CampbellReith
consulting engineers

163 Sumatra Road
London, NW6 1PN

Basement Impact Assessment
Audit

For

London Borough of Camden

Project Number: 13398-77
Revision: D1

January 2021

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Appendix

1.0 NON-TECHNICAL SUMMARY

1.1. CampbellReith was instructed by London Borough of Camden, (LBC) to carry out an audit on the Basement Impact Assessment submitted as part of the Planning Submission documentation for 163 Sumatra Road, NW6 1PN (planning reference 2020/3552/P). The basement is considered to fall within Category B as defined by the Terms of Reference.

1.2. The Audit reviewed the Basement Impact Assessment (BIA) for potential impact on land stability and local ground and surface water conditions arising from basement development in accordance with LBC's policies and technical procedures.

1.3. CampbellReith was able to access LBC's Planning Portal and gain access to the latest revision of submitted documentation and reviewed it against an agreed audit check list.

1.4. The site layout and the proposed development are described in paragraphs 4.2 – 4.3 of this audit.

1.5. The qualifications of the individuals involved in the BIA are in accordance with LBC guidance. However, a Structural Engineering Report is missing and shall be submitted.

1.6. Screening and scoping assessments are presented, supported by desk study information. The BIA should confirm that the information presented is in line with Appendix G1 of the Arup report.

1.7. The site investigation indicates the proposed basement will be founded in the London Clay, which is considered a suitable bearing stratum.

1.8. The BIA confirmed that there will be no adverse impact on the hydrogeological environment.

1.9. The site is confirmed to have a medium risk from surface water flooding. A Flood Risk Assessment (FRA) has been presented and indicates various mitigation measures to deal with surface water flooding which should be adopted during construction.

1.10. There will be an increase in surface water run-off from the site and the FRA presented mitigation measures against the potential of increased flow rates into the public sewer. Those mitigation measures should also be included in the BIA as described in Section 4.10 of this audit.

1.11. It is proposed to construct the remaining sections of the basement perimeter using traditional reinforced concrete underpinning. The BIA confirmed that temporary propping is proposed. However, the structural information presented is not in line with the CPG guidance and a Structural Engineering Report (SER) shall be submitted as part of the BIA.

1.12. The geotechnical parameters presented in the BIA are considered reasonably conservative.

1.13. A Ground Movement Assessment (GMA) has been undertaken. Clarification is requested according

to paragraphs 4.15. - 4.17. of this audit, to confirm that damage impacts are within London Borough of Camden's policy criteria.

1.14. The BIA confirmed that a monitoring strategy to ensure that ground movements are limited to those predicted will be developed before construction. It is recommended that a structural survey investigating the existing condition of the on-site building and adjoining properties be undertaken as part a Party Wall Agreement.

1.15. Queries and requests for information are summarised in Appendix 2. Until the clarifications requested are presented, the BIA does not meet the requirements of Camden Planning Guidance: Basements.

2.0 INTRODUCTION

2.1. CampbellReith was instructed by London Borough of Camden (LBC) on 6 January 2021 to carry out a Category B Audit on the Basement Impact Assessment (BIA) submitted as part of the Planning Submission documentation for 163 Sumatra Road, London NW6 1PN, Camden Reference 2020/3552/P.

2.2. The Audit was carried out in accordance with the Terms of Reference set by LBC. It reviewed the Basement Impact Assessment for potential impact on land stability and local ground and surface water conditions arising from basement development.

2.3. A BIA is required for all planning applications with basements in Camden in general accordance with policies and technical procedures contained within:

- Camden Local Plan 2017 - Policy A5 Basements.
- Camden Planning Guidance: Basements. March 2018.
- Guidance for Subterranean Development (GSD). Issue 01. November 2010. Ove Arup & Partners.

2.4. The BIA should demonstrate that schemes:

a) maintain the structural stability of the building and neighbouring properties;

b) avoid adversely affecting drainage and run off or causing other damage to the water environment;

c) avoid cumulative impacts upon structural stability or the water environment in the local area,

and evaluate the impacts of the proposed basement considering the issues of hydrology, hydrogeology and land stability via the process described by the GSD and to make recommendations for the detailed design.

2.5. LBC's Audit Instruction described the planning proposal as "*Conversion of 1x 5-bed dwelling (Class C3) to house in multiple occupation (HMO) with 12 rooms (Sui Generis) including rebuilding the front elevation; basement extension including front and rear lightwells; ground floor rear / side extensions; balconies at rear first and second floor, enlargement of rear gable elevation including two storey rear / side extension (at first and second floor); 2 rear dormers; front and rear rooflights and alterations to rear fenestration*".

2.6. The Audit Instruction confirmed the applicant's property and neighbouring properties are not listed.

2.7. CampbellReith accessed LBC's Planning Portal on 8th January 2021 and gained access to the following relevant documents for audit purposes:

- Basement Impact Assessment (ref.: 18511/BIA), dated July 2020, by Soils Ltd;
- Existing and proposed plans, elevations and sections by Drawing and Planning, dated

September 2020;

- Flood Risk Assessment (ref.: 18224/FRA), dated February 2020, by Soils Ltd.

3.0 BASEMENT IMPACT ASSESSMENT AUDIT CHECK LIST

Item	Yes/No/NA	Comment
Are BIA Author(s) credentials satisfactory?	Yes	See document issue status of the BIA.
Is data required by Cl.233 of the GSD presented?	Yes	
Does the description of the proposed development include all aspects of temporary and permanent works which might impact upon geology, hydrogeology and hydrology?	Yes	See Section 2 of the BIA.
Are suitable plan/maps included?	Yes	The assessment is supported by suitable drawings of existing and proposed development and by suitable maps to describe the environmental setting. However, structural drawings should be revised to match with architectural drawings.
Do the plans/maps show the whole of the relevant area of study and do they show it in sufficient detail?	Yes	
Land Stability Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 3 of the BIA.
Hydrogeology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 3 of the BIA.
Hydrology Screening: Have appropriate data sources been consulted? Is justification provided for 'No' answers?	Yes	Section 3 of the BIA.
Is a conceptual model presented?	Yes	Section 5 of the BIA.

Item	Yes/No/NA	Comment
Land Stability Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 4 of the BIA.
Hydrogeology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 4 of the BIA.
Hydrology Scoping Provided? Is scoping consistent with screening outcome?	Yes	Section 4 of the BIA.
Is factual ground investigation data provided?	Yes	Section 5 of the BIA.
Is monitoring data presented?	Yes	Section 5.5 of the BIA.
Is the ground investigation informed by a desk study?	Yes	Section 2 of the BIA.
Has a site walkover been undertaken?	Yes	October 2018.
Is the presence/absence of adjacent or nearby basements confirmed?	No	However, assumptions have been made in the BIA.
Is a geotechnical interpretation presented?	Yes	Section 7 of the BIA.
Does the geotechnical interpretation include information on retaining wall design?	Yes	Section 9 of the BIA.
Are reports on other investigations required by screening and scoping presented?	Yes	Flood Risk Assessment presented.
Are the baseline conditions described, based on the GSD?	Yes	
Do the base line conditions consider adjacent or nearby basements?	Yes	However, the discussion presented in the BIA is based on assumptions.

Item	Yes/No/NA	Comment
Is an Impact Assessment provided?	Yes	Section 9 and 10 of the BIA.
Are estimates of ground movement and structural impact presented?	No	Some information is presented in Section 9 of the BIA. However a Structural Engineer Report should be presented in the BIA to confirm proposals.
Is the Impact Assessment appropriate to the matters identified by screening and scoping?	No	The GMA should be reviewed. Mitigation against the potential for an increase in flow rate into the public sewer due to the increase in hardstanding should be presented in Section 8 of the BIA.
Has the need for mitigation been considered and are appropriate mitigation methods incorporated in the scheme?	Yes	Section 11 of the BIA. However they should be clearly stated in the SER.
Has the need for monitoring during construction been considered?	Yes	Section 11 of the BIA.
Have the residual (after mitigation) impacts been clearly identified?	No	The BIA concludes that residual impacts will be negligible. However, this should be confirmed after the GMA is reviewed.
Has the scheme demonstrated that the structural stability of the building and neighbouring properties and infrastructure will be maintained?	No	The GMA confirmed damage to neighbouring properties will be within Category 1 of the Burland Scale. However, the GMA should be revised.
Has the scheme avoided adversely affecting drainage and run-off or causing other damage to the water environment?	Yes	See the FRA.
Has the scheme avoided cumulative impacts upon structural stability or the water environment in the local area?	No	As above.
Does report state that damage to surrounding buildings will be no worse than Burland Category 1?	Yes	Section 9 of the BIA. However the GMA should be revised.
Are non-technical summaries provided?	Yes	Section 11.2 of the BIA.

4.0 DISCUSSION

4.1. The BIA was undertaken by Soils Ltd. The reported qualifications of the authors are in line with those requested by LBC guidance. However, as discussed below in detail, a Structural Engineering Report is missing and shall be submitted in accordance with CPG Basements and LBC's scope of engineering input.

4.2. The site is currently occupied by a three-storey terraced house with a small front yard and rear garden. It is understood that part of the front façade and much of the front internal structure collapsed during previous stages of the basement development and that the existing basement excavation have been partially filled with gravel and rubble. The party walls to No. 161 and 165 Sumatra Road have been already underpinned as part of the previous stages.

4.3. The proposed works comprise the demolition of the existing structure and the construction of a three-storey residential building, with a basement, including lightwells, covering the entire footprint of the existing building and part of the rear garden. There will be two different basement levels at -2.75m and -4.13m SD towards the front and the rear garden respectively.

4.4. The LBC Instruction to proceed with the audit confirmed applicant's property and neighbouring properties are not listed. The closest properties are No. 161 and No. 165 Sumatra Road to the west and the east respectively. Sumatra Road runs to the N in a W-E direction, while the site is bounded by a railway to the south. The BIA states that neighbouring properties do not include full basement as they either have no basements with foundations assumed to a depth of c. 1m bgl or semi-basements.

4.5. Screening and scoping assessments are presented and informed by desktop study information. Most of the relevant figures/maps from the Arup GSD and other guidance documents are referenced within the BIA to support responses to the screening questions. However, the BIA states that a desktop study was not undertaken. The BIA should confirm that the information presented is in line with Appendix G1 of the Arup report.

4.6. A site investigation was undertaken in October 2012 to inform the basement design. A total of three window sample boreholes and one trial pit were undertaken. The ground investigation indicated Made Ground to a maximum depth of 1.10m bgl in the boreholes and to the full depth of the trial pit (1.22m bgl). The Made Ground was underlain by the London Clay which was proven to the base of the boreholes to a depth of 6.00m bgl.

4.7. Groundwater was not encountered during drilling. However, it was monitored between 1.97m and 4.10m bgl in two of the boreholes during four subsequent monitoring visits. Some of the groundwater levels monitored are above the proposed formation level. It is noted that the lowest level of the basement portion previously excavated was found flooded during the 2018 site

walkover. The BIA states that groundwater control measures will be required and that localised sump pumping may be sufficient to deal with groundwater ingress into the excavation.

4.8. Considering the absence of nearby basements, the BIA confirmed that there will not be any impact on the wider hydrogeological environment and this is accepted.

4.9. A Flood Risk Assessment (FRA) has been presented in the BIA. The site is at very low risk from flooding from rivers, seas and reservoirs, and from groundwater, while it is at medium risk from surface water flooding. The FRA indicates various mitigation measures to deal with surface water flooding which should be adopted during construction.

4.10. The site is within a Critical Drainage Area. The BIA and the FRA confirmed that impermeable areas of the site will be increased as a result of the proposed development. The FRA recommends the development to utilise sustainable drainage system (SuDS) to reduce the pressure on the combined sewer network. The SuDS should aim to achieve greenfield run-off rates. The mitigation measures reported in the FRA should also be reported in Section 8 of the BIA.

4.11. It is noted that the final drainage scheme will require approval by the local flood authority and the owner of the public sewer system present in the area (Thames Water). A comment on the development has been submitted by Thames Water and is presented in Appendix 3. The applicant is encouraged to liaise with Thames Water as indicated in their response.

4.12. From the information submitted by the structural engineer and the BIA, it is understood that during the previous stages of works, the party walls with No. 161 and 165 Sumatra Road were underpinned before the collapse and temporary works were put in place to ensure safety of the remaining structure after the event. It is proposed to construct the remaining sections of the basement perimeter using traditional reinforced concrete underpinning following a typical 'hit and miss' sequence. It is understood from the BIA that the structural layout of the proposed building will include a steel frame with the steel columns proposed to be either set (i) on the top of the already built underpinning or (ii) on the top of pad footings. However, the proposed foundation plan and structural drawings by Martin Redston Associates presented in Appendix D are a "preliminary draft scheme for pricing only". Also, there are discrepancies between the structural proposed drawings and the architect proposed drawings and this should be clarified. In addition, it is unclear if the 'Underpinning Report' presented in Appendix D is an as-built report and if the structural information by Glen Haddon and the programme of works presented in Appendix D is relevant to the proposed development. Appendix A.2 of the BIA shows that No. 159 Sumatra road has been underpinned. This should be clarified in the BIA and in a Structural Engineering Report as discussed below.

4.13. The structural information presented is not in line with the CPG for basements and a Structural Engineering Report (SER) should be submitted as part of the BIA. The SER should include all the

information listed in Section 6 of the Camden Guidance note 1v0 'Basement Impact Assessment: Defining the scope of engineering input'. In addition, due to the particularity of the scheme, the report should clearly assess the validity of the emergency temporary works put in place after the collapse, the exact location and conditions of the underpinning sections already undertaken and how these will be incorporated in the new scheme. Geotechnical parameters to inform settlement, retaining wall calculations and foundation design have been presented in the BIA and are considered reasonable. The proposed values should be adopted by the SER and further considered in the detailed retaining wall design.

4.14. A Ground Movement Assessment (GMA) has been undertaken to demonstrate that ground movements and consequential damage to neighbouring properties will be within LBC's policy requirements. The GMA shows that anticipated damage potentially occurring at neighbouring properties will be within Category 1 (Very Slight) of the Burland Scale. However, the GMA should be revised following the comments below.

4.15. An estimation of heave occurring due to the basement excavation has been included in the GMA. However, it is not clear if ground movements due to demolition have been included in the analysis and this should be clarified.

4.16. Heave movements used in the calculations counteract the settlement occurring at neighbouring properties, resulting in an under-estimation of the resulting ground movements in the short term. In addition the BIA states: "*It must be noted that site works have been interrupted for a long time and therefore it is likely that a good portion of any heave have already occurred*." As such, heave movements should be excluded when determining the category of damage to neighbouring buildings.

4.17. The GMA states that the ground movements considered were due to excavation, application of structural loads and to workmanship errors. The horizontal deflection occurring at the proposed retaining wall has been calculated using the software WALLAP. From the analysis presented, it is unclear how the horizontal movements propagate at the back of the wall and how they have been included in the analysis. This should be clarified.

4.18. No internal survey of the effects of the previous underpinning works on neighbouring properties has been submitted. However, the BIA states that no signs of damage on the neighbouring properties were noted at the time of the walkover undertaken in October 2018. It is confirmed in the BIA that a ground movements monitoring regime will be implemented throughout construction of the basement, in accordance with current guidance. It is accepted that the detailed monitoring strategy will be developed at a later stage and will include contingency measures and trigger levels. It is recommended that a structural survey investigating the existing condition of existing building and adjoining properties be undertaken as part of a Party Wall Agreement.

5.0 CONCLUSIONS

5.1. The qualifications of the individuals involved in the BIA are in accordance with LBC guidance. A Structural Engineering Report is missing and shall be submitted.

5.2. Screening and scoping assessments are presented, supported by desk study information. The BIA should confirm that the information presented is in line with Appendix G1 of the Arup report.

5.3. The site investigation indicates the proposed basement will be founded in the London Clay.

5.4. The BIA confirmed that there will be no adverse impact on the hydrogeological environment.

5.5. The site is confirmed to have a medium risk from surface water flooding. The FRA indicates various mitigation measures to deal with surface water flooding which should be adopted during construction.

5.6. There will be an increase in surface water run-off from the site and the FRA presented mitigation measures against the potential of increased flow rates into the public sewer. These mitigation measures should also be included in the BIA.

5.7. It is proposed to construct the remaining sections of the basement perimeter using traditional reinforced concrete underpinning following a typical 'hit and miss' sequence. However, the structural information presented is not in line with the CPG Basements and a Structural Engineering Report (SER) should be submitted as part of the BIA.

5.8. Geotechnical parameters presented are considered reasonably conservative.

5.9. A Ground Movement Assessment (GMA) has been undertaken. Clarification is requested according to paragraphs 4.15. - 4.17. of this audit to confirm that damage impacts are within LBC's policy criteria.

5.10. The BIA confirmed a monitoring strategy to ensure movements are limited to those predicted will be developed at a later stage. It is recommended a structural survey investigating the existing condition of existing building and adjoining properties to be undertaken as part of the Party Wall Agreement.

5.11. Queries and requests for information are summarised in Appendix 2. Until the clarifications requested are presented, the BIA does not meet the requirements of Camden Planning Guidance: Basements.

Appendix 1: Residents' Consultation Comments

Residents' Consultation Comments

Surname	Address	Date	Issue raised	Response
Unknown (redacted)	2 Gladys Road	14/11/2020	Structural stability	Additional information is requested - See Sections 4.12 – 4.18 of this audit
James L. Hunt	Sumatra Road	Unknown	Structural stability	
Tim Dulley	Unknown	25/11/2020	Structural stability and survey	
David Sladen	Unknown	22/11/2020	Structural stability	
Charles Openshaw	Unknown	19/11/2020	Structural stability and survey	
Graham Long	Unknown	17/11/2020	Structural stability	

Appendix 2: Audit Query Tracker

Audit Query Tracker

Query No	Subject	Query	Status	Date closed out
1	BIA format	The BIA should confirm that the desktop study information presented is in accordance to Appendix G1 of the Arup report.	Open - See Section 4.5.	
2	BIA format	The impact assessment presented in Section 8 of the BIA should be revised to include mitigation measures against the potential risk of an increase in flow rate into the public sewers due to the increase of hardstanding as part of the proposed development.	Open – See Section 4.10.	
3	Structural stability	The structural information submitted should be clarified as per paragraph 4.12. A Structural Engineering Report (SER) should be presented in the BIA in accordance with Camden's Guidance on the scope of engineering services.	Open – See Sections 4.12 - 4.13.	
4	Land stability	The GMA should be revised to exclude ground movements due to heave as it this may result in an under-estimation of the category of damage occurring at neighbouring properties. Clarification on the propagation of horizontal movements at the back of the wall is required. Ground movements due to demolition shall be included.	Open – See Sections 4.15 - 4.17.	
5	Structural stability	It is recommended that a structural survey investigating the existing condition of on-site building and adjoining properties be undertaken as part the Party Wall Agreement.	Note Only – See Section 4.18.	-
6	Drainage proposal	It is noted that the final drainage scheme will require approval by the local flood authority and the owner of the local public sewer system (Thames Water).	Note Only – See Section 4.11. and Appendix 3	-

Appendix 3: Supplementary Supporting Documents

Thames Water response

[redacted]

London Borough of Camden Our DTS Ref: 67508
Camden Town Hall Your Ref: 2020/3552/P
Argyle Street
Euston Road
London
WC1H 8EQ

23 November 2020

Dear Sir/Madam

Re: 163, SUMATRA ROAD, LONDON, -, NW6 1PN

Waste Comments
With the information provided, Thames Water has been unable to determine the waste water infrastructure needs of this application. Thames Water has contacted the developer in an attempt to obtain this information and agree a position for FOUL WATER drainage, but have been unable to do so in the time available and as such, Thames Water request that the following condition be added to any planning permission. "No development shall be occupied until confirmation has been provided that either:- 1. Capacity exists off site to serve the development, or 2. A development and infrastructure phasing plan has been agreed with the Local Authority in consultation with Thames Water. Where a development and infrastructure phasing plan is agreed, no occupation shall take place other than in accordance with the agreed development and infrastructure phasing plan, or 3. All wastewater network upgrades required to accommodate the additional flows from the development have been completed. Reason - Network reinforcement works may be required to accommodate the proposed development. Any reinforcement works identified will be necessary in order to avoid sewage flooding and/or potential pollution incidents. The developer can request information to support the discharge of this condition by visiting the Thames Water website at thameswater.co.uk/preplanning. Should the Local Planning Authority consider the above recommendation inappropriate or are unable to include it in the decision notice, it is important that the Local Planning Authority liaises with Thames Water Development Planning Department (telephone 0203 577 9998) prior to the planning application approval.

With the information provided Thames Water has been unable to determine the waste water infrastructure needs of this application. Thames Water has contacted the developer in an attempt to obtain this information and agree a position for SURFACE WATER drainage, but have been unable to do so in the time available and as such Thames Water request that the following condition be added to any planning permission. "No development shall be occupied until confirmation has been provided that either:- 1. Capacity exists off site to serve the development or 2. A development and infrastructure phasing plan has been agreed with the Local Authority in consultation with Thames Water. Where a development and infrastructure phasing plan

is agreed, no occupation shall take place other than in accordance with the agreed development and infrastructure phasing plan. Or 3. All wastewater network upgrades required to accommodate the additional flows from the development have been completed. Reason - Network reinforcement works may be required to accommodate the proposed development. Any reinforcement works identified will be necessary in order to avoid flooding and/or potential pollution incidents. The developer can request information to support the discharge of this condition by visiting the Thames Water website at thameswater.co.uk/preplanning. Should the Local Planning Authority consider the above recommendation inappropriate or are unable to include it in the decision notice, it is important that the Local Planning Authority liaises with Thames Water Development Planning Department (telephone 0203 577 9998) prior to the planning application approval.

As required by Building regulations part H paragraph 2.36, Thames Water requests that the Applicant should incorporate within their proposal, protection to the property to prevent sewage flooding, by installing a positive pumped device (or equivalent reflecting technological advances), on the assumption that the sewerage network may surcharge to ground level during storm conditions. If as part of the basement development there is a proposal to discharge ground water to the public network, this would require a Groundwater Risk Management Permit from Thames Water. Any discharge made without a permit is deemed illegal and may result in prosecution under the provisions of the Water Industry Act 1991. We would expect the developer to demonstrate what measures will be undertaken to minimise groundwater discharges into the public sewer. Permit enquiries should be directed to Thames Water's Risk Management Team by telephoning 02035779483 or by emailing wwqriskmanagement@thameswater.co.uk. Application forms should be completed on line via www.thameswater.co.uk. Please refer to the Wholsesale; Business customers; Groundwater discharges section.

As you are redeveloping a site, there may be public sewers crossing or close to your development. If you discover a sewer, it's important that you minimize the risk of damage. We'll need to check that your development doesn't limit repair or maintenance activities, or inhibit the services we provide in any other way. The applicant is advised to read our guide working near or diverting our pipes. https://developers.thameswater.co.uk/Developing-a-large-site/Planning-your-development/Working-near-or-diverting-our-pipes.

We would expect the developer to demonstrate what measures will be undertaken to minimise groundwater discharges into the public sewer. Groundwater discharges typically result from construction site dewatering, deep excavations, basement infiltration, borehole installation, testing and site remediation. Any discharge made without a permit is deemed illegal and may result in prosecution under the provisions of the Water Industry Act 1991. Should the Local Planning Authority be minded to approve the planning application, Thames Water would like the following informative attached to the planning permission: "A Groundwater Risk Management Permit from Thames Water will be required for discharging groundwater into a public sewer. Any discharge made without a permit is deemed illegal and may result in prosecution under the provisions of the Water Industry Act 1991. We would expect the developer to demonstrate what measures he will undertake to minimise groundwater discharges into the public sewer. Permit enquiries should be directed to Thames Water's Risk Management Team by telephoning 020 3577 9483 or by emailing trade.effluent@thameswater.co.uk . Application forms should be completed on line via www.thameswater.co.uk. Please refer to the Wholsesale; Business customers; Groundwater discharges section.

Water Comments
If you are planning on using mains water for construction purposes, it's important you let Thames Water know before you start using it, to avoid potential fines for improper usage. More information and how to apply can be found online at thameswater.co.uk/buildingwater.

On the basis of information provided, Thames Water would advise that with regard to water network and water treatment infrastructure capacity, we would not have any objection to the above planning application. Thames Water recommends the following informative be attached to this planning permission. Thames

Water will aim to provide customers with a minimum pressure of 10m head (approx 1 bar) and a flow rate of 9 litres/minute at the point where it leaves Thames Waters pipes. The developer should take account of this minimum pressure in the design of the proposed development.

Supplementary Comments

There is no drainage strategy to review, this needs to be supplied before Thames Water can make an assessment and should follow Policy 5.13 of the London Plan which requires all developments to reduce the peak flow and volume of surface water discharging off the site, where greenfield rates should be aimed for and the drainage hierarchy followed: 1. Rainwater harvesting (including a combination of green and blue roofs) 2. Infiltration techniques and green roofs 3. Rainwater attenuation in open water features for gradual release 4. Rainwater discharged direct to watercourse (unless not appropriate) 5. Rainwater attenuation above ground (including blue roofs) 6. Rainwater attenuation below ground 7. Rainwater discharge to a surface water sewer or drain 8. Rainwater discharge to a combined sewer.
Please provide the point(s) of connection, discharge method and discharge rate for surface and foul water pre and post development. For surface water please also provide current discharge rates and greenfield runoff rates.

Yours faithfully
Development Planning Department

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Thames Water,
Maple Lodge STW,
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