

Figure A1 - Existing Impermeable Area Plan

Figure A2 - Proposed Impermeable Area Plan





APPENDIX B THAMES WATER RECORDS



Figure B1 - Extract from Thames Water Asset Search showing a combined sewer

blic Sewer Types (Oper	ated & Mainta	ned by Thames Water)	Sew	er Fittings	Other	Symbols		
 Foul: A server designed to convey weak value from dametic and industrial sources to a treatment works. 		A fadure in a server that does not affect the flow in the pipe. Example: a vert is a fitting as the function of a vert is to release excess gas. A rividing Deer Change		Syndolis used on maps which do not fill under other general categories Image of the advected of the second secon		wrai categories		
water from roafs, yands and	car parks) to the	ers or valencourses.		Filling Shaker	4	Invertiavel Summit		
- Truck Surface Water		Trank Final	O Ope	Vert Calum rational Controls or in a searchal charges or chests the fear in the searc. Example:	Lines den	ding amas of underground su Agreement	nays, ale.	
 Burn Hatel Vert Pice 	-	Truck Continued	X D	strate and the four passing council team. Control Valve Drop Pige		Operational Site Chamber		
Proposed Themes Surface Water Sever	++	Proposed Thames Vistar Final Sever	8	Ancillary Www		Turnel Conduit Bridge		
Galery Gafece Water Raing	-	Foul Rising Main	End by Undefinition	Rems holds appear at the start or end of a saver pipe. Examples: an of End at the start of a server indicates that Thaness Water has no gar of the position of the server upstream of their spheric. Outfill on a water sover indicates that the pipe discharges risks a stream or nice.	Other	Sewer Types (her o	Operated or Mai	rtained by Thames Wo Surface Water Sever
L Dutys Rong then	-12-1	Proposed Themes Water Rising Main	v	Current	-	Combined Sever Culterfed Watercourse	**	Culley Proposed
Vacuum			4	Undefined End			***	Abandoned Sever

Figure B2 - Key to Thames Water Asset Search

S) 'ne' or V on a

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
16BI	n/a	n/a
16BJ	n/a	n/a
16BC	n/a	n/a
16BD	n/a	n/a
15GH	n/a	n/a
15GI	n/a	n/a
1536	n/a	n/a
06FF	n/a	n/a
16CD	n/a	n/a
16DB	n/a	n/a
16DC	n/a	n/a
1602	n/a	22.3
1603	n/a	n/a
07BH	n/a	n/a
07BI	n/a	n/a
07CC	n/a	n/a
1701	27.65	23.85
07CD	n/a	n/a
15FE	n/a	n/a
05DA	n/a	n/a
15FC	n/a	n/a
05CA	n/a	n/a
051A	n/a	n/a
051B	n/a	n/a
06FA	n/a	n/a
06EB	n/a	n/a
06EC	n/a	n/a
0602	n/a	n/a
061B	n/a	n/a
061A	n/a	n/a
16CB	n/a	n/a
05EG	n/a	n/a
05F1	n/a	n/a
05EF	n/a	n/a
0601	n/a	n/a
06HA	n/a	n/a
0603	n/a	n/a
0605	n/a	n/a
07BE	n/a	n/a
07AF	n/a	n/a
07CB	n/a	n/a
The position of the apparatus chown on	this plan is given without obligation and warranty and	d the aneurany cannot be guaranteed. Service pines at

Figure B3 - Manhole Invert and Cover Levels







Search address supplied

Bayham Street London NW1 0AA

75

Your reference	P3096 75 Bayham Street NW1
Our reference	SFH/SFH Standard/2015_2969985
Received date	12 February 2015
Search date	12 February 2015

Thames Water Utilities Ltd Property Searches PO Box 3189 Slough SL1 4WW

DX 151280 Slough 13 T 0118 925 1504

searches@thameswater.co.uk www.thameswaterpropertysearches.co.uk

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Sewer Flooding **History Enquiry**

History of Sewer Flooding

Is the requested address or area at risk of flooding due to overloaded public sewers?

The flooding records held by Thames Water indicate that there have been no incidents of flooding in the requested area as a result of surcharging public sewers.

For your guidance:

- · A sewer is "overloaded" when the flow from a storm is unable to pass through it due to a permanent problem (e.g. flat gradient, small diameter). Flooding as a result of temporary problems such as blockages, siltation, collapses and equipment or operational failures are excluded.
- · "Internal flooding" from public sewers is defined as flooding, which enters a building or passes below a suspended floor. For reporting purposes, buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.
- · "At Risk" properties are those that the water company is required to include in the Regulatory Register that is presented annually to the Director General of Water Services. These are defined as properties that have suffered, or are likely to suffer, internal flooding from public foul, combined or surface water sewers due to overloading of the sewerage system more frequently than the relevant reference period (either once or twice in ten years) as determined by the Company's reporting procedure.
- · Flooding as a result of storm events proven to be exceptional and beyond the reference period of one in ten years are not included on the At Risk Register.
- · Properties may be at risk of flooding but not included on the Register where flooding incidents have not been reported to the Company.
- · Public Sewers are defined as those for which the Company holds statutory responsibility under the Water Industry Act 1991.
- · It should be noted that flooding can occur from private sewers and drains which are not the responsibility of the Company. This report excludes flooding from private sewers and drains and the Company makes no comment upon this matter.
- · For further information please contact Thames Water on Tel: 0800 316 9800 or website www.thameswater.co.uk

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APPENDIX C PHOTOGRAPHS



Photograph 1



Photograph 2



Photograph 3



Photograph 4





Photograph 5- View of front of the building



Photograph 6 – View of front of the building



Photograph 7- Internal view of rear 'leg' of building



Photograph 8 – View from front building of lower roofs





APPENDIX D **OUTLINE STRUCTURAL DRAWINGS**



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PRELIMINARY CONSTRUCTION SEQUENCE FOR UNDERPINNING

Preliminary sequence to be developed in detail by the contractor following trial excavation.

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APPENDIX E **CONSTRUCTION METHOD STATEMENT**

CONSTRUCTION METHOD STATEMENT

- E.01 The following provides an outline Method Statement for the construction of the basement. This will be developed and finalised by the appointed Contractor, once the detailed design is complete. An outline construction programme has been included in Appendix G.
- E.02 Prior to works commencing, schedules of condition will be carried out to adjoining properties as part of the party wall process.
- E.03 Precise monitoring points will be fixed to the party walls and adjoining buildings in accordance with the agreed 'Monitoring and Contingency Plan'. Initial 'base' readings will be taken.
- E.04 The site and adjoining pavement will be scanned and marked for services prior to the commencement of any excavation works.
- E.05 A full depth trial excavation will be carried out by the Contractor prior to the commencement of the main excavation works. This will enable the Contractor to identify whether there is any perched water on the interface between the made ground and London Clay, and to check how readily the subsoil stands un-supported.

Any perched water should be collected in sumps during the excavation works and pumped.

Should the excavation sides be found locally to be unstable or there is unacceptable loss of material from the excavated face, then contingency plans will be developed, likely to include back shuttering behind the underpinning. These proposals will include measures to ensure no voids are left behind the back shuttering.

- E.06 The construction will commence with the underpinning works to the existing party walls. This will be carried out to an agreed sequence, to ensure there is at least 2m between any two open pins. A possible approach for the underpinning is shown on drawing P3096/10, which illustrates the propping that will be required during the excavation works. At this stage it is assumed that two levels of underpinning will be required, except for the part of the site adjoining Bayham Street, where the required underpinning depth will be less due to the existing and former basements. However this can be reviewed following the trial excavation.
- E.07 Lateral props will be installed within the existing buildings close to floor and roof levels prior to demolition of the existing structure. In general these will be installed full width across the building from party wall to party wall, or across corners.
- E.08 The majority of the existing floors will then be demolished, leaving the restrained party walls in place. The timing of the demolition, excavation and reconstruction works shall be to a continuous programme to minimise the heave of the clay subsoils that might result from the temporary unloading.
- E.09 The remaining sections of retaining structure can then be constructed. To the Bayham Street elevation, temporary works will be installed to ensure the stability of the adjoining pavement. Internally the retaining structure will be a reinforced concrete wall cast in sections.

- Bulk excavation will then commence. Any minor water inflows to the basement E.10 excavation will be collected in sumps and pumped. Temporary horizontal props will be installed as described previously. Permanent propping will be achieved by the ground floor slab. Regular monitoring readings will be taken and compared with 'Red' and 'Amber' trigger levels.
- E.11 When bulk excavation is complete to basement level, the bottom surface of the excavation will be immediately blinded.
- E.12 Strips of the basement raft slab will then be constructed and tied into the concrete underpins, to act as a permanent prop to the base of the underpinning. These strips will run laterally across the basement excavation from one side to the other to directly act as props. The sections of clay subsoil between these strips will be able to heave while the remaining structural works are carried out.
- E.13 Works can then proceed with the construction of the ground floor slab.
- E.14 Following completion of the ground floor slab, which acts as a permanent prop to the excavation, the propping can be removed.
- E.15 The superstructure of the new building can then be progressed. As each new floor level is constructed and tied into the party walls, the temporary lateral propping can be removed.
- E.16 At a later stage in the construction, once the majority of the heave has occurred, the remaining parts of the basement slab will be cast.





APPENDIX F PRELIMINARY STRUCTURAL CALCULATIONS

F1.00 INTRODUCTION

F1.01 These preliminary calculations are for planning purposes only. Detailed calculations will be developed in due course in respect of Part A of The Building Regulations

BRITISH STANDARDS F2.00

F2.01 The following Standards will be applied in the detailed design: -

BS648	Weights of Building Materials
BS5268: Part 2	Structural use of Timber: Permissible Stress design, materials and workmanship
BS5628: Part 1	Structural use of unreinforced masonry
BS5950:Part1	Structural Steelwork-Simple & continuous construction
BS5977:Part1	Lintels: Method for Assessment of Load
BS6399:Part 1	Code of Practice for Dead and Imposed Load
BS6399:Part 3	Code of Practice for Imposed Roof Load
BS8110:Part 1	Structural use of concrete

F3.00 LOADING

F3.01 Terrace Roof

Dead Load		
50mm Paving Slabs	1.20	kN/m ²
Boarding and Insulation	0.10	kN/m ²
120mm Concrete Slab on Metal Decking	2.60	kN/m ²
Ceiling and Services	0.40	kN/m ²
Total Dead Load	4.30	kN/m²
Total Live Load	4.00	kN/m²

Flat Roof

Dead Load		
Code 8 Lead or 20mm Asphalt	0.50	kN/m ²
Insulation	0.10	kN/m ²
Timber joists and Boarding	0.40	kN/m ²
Ceiling and Services	0.40	kN/m ²
Total Dead Load	1.40	kN/m²
Total Live Load	0.75	kN/m²

Ground to Third Floors

Dead Load

Finishes Screed (65mm) 120mm Concrete Slab on Metal Decking Ceiling and Services **Total Dead Load**

Total Live Load (+1.0 kN/m²)

Existing 330 thk External wall (Solid brick wall)

Dead Load 330mm thk Brick wall Finishes Total Dead Load on elevation

400mm Raft Slab

Dead Load Concrete Raft Insulation 110mm Screed

Total Dead Load Total Live Load (+1.0 kN/m²)

- F4.00 PRELIMINARY CALCULATIONS
- F4.01 Calculation of Line Load on Underpinning (loads per linear meter)



<u>Key plan</u>



0.25	kN/m ²
1.45	kN/m ²
2.60	kN/m ²
0.50	kN/m ²
4.80	kN/m ²
3.50	kN/m²

7.15	kN/m ²
0.25	kN/m ²
7.40	kN/m²

9.60	kN/m ²
0.01	kN/m ²
2.40	kN/m ²

12.01	kN/m²
3.50	kN/m²

	Loads from roof and floors in Zone A (grid line A to	<u>b B): tributary width= 3.30m</u>	F5.02	Sliding Capacity Check									
	<u>Wall Load:</u> 7.40 kN/m ² x 12.00 m= Existing Corbel (assumed)=	88.80 kN/m 4.00 kN/m <u>92.80 kN/m</u>		Weight of underpinning wall W_w = 0.60 m x 3.50 m x 24 kN/m ³ = Weight of wall base W_b = 0.50 m x 2.1 m x 24 kN/m ³ = Line load from existing structure as calculated above W_p = Total Vertical Load W_t =	50.40 kN/m 25.20 kN/m 125.80 kN/m <u>201.40 kN/m</u>								
	Roof= 3.30 m x (1.40 kN/m ² + 0.75 kN/m ²)= Floors= 5 x 3.30 m x (4.80 kN/m ² + 3.50 kN/m ²)= Total Load on Underpinning Walls=	7.10 kN/m 137.00 kN/m <u>144.10 kN/m</u> 236.90 kN/m		Coefficient of fiction (Concrete to sand/gravel) is 0.40 Friction force $F_F = \mu \times W_t = 0.40 \times 201.40 = 80.56 \text{ kN}$ Assume passive pressure force (Fp)= 0. Hence factor of safety a Sf= $F_F / ((pa_1 + 2x pa_2) \times 1 / 6) = 80.56 / ((18.13 + 2 \times 43.55) \times 2.8)$	gainst sliding is: / 6)= 80.56 / 49								
	Loads from roof and floors in Zone B (grid line B to	C: tributary width= 2.45m	F5.03	>1.5 <i>OK</i> <u>Overturning Capacity Check</u>									
	<u>Wall Load:</u> 7.40 kN/m ² x 8.20 m= Existing Corbel (assumed)=	60.70 kN/m 4.00 kN/m <u>64.70 kN/m</u>		Taking moments about the edge of the heel, the sum of overturn $M_{over} = Fa \times h / 3 = 104.52 \times 4.8 / 3 = 167.24 \ kNm$ Sum of restoring moments (Mres) is: $Mres = W_w \times 1.80 + W_b \times 1.05 + W_p \times 1.80 = 50.40 \times 1.80 + 25.20 \times 1.08$	ing moments (M 5 + 125.80x1.80								
	Roof= 2.45 m x (4.30 kN/m ² + 4.00 kN/m ²)= Floors= 2 x 2.45 m x (4.80 kN/m ² + 3.50 kN/m ²)=	20.40 kN/m 40.70 kN/m <u>61.10 kN/m</u>	F6.00	Factor against overturning is 343.62 / 167.24= 2.05 > 2.0 <i>OK</i>									
	Total Load on Underpinning Walls=	<u>125.80 kN/m</u>	F6.01	Horizontal load (during construction)									
F5.00 F5.01	REAR ELEVATION UNDERPINNING DESIGN Horizontal load			Back soil to be London Clay Density ρ = 18.5 kN/m ³ Internal angle of friction Φ = 20 degrees									
	Back soil to be London Clay Density ρ = 18.5 kN/m ³ Internal angle of friction Φ = 20 degrees			ka= (1-sinΦ) / (1+sinΦ)= (1-sin20°) / (1+sin20°)= (1-0.34) / (1+0) where Φ= internal angle of friction ρ= unit weight of soil	0.34)= 0.66 / 1.3								
	ka = (1-sin Φ) / (1+sin Φ)= (1-sin20°) / (1+sin20°)= where d Φ = internal angle of friction ρ = unit weight of soil pa_1 = $ka \times \rho \times h_1$ = 0.49 × 18.5 kN/m ³ × 2.00 m = 14	(1-0.34) / (1+0.34)= 0.66 / 1.34= 0.492 8.13 kN/m² (at prop level)		$pa_1 = ka \times \rho \times h_1 = 0.49 \times 18.5 \text{ kN/m}^3 \times 2.00 \text{ m} = 18.13 \text{ kN/m}^2$ (at $pa_2 = ka \times \rho \times h_2 = 0.49 \times 18.5 \text{ kN/m}^3 \times 4.80 \text{ m} = 43.55 \text{ kN/m}^2$ (at where ka= coefficient of active pressure h= height of retained fill	prop level) t the bottom of e								
	$pa_2 = ka \times \rho \times h_2 = 0.49 \times 18.5 \text{ kN/m}^3 \times 4.80 \text{ m} = 4$ where ka= coefficient of active pressure h= height of retained fill	3.55 kN/m ² (at the bottom of excavation)	F6.02	Total horizontal force on wall due to backfill is: Fa= 0.5 x pa x h = 0.5 x 43.55 kN/m ² x 4.8 m= 104.52 kN <u>Sliding Capacity Check (during construction)</u>									
	Total horizontal force on wall due to backfill is: $Fa = 0.5 \times pa \times h = 0.5 \times 43.55 \text{ kN/m}^2 \times 4.8 \text{ m} = 104$.52 kN		Weight of underpinning wall W_w = 0.60 m x 2.20 m x 24 kN/m ³ = Weight of wall base W_b = 0.50 m x 2.30 m x 24 kN/m ³ =	31.68 kN/m 27.60 kN/m								



/m

is: 49.11= 1.64

(M_{over}) is:

80=

1.34= 0.492

f excavation)

Existing wall= 7.40 kN/m ² x 12.00 m=	88.80	kN/m
Existing Corbel (assumed)=	4.00	kN/m
Roof= 2.20 m x $(4.30 \text{ kN/m}^2 + 4.00 \text{ kN/m}^2)$ =	18.26	kN/m
Floors= 3 x 2.20 m x (4.80 kN/m ² + 3.50 kN/m ²)=	54.78	kN/m
Total Vertical Load W _t =	225.12	kN/m

Coefficient of fiction (Concrete to sand/gravel) is 0.40 Friction force $F_F = \mu \times W_t = 0.40 \times 225.12 = 90.05 \text{ kN}$ Assume passive pressure force (Fp)= 0. Hence factor of safety against sliding is: Sf= $F_F / ((pa_1 + 2x pa_2) \times 1 / 6) = 90.05 / ((18.13 + 2 \times 43.55) \times 2.8 / 6) = 90.05 / 49.11 = 1.83$ >1.5 *OK*

F6.03 Overturning Capacity Check (during construction)

Taking moments about the edge of the heel, the sum of overturning moments (M_{over}) is: $M_{over} = Fa \times h / 3 = 104.52 \times 4.8 / 3 = 167.24 kNm$

Sum of restoring moments (Mres) is: $Mres = W_w \times 2.00 + W_b \times 1.15 + W_p \times 2.20 = 31.68 \times 2.00 + 27.60 \times 1.15 + 165.84 \times 2.00 =$ =63.36 + 55.20 + 331.68 = 450.24 kNm Factor against overturning is 343.62 / 167.24 = 2.69 > **2.0** *OK*

F6.04 Horizontal load (permanent condition)

To the horizontal load calculated above (refer to clause F6.01) a surcharge Q= 20 kN/m² is applied as uniform face load to wall.

Total horizontal force on wall due to backfill is: $Fa= 0.5 \times pa \times h + Q \times h = 0.5 \times 43.55 \text{ kN/m}^2 \times 4.8 \text{ m} + 20 \times 4.8 \text{ = } 200.52 \text{ kN}$

To avoid failure of the existing brickwork wall of its interface with the new underpinning load and internal RC retaining wall will resist the face loading.

F6.05 Sliding Capacity and Overturning Capacity Check (permanent condition)

In permanent conditions sliding and overturning checks are not required as the wall will be propped at top and bottom by ground floor and basement slabs. Where there is a ground floor void the underpinning and retaining wall will be reinforced laterally to enable them to span between points of lateral restraint.

F6.06 Retaining Wall Design

The total bending moment acting on the wall due to the face loads (M*) is: M*= 0.06415 x $pa_2 \times h^2 + Q \times h^2 / 8 = 0.06415 \times 43.55 \times 4.80^2 + 20 \times 4.80^2 / 8 = 121.97 kNm$

The moment will be rested by a 250mm RC wall reinforced with T20 @200 c/c

P3096-OFF Basement Impact Assessment v1.3





APPENDIX G

OUTLINE CONSTRUCTION PROGRAMME

P3096 75 BAYHAM STREET, LON	IDON NW1 0AA			R	Rev 1.0	Issue	d for BIA			07/03/2016																	
PROGRAMME/ACTION LIST Week commencing																											
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Planning		_																									
Planning Approval																											
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Architectural Design		_							<u>in</u>	formation	only and	<u>d sub</u>	ject														
									<u>tc</u>	<u>detailed o</u>	consider	ation	by														
Structural Design										the appoir	nted con	tracto	<u>pr</u>														
Contractor appointment																											_
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Construction Method																											_
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Party Wall		_																									
Party Wall Awards Agreed																											
Structural Works																											
Start on site																											
				×																							
Enabling works																											
Temporary works & demolition																											
of roof and floors																											
Underpinning & installation of																											_
temporary propping			_																								
Excavation of basement																											
Basement slab																											
Commence of sheel former																											
Commence of steel frame																											
Ground floor slab																											_
Superstructure				+ +																							
																											_
Completion				+																							 +
completion				+																							
Finishes, M&E intallation, etc.																					-	1					