



Head Office
Unit 7, Calder Close
Calder Park
Wakefield WF4 3BA

Phone: +44 (0) 845 023 0323
Fax: +44 (0) 207 297 2100
Web: www.bjbconsult.co.uk

London – Birmingham – Wakefield

FOUL DRAINAGE STATEMENT

BROAD STREET MALL, READING

FOR

**INCEPTION (READING) SARL
(C/O MOORGARTH GROUP LTD)**



DECEMBER 2018

REPORT REF: 2206-FS01

CIVIL/STRUCTURAL ENGINEERS | DEVELOPMENT CONSULTANTS | PROJECT MANAGERS

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PREPARED BY	CHECKED BY	DATE	REVISION
Ben Jagger MEng (Hons) Project Engineer	Basil Basray BEng (Hons), CEng, MStructE Managing Director	December 2018	-

1.0 INTRODUCTION

BJB Consulting has been commissioned by Inception (Reading) Sarl (c/o Moorgarth Group Ltd) to produce a Foul Drainage Statement (FDS) to accompany the planning application for the development of this subject site.

The comments given in this report and the opinions expressed are subject to BJB Consulting Service Constraints provided in Appendix A.

2.0 LOCATION AND TOPOGRAPHY

2.1 Site Location

The site is located within Reading town centre, approximately 450 metres (m) southwest of Reading railway station, in a mixed-use commercial, retail and residential area. Oxford Road is located adjacent to the north of the site, beyond which numerous retail, residential and commercial buildings are located. St. Mary's Butts is located adjacent to the east of the site, beyond which a church and further retail, residential and commercial buildings are located. A public house is located adjacent to the southeast of the site. A theatre and a small park are located adjacent to the south of the site. A walkway and a hotel are located adjacent to the west of the site.

The overall area of the site is approximately 1.86 hectares and the National Grid Reference for the approximate centre of the site is 471220, 173360.

2.1.1 SITE DESCRIPTION AND TOPOGRAPHY

The subject site supports a shopping mall ('Broad Street Mall') arranged over basement level, ground floor and one upper floor. Furthermore, office accommodation ('Quadrant House') is located within the eastern area of the site and further office accommodation ('Fountain House') is located within the north-western corner of the site. A multi-storey car park is located within the south-western area of the site and numerous further car parking spaces are located on the roof of the shopping mall. The basement level extends underneath the development and includes numerous plant rooms, the main waste storage area and numerous storage rooms associated with the retail units on-site.

Figure 1 below shows the general site area.



FIGURE 1: GENERAL SITE AREA (WWW.GOOGLE.CO.UK/MAPS ACCESSED 11.07.18)

2.2 Development Proposals

The proposed scheme is developed into five distinct structure, as outlined below:

Construction of three residential buildings (Use Class C3) ranging in height from 5 to 22 storeys above Broad Street Mall and provision of a podium level amenity area; Construction of an 18 storey building on South Court comprising ground and first floor retail (Use Class A1/A2/A3) and residential over upper floors (Use Class C3); Change of use and extension of Quadrant House to form a 3 storey residential building (Use Class C3); Creation of three ground floor retail units (Use Class A1/A2/A3) fronting Dusseldorf Way and Queens Walk; All necessary enabling and alteration works required within the existing Broad Street Mall basement, ground and upper floors; Associated car park alterations, provision of servicing and refuse storage, cycle parking, public realm, landscape, and other works incidental to the phased development.

3.0 FOUL WATER STATEMENT

3.1 Proposed Foul Water Drainage Statement

The discharge loads for the proposed new residential development are based on the occupancy and use of the development as set out in the British Water Code of Practice: Flows and Loads 4 (BW COP: 18.11/13):

Site A:

SOURCE OF WASTE					Flow litre / DAY	
Description	No of dwellings	Occupancy	No	No. with reduction factor (0.8) applied	Per Head	TOTAL
Residential property (1 bed)	87	1.5	131	105	150	15750
Residential property (2 bed)	83	2.5	208	166	150	24900
Residential property (3 bed)	2	3.5	7	6	150	900
Total load(s)					41550	litres/day
					41.55	m ³ /day

Note: Occupancy figures are as set out in BW COP: 18.11/13.

Estimated foul flow based on a peak flow factor of 6 plus 10% (6DWF) =

$$Q_{F,A} = (41550 \times 6 \times 1.1) / (24 \times 3600)$$

$$Q_{F,A} = 3.2 \text{ l/s}$$

The estimated foul discharge for Site A equates to 3.2 l/s. This represents the maximum peak flow for Site A.

Site B:

SOURCE OF WASTE					Flow litre / DAY	
Description	No of dwellings	Occupancy	No	No. with reduction factor (0.8) applied	Per Head	TOTAL
Residential property (1 bed)	33	1.5	50	40	150	6000
Residential property (2 bed)	103	2.5	256	205	150	30750
Residential property (3 bed)	3	3.5	11	9	150	1350
Total load(s)					38100	litres/day
					38.1	m ³ /day

Note: Occupancy figures are as set out in BW COP: 18.11/13.

Estimated foul flow based on a peak flow factor of 6 plus 10% (6DWF) =

$$Q_{F,B} = (38100 \times 6 \times 1.1) / (24 \times 3600)$$

$$Q_{F,B} = 2.9 \text{ l/s}$$

The estimated foul discharge for Site B equates to 2.9 l/s. This represents the maximum peak flow for Site B.

Site C:

SOURCE OF WASTE					Flow litre / DAY	
Description	No of dwellings	Occupancy	No	No. with reduction factor (0.8) applied	Per Head	TOTAL
Residential property (1 bed)	51	1.5	77	62	150	4774
Residential property (2 bed)	46	2.5	115	92	150	13800
Residential property (3 bed)	2	3.5	7	6	150	900
Total load(s)						19474 litres/day
						19.474 m ³ /day

Note: Occupancy figures are as set out in BW COP: 18.11/13.

Estimated foul flow based on a peak flow factor of 6 plus 10% (6DWF) =

$$Q_{F,C} = (19474 \times 6 \times 1.1) / (24 \times 3600)$$

$$Q_{F,C} = 1.5 \text{ l/s}$$

The estimated foul discharge for Site C equates to 1.5 l/s. This represents the maximum peak flow for Site C.

Site D:

SOURCE OF WASTE					Flow litre / DAY	
Description	No of dwellings	Occupancy	No	No. with reduction factor (0.8) applied	Per Head	TOTAL
Residential property (1 bed)	17	1.5	26	21	150	3150
Residential property (2 bed)	3	2.5	8	6	150	900
Residential property (3 bed)	11	3.5	39	31	150	4650
Total load(s)						8700 litres/day
						8.7 m ³ /day

Note: Occupancy figures are as set out in BW COP: 18.11/13.

Estimated foul flow based on a peak flow factor of 6 plus 10% (6DWF) =

$$Q_{F,D} = (8700 \times 6 \times 1.1) / (24 \times 3600)$$

$$Q_{F,D} = 0.7 \text{ l/s}$$

The estimated foul discharge for Site D equates to 0.7 l/s. This represents the maximum peak flow for Site D.

Site E:

SOURCE OF WASTE					Flow litre / DAY	
Description	No of dwellings	Occupancy	No	No. with reduction factor (0.8) applied	Per Head	TOTAL
Residential property (1 bed)	26	1.5	39	31	150	4650
Residential property (2 bed)	18	2.5	45	36	150	5400
Residential property (3 bed)	8	3.5	28	22	150	3300
Total load(s)						13350 litres/day
						13.35 m ³ /day

Note: Occupancy figures are as set out in BW COP: 18.11/13.

Estimated foul flow based on a peak flow factor of 6 plus 10% (6DWF) =

$$Q_{F,E} = (13350 \times 6 \times 1.1) / (24 \times 3600)$$

$$Q_{F,E} = 1.0 \text{ l/s}$$

The estimated foul discharge for Site E equates to 1.0 l/s. This represents the maximum peak flow for Site D.

The total cumulative load for all the sites = 121174 litres/day

Therefore, the total estimated foul flow based on a peak flow factor of 6 plus 10% (6DWF) =

$$Q_{F,T} = (121174 \times 6 \times 1.1) / (24 \times 3600)$$

$$Q_{F,T} = 9.3 \text{ l/s}$$

The total estimated foul discharge for the entire proposed development equates to 9.3 l/s. This represents the maximum peak flow for the new proposed development.

4.0 SUMMARY

The existing shopping centre is served by extensive existing above and below ground foul drainage pipework, which can be utilised in the proposed areas of Sites A-E.

The final outfalls of the existing foul network connect into the existing public sewer in Oxford Road and Hosier Street. The existing public sewer records have been provided via the Thames Water Asset Location Search and the report can be found in Appendix B.

APPENDIX A

BJB Consulting Service Constraints

SERVICE CONSTRAINTS

This report (together the “Services”) were compiled and carried out by BJB Consulting (BJB) for Inception (Reading) Sarl (c/o Moorgarth Group Ltd) (the “client”) in accordance with their instruction. The Services were performed by BJB with the reasonable skill and care ordinarily exercised by a reasonable Civil Engineer at the time the Services were performed. Further, and in particular, the Services were performed by BJB taking into account the limits of the scope of works required by the client, the time scale involved and the resources, including financial and manpower resources, agreed between BJB and the client.

Other than that expressly contained in paragraph 1 above, BJB provides no other representation or warranty whether express or implied in relation to the Services.

Unless otherwise agreed the Services were performed by BJB exclusively for the purposes of the client. BJB is not aware of any interest of or reliance by any party other than the client in or on the Services. Unless expressly provided in writing BJB does not authorise, consent or condone any party other than the client relying upon the Services. Should this report or any part of this report, or otherwise details of the Services or any part of the Services be made known to any such party, and such parties relies thereon that party does so wholly at its own and sole risk and BJB disclaims any liability to such parties. Any such party would be well advised to seek independent advice from a competent environmental consultant and/or lawyer.

It is BJB’s understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was a significant factor in determining the scope and level of the Services. Should the purpose for which the report is used, or the proposed use of the site change, this report may no longer be valid and any further use of or reliance upon the report in those circumstances by the client without BJB’s review and advice shall be at the client’s sole and own risk. Should BJB be requested to review the report after the date hereof, BJB shall be entitled to additional payment at the then existing rates or such other terms as agreed by BJB and the client.

The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. This information and conclusions contained in this report should not be relied upon in the future without the written advice of BJB. In the absence of such written advice of BJB, reliance on the report in the future shall be at the client’s own and sole risk. Should BJB be requested to review the report in the future, BJB shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between BJB and the client.

The observations and conclusions described in this report are based solely upon the Services, which were provided pursuant to the agreement between the client and BJB. BJB has not performed any observations, investigations, studies or testing not specifically set out or required by the contract between the client and BJB. BJB is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, BJB did not seek to evaluate the presence on or off the site of asbestos, electromagnetic fields, lead paint, heavy metals, radon gas or other radioactive or hazardous materials.

The services are based upon BJB's observations of Environment Agency Flood Maps of the Site together with BJB's interpretation of information including documentation, obtained from third parties and from the client on flooding and drainage issues relating to the Site. The Services clearly are limited by the accuracy of the information, including documentation. Further BJB was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the Services. BJB is not liable for any inaccurate information or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to BJB and including the doing of any independent investigation of the information provided to BJB save as otherwise provided in the terms of the contract between the client and BJB.

Any site drawings provided in this report is (are) not meant to be an accurate base plan, but is (are) used to present the general relative locations of features on, and surrounding, the site.

APPENDIX B

Thames Water Asset Location Search Report

Asset Location Search



Groundwise Searches Ltd
Suite 8 Chichester House
45 Chichester Road
SOUTHEND ON SEA
SS1 2JU

Search address supplied Broad Street Mall
Reading
RG1 7QE

Your reference 18731DM

Our reference ALS/ALS Standard/2016_3411896

Search date 15 September 2016

Notification of Price Changes...

From **1 September 2016** Thames Water Property Searches will be increasing the prices of its Asset Location Searches. This will be the first price rise in three years and is in line with the RPI at 1.84%. The increase follows significant capital investment in improving our systems and infrastructure.

Enquiries received with a higher payment prior to 1 September 2016 will be non-refundable. For further details on the price increase please visit our website at

www.thameswater-propertysearches.co.uk





ALS Sewer Map Key

Public Sewer Types (Operated & Maintained by Thames Water)

	Foul: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.
	Surface Water: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.
	Combined: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.
	Trunk Surface Water
	Trunk Foul
	Storm Relief
	Trunk Combined
	Vent Pipe
	Bio-solids (Sludge)
	Proposed Thames Surface Water Sewer
	Proposed Thames Water Foul Sewer
	Gallery
	Foul Rising Main
	Surface Water Rising Main
	Combined Rising Main
	Sludge Rising Main
	Proposed Thames Water Rising Main
	Vacuum

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

	Air Valve
	Dam Chase
	Fitting
	Meter
	Vent Column

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

	Control Valve
	Drop Pipe
	Ancillary
	Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol, Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

	Outfall
	Undefined End
	Inlet

Other Symbols

Symbols used on maps which do not fall under other general categories

	Public/Private Pumping Station
	Change of characteristic indicator (C.O.C.I.)
	Invert Level
	Summit

Areas

Lines denoting areas of underground surveys, etc.

	Agreement
	Operational Site
	Chamber
	Tunnel
	Conduit Bridge

Other Sewer Types (Not Operated or Maintained by Thames Water)

	Foul Sewer
	Surface Water Sewer
	Combined Sewer
	Gully
	Culverted Watercourse
	Proposed
	Abandoned Sewer

Notes:

- 1) All levels associated with the plans are to Ordnance Datum Newlyn.
- 2) All measurements on the plans are metric.
- 3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.
- 4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.
- 5) 'na' or '0' on a manhole level indicates that data is unavailable.

- 6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimetres. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology present on the plan, please contact a member of Property Insight on 0845 070 9148.

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.