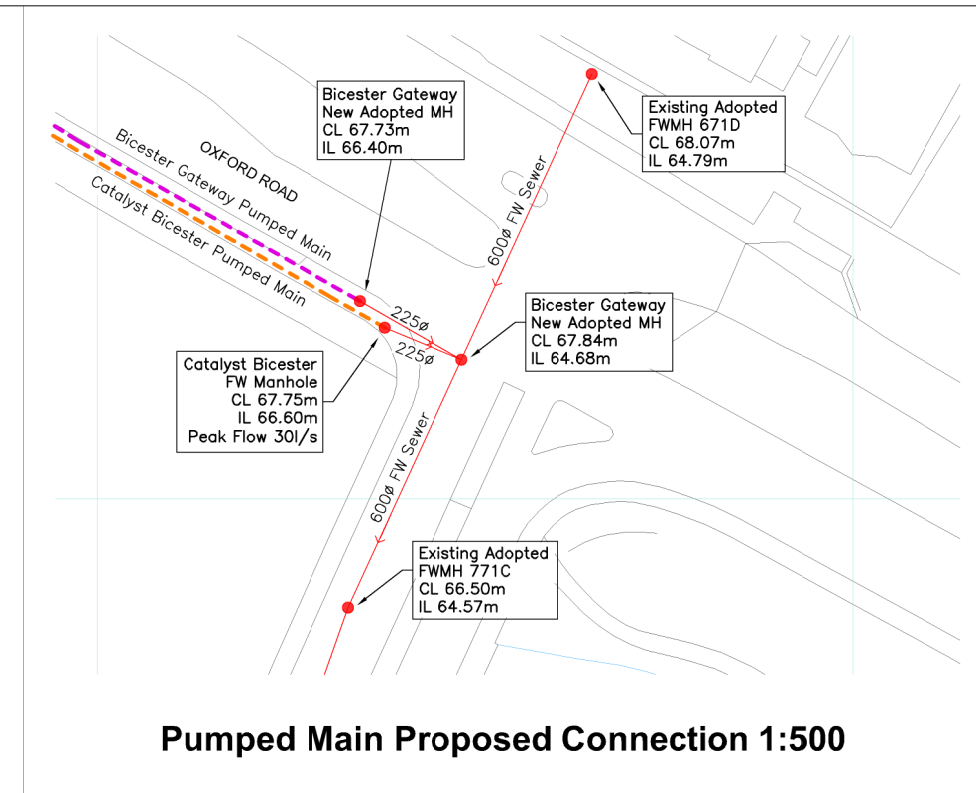
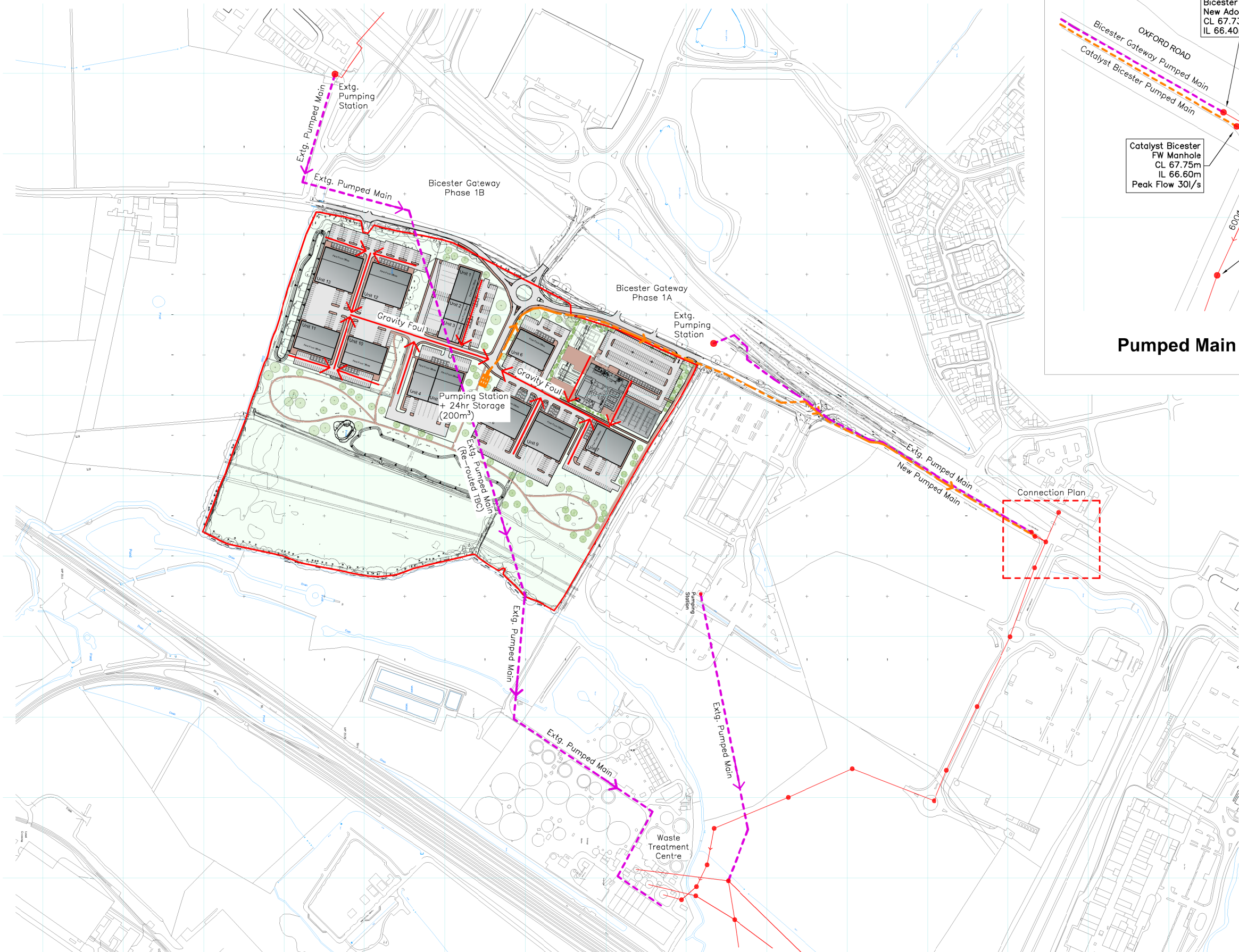
'We will not have a problem with your proposed connection point with the development being planned, although it will be necessary for the swimming pool load to be agreed with an Effluent Discharge Application to also agree the discharge is acceptable, with respect to chemical load.'
– TW Developer Services, Geoff Nokes. (See Email correspondence in Appendices)

- 4.3 It is understood that additional information is required on the type & quality of discharge from the Swimming Pool/Racquets Club. We expect that TW should not have an objection to the 30 l/s flow discharge, but a planning condition suggested that, if necessary, all trade effluent consents be applied for and approved, prior to occupation, so that an acceptable level of chemical load can be discharged into the public sewer.

 <p>..... J Griffiths, MSc, BEng, G.I.C.E On behalf of Bailey Johnson Hayes</p>	 <p>..... W Bailey C.Eng., F.I.Struct.E., M.I.C.E. On behalf of Bailey Johnson Hayes</p>	<p>Bailey Johnson Hayes Consulting Engineers S1358/June 2020</p>
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APPENDIX A

Bailey Johnson Hayes Proposed Drainage Plans & Details Drawings S1358-Ext-38A,56



- Key:
- Proposed Buildings
 - Site Boundary
 - Existing Adopted Foul Pumped Main
 - New Catalyst Bicester Pumped Main route
 - New Foul Pumping Station
 - New Foul Water Flow Paths
 - Existing Foul Pumping Station
 - Existing Gravity Foul Drainage

PRELIMINARY

Rev	Date	Revision Description
A	04.11.19	Minor Revs

Revision Schedule

Catalyst Bicester
Wendlebury Road, Bicester

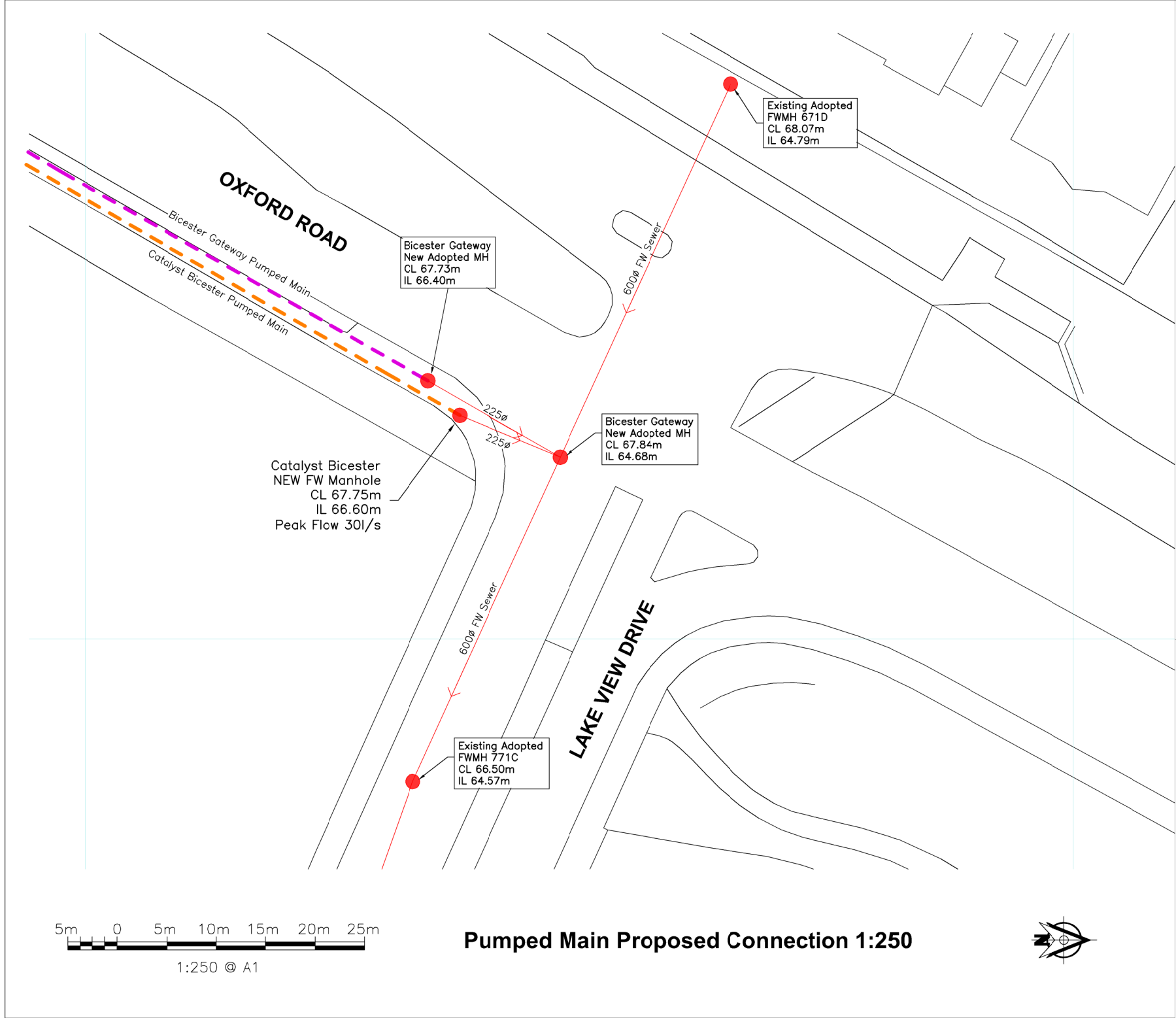
Client:
Albion Land Plc.

CONCEPT FOUL DRAINAGE SCHEME

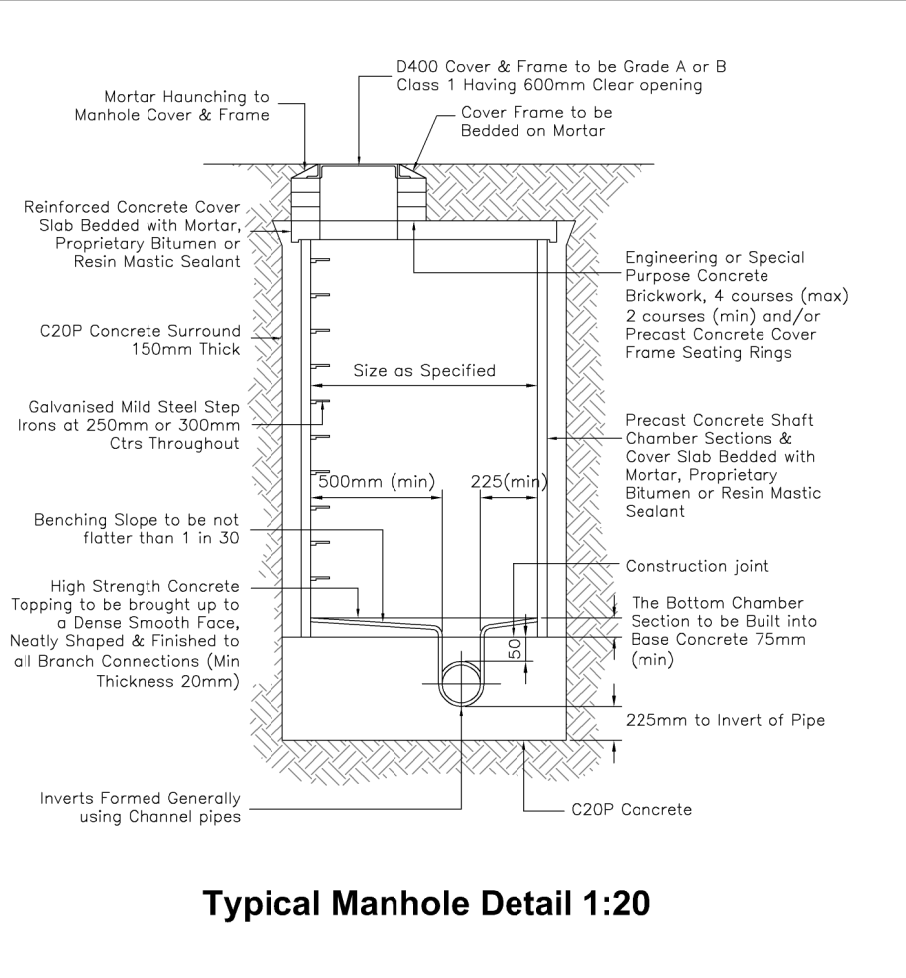
BAILEY JOHNSON HAYES
Consulting Engineers
ST. ALBANS: Suite 4, Phoenix House, 63 Camelfield Rd, ST. ALBANS, Herts AL1 5FL
MANCHESTER: Grange House, John Dalton Street, MANCHESTER, M2 6FW

Scale	1:2500 @ A1	S1358-Ext-38A
Date	22.10.19	
Drawn	JNG	

Concept FW Drainage Layout 1:2500



- Key:
- Proposed Buildings
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 - Existing Foul Pumping Station
 - Existing Gravity Foul Drainage



PRELIMINARY

Rev	Date	Revision Description
Revision Schedule		

Catalyst Bicester
Wendlebury Road, Bicester

Client:
Albion Land Plc.

FW PUBLIC CONNECTION DETAIL

BAILEY JOHNSON HAYES
Consulting Engineers

ST.ALBANS: Suite 4, Phoenix House, 63 Camelfield Rd, ST.ALBANS, Herts AL1 5FL
MANCHESTER: Grange House, John Dalton Street, MANCHESTER, M2 6FW

Scale	1:250 @A1
Date	19.06.20
Drawn	JNG

S1358-Ext-56

APPENDIX B

Thames Water DS & Bailey Johnson Hayes Correspondence and Foul Load Table

From: Geoff Nokes <geoff.nokes@thameswater.co.uk>
Sent: 11 November 2019 16:11
To: Wb
Subject: DS6067432 PPLA OX25 2PA (LAND ADJ PROMISED LAND FARM) CATALYST BICESTER
WENDLEBURY RD CHESTERTON PPE

Follow Up Flag: Follow up
Flag Status: Completed

Bill

Thank you for your Pre Planning enquiry for the above referenced site; we will not have a problem with your proposed connection point with the development being planned, although it will be necessary for the swimming pool load to be agreed with an Effluent Discharge Application to also agree the discharge is acceptable, with respect to chemical load.

Regards

Geoff Nokes

Developer Services – Sewer Adoptions Engineer

Office: 0203 5779 228 Mobile: 07747 640 228

geoff.nokes@thameswater.co.uk

Clearwater Court, Vastern Road, Reading, RG1 8DB



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From: Wb
Sent: 13 November 2019 08:41
To: 'Geoff Nokes'
Cc: Kelvin Pearce (kelvinpearce@albionland.co.uk); emma.lancaster@quod.com; 'Helen Rodger'; James Griffiths
Subject: RE: DS6067432 PPLA OX25 2PA (LAND ADJ PROMISED LAND FARM) CATALYST BICESTER WENDLEBURY RD CHESTERTON PPE

Follow Up Flag: Follow up
Flag Status: Completed

S1358/191113em/WB/LDD



Geoff Nokes
Thames Water

Dear Geoff

Re: **CATALYST BICESTER, WENDLEBURY ROAD, BICESTER**

Many thanks Geoff; I shall liaise with David Lloyd and refer back as soon as possible.

Kind regards.

Yours sincerely

W. Bailey
Bailey Johnson Hayes

Suite 4, Phoenix House
63 Campfield Road
St. Albans, AL1 5FL

Tel: 01727 841172
Fax: 01727 841085
wb@bjh.co.uk
www.bjh.co.uk

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From: Geoff Nokes <geoff.nokes@thameswater.co.uk>
Sent: 05 December 2019 15:00
To: Wb
Subject: RE: DS6067432 PPLA OX25 2PA (LAND ADJ PROMISED LAND FARM) CATALYST BICESTER WENDLEBURY RD CHESTERTON PPE

Follow Up Flag: Follow up
Flag Status: Completed

Will

The Planning condition may say subject to Effluent Discharge Agreement, but this should not be a problem.

Regards

Geoff Nokes

Developer Services – Sewer Adoptions Engineer

Office: 0203 5779 228 Mobile: 07747 640 228

geoff.nokes@thameswater.co.uk

Clearwater Court, Vastern Road, Reading, RG1 8DB



From: Wb <Wb@bjh.co.uk>
Sent: 05 December 2019 14:27
To: Geoff Nokes <geoff.nokes@thameswater.co.uk>
Cc: emma.lancaster@quod.com; Helen Rodger <helen.rodger@quod.com>; Brendan.Mitchell@davidlloyd.co.uk; Kelvin Pearce <kelvinpearce@albionland.co.uk> <kelvinpearce@albionland.co.uk>; James Griffiths <James.Griffiths@bjh.co.uk>
Subject: RE: DS6067432 PPLA OX25 2PA (LAND ADJ PROMISED LAND FARM) CATALYST BICESTER WENDLEBURY RD CHESTERTON PPE

S1358/191205em/WB/LDD



Geoff Nokes
Thames Water

Dear Geoff

Re: CATALYST BICESTER, WENDLEBURY ROAD, BICESTER

I have been in discussions with David Lloyd Leisure Ltd and now attach their partly completed G/02 Form and Schedule of Chemicals for your information.

Please note that the David Lloyd design of their pools is not yet completed and won't be for a little while yet but in the meantime, I trust the attached outline information will enable you to generally confirm that all will be OK in regard of the Planning approvals.

David Lloyd will be of course enter into the Effluent Discharge Agreement in due course and well ahead of their operations actually commencing.

I trust this approach is OK; any problems at all please call me.

Kind regards.

Yours sincerely



W. Bailey
Bailey Johnson Hayes

Suite 4, Phoenix House
63 Campfield Road
St. Albans, AL1 5FL

Tel: 01727 841172
Fax: 01727 841085
wb@bjh.co.uk
www.bjh.co.uk

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From: Geoff Nokes [<mailto:geoff.nokes@thameswater.co.uk>]

Sent: 11 November 2019 16:11

To: Wb

Subject: DS6067432 PPLA OX25 2PA (LAND ADJ PROMISED LAND FARM) CATALYST BICESTER WENDLEBURY RD CHESTERTON PPE

Bill

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Regards

Geoff Nokes

Developer Services – Sewer Adoptions Engineer

Office: 0203 5779 228 Mobile: 07747 640 228

geoff.nokes@thameswater.co.uk

Clearwater Court, Vastern Road, Reading, RG1 8DB



Thames Water DWF Table

	Dry weather flow (in litres /day)	N
General Housing (per property - 3 persons)	600	
Flat (per property - 2 persons)	375	
Primary School (per pupil)	40	
Senior School (per pupil)	80	
Boarding School (per pupil)	225	
Assembly Hall (per seat)	10	
Cinema (per seat)	10	
Theatre (per seat)	10	
Sports Hall (per person)	50	
Hotel (per room)	550	
Guest House (per room)	200	
Motel (per room)	300	
Holiday Apartment (per person)	150	
Leisure Park (per person)	220	
Caravan Pk standard (per space)	250	
Caravan Site serviced (per space)	450	
Camping site standard (per space)	200	
Camping site serviced (per space)	350	
Public House (per seat)	150	
Restaurant/Day Care Centre (per person)	270	
Drive in restaurant (per seat)	380	
Hospital (per bed)	750	
Nursing/Care Home (per bed)	375	
Offices (per 100m sq)	750	
Shopping Centre (per 100m sq)	400	
Warehouse (per 100m sq)	150	
Commercial premises (per 100 m sq)	300	
Manufacturing unit (per 100m sq)	550	

APPENDIX C

Thames Water Pre-Planning Application

Pre- planning enquiry

Application form

Please complete this form and return it to us at
developer.services@thameswater.co.uk or
Thames Water, Developer Services, Clearwater Court,
Vastern Road, Reading, RG1 8DB.



Application for a pre-planning enquiry

Please complete all sections of this form in BLOCK CAPITALS

If you're using this form to request a budget estimate, please note that you should be able to calculate the likely charges involved in your scheme by consulting our guide, 'Charging arrangements for new connection services', on our website.

Are you a: Developer Consultant Land promoter (Please tick one.)

Is your application for: Water Wastewater Both (Please tick one.)

Would you like a water budget estimate? Yes No

(We can only offer a wastewater budget estimate after modelling, if required).

A - About the person applying

Company name

Title Mr Mrs Ms Miss Dr Other

First name(s)

Last name

Preferred contact number

Alternative number

Email address

Full postal address Address line 1

Address line 2

Town

County

Postcode

B - Nominated contact

Who should we contact to process your application? Applicant Someone else (Please tick one.)

If someone else:

Company name

Title Mr Mrs Ms Miss Dr Other

First name(s)

Last name

Preferred contact number

Alternative number

Email address

Full postal address	Address line 1	
	Address line 2	
	Town	
	County	Postcode

C - Where the work is taking place

What is the address of the property being connected?	Same as applicant	Same as nominated contact
	Somewhere else	(Please tick one.)

If somewhere else:

Site name

Full postal address	Address line 1	
	Address line 2	
	Town	
	County	Postcode

D - About the site

What is the local authority?

Ordnance Survey grid ref

Type of site	Greenfield	Brownfield	Mixed
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How big is the site?		hectares
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When do you intend to have first occupancy?	MM	YYYY	(Approximate date if necessary)

E - Planning status (if you've already started the planning process)

Is the development identified in the local plan?	Yes	No	Don't know	If Yes, reference number
--	-----	----	------------	--------------------------

Does it have outline planning permission?	Yes	No	Don't know	If Yes, reference number
---	-----	----	------------	--------------------------

Does it have full planning permission?	Yes	No	Don't know	If Yes, reference number
--	-----	----	------------	--------------------------

Does the development have building regulations permission?	Yes	No	Don't know	
--	-----	----	------------	--

	MM	YYYY
--	----	------

When do you intend to start on site?

F - About the water supply

If you're proposing a water storage tank, what is its capacity?

m³

MM

YYYY

When will you want your first domestic connection laid on?

For water supplies, what is the estimated flow rate required for your site?

litres/sec

(Not required if applying only for wastewater.)

G - Existing sewerage connections (Not required if applying only for water.)

	Foul water	Surface water
Does the site have the following sewerage connections?		
What is the type of discharge method?	Gravity	Gravity
	Pumped	Pumped
If sewage is pumped, what is the pump rate?	litres/sec	litres/sec
Amount of existing impermeable area per connection	N/A	
What are the existing connection points? (For example, 'X' number of domestic and commercial properties drain into manhole 'Y' / sewer with diameter of 'Z'.)		

H - Proposed sewerage connections (Not required if applying only for water.)

	Foul water	Surface water
Does the site have the following sewerage connections?		
What is the type of discharge method?	Gravity	Gravity
	Pumped	Pumped
If sewage is pumped, what is the pump rate?	litres/sec	litres/sec
What is your proposed approach to surface water drainage?	N/A	Traditional piped system
		Sustainable drainage system (SuDS)
Do you propose using separate highway and surface water drainage systems?	N/A	Yes No
If the surface water rate is attenuated, to what rate is it attenuated?	N/A	litres/sec
Amount of proposed impermeable area per connection	N/A	
What are the proposed connection points? (For example, 'X' number of domestic and commercial properties drain into manhole 'Y' / sewer with diameter of 'Z'.)		

Please note: The developer is expected to follow the local authority's drainage strategy and be able to demonstrate how the proposed (attenuated) discharge rate of any surface water flows has been calculated. For developments in Greater London, please refer to the London Plan Drainage Hierarchy (Policy 5.13). We will challenge the rates provided if they are not in line with those based on the local drainage strategies.

I - Additional information (where available)

When we're assessing your development needs, it's important that we know what buildings (if any) currently exist on the site. It may be, for example, that the infrastructure serving those properties is already sufficient to cater for your proposed development.

We realise it may be too early in your process to complete this table, but any information you can provide at this stage will help improve the accuracy of our assessment and could prevent us from requesting data in the future.

Property type	Existing site	Proposed site
General housing (units 3 person+)		
Flat (units up to 2 person)		
Primary school (max. pupil capacity)		
Senior school (max. pupil capacity)		
Boarding school (max. pupil capacity)		
Assembly hall (max. capacity)		
Cinema (max. capacity)		
Theatre (max. capacity)		
Sports hall (max. capacity)		
Hotel (total bedrooms)		
Guest house (total bedrooms)		
Motel (total bedrooms)		
Holiday apartment (capacity)		
Leisure park (capacity)		
Caravan park standard (per space)		
Caravan site standard (per space)		
Camping site standard (per space)		
Camping site serviced (per space)		
Public house (max. capacity)		
Restaurant / Day care centre (max. capacity)		
Drive in restaurant (max. capacity)		
Hospital (per bed)		
Nursing / Care home (per bed)		
Offices (gross internal area in m ²)		
Shopping centre (gross internal area in m ²)		
Warehouse (gross internal area in m ²)		
Commercial premises (gross internal area in m ²)		
Manufacturing unit (gross internal area in m ²)		
Other (please state units and description)		

J - Enclose your documents

Please make sure any attachments are in PDF format and don't exceed a total of 20MB in size per email.

All drawings must be of suitable detail and have a drawing reference number on them.

What we need from you to process your application:

Site location plan This should show the site with nearby buildings, roads and any sewers.

Scaled site layout This should show existing and proposed layouts.

Site drainage strategy plan (if available at this stage) This should show all proposed sewers, pipe sizes and gradients.
(Not required if applying only for water.)

Please also let us know if you have a **schedule of planned works** showing how you might phase your development.

Please note, without this information we may need to make assumptions about your requirements when calculating your budget estimate (if requested).

K - How we'll use this information

We'll use the information you give on this application form, and potentially share it with our delivery partners, to provide the service you've requested.

This could include contacting you to discuss your application and/or provide more details, visiting the site where work needs to be carried out, and invoicing you when appropriate. Your feedback is important to us, so we may also use the information to ask for your feedback on how we can improve our performance.

We won't use this information for marketing purposes without contacting you to seek your consent.

You can find Thames Water's privacy policy at thameswater.co.uk/Legal/Privacy.

L - Declaration

I confirm to the best of my knowledge that the information in this application is complete and correct.

Print name

Position within company

Company

Date

Signature

William Bailey Digitally signed by William Bailey
Date: 2019.11.04 15:58:52 Z

Submitting your application

Please email your completed form to developer.services@thameswater.co.uk or send it to Thames Water Developer Services, Clearwater Court, Vastern Road, Reading RG1 8DB.

Once we've assessed your application, we'll write to tell you the result within 21 calendar days.

Where we know there's sufficient capacity we'll tell you, but if we're concerned there may not be, we'll advise you of the next steps. We'll also let you know if we need further information from you.

Getting in touch

For enquiries regarding this application or any other questions relating to your building or development work please contact us on:



thameswater.co.uk/developerservices



developer.services@thameswater.co.uk



0800 009 3921

Monday – Friday, 8am – 5pm



Thames Water, Developer Services, Clearwater Court,
Vastern Road, Reading, Berkshire RG1 8DB



This leaflet can be supplied in braille or audio-tape upon request.

