

Basement Impact Report

Land at Rear of 88–90 Westbury Avenue,
London, N22 6RT

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Preamble

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Revisions & additional material

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1.0 Executive Summary

- 1.1.1. The site comprises an area of approximately 116 m² of land situated to the rear of 88 and 90 Westbury Avenue, London N22 6RT, with vehicular/pedestrian access from Rusper Road. The site falls within the London Borough of Haringey. Grid Reference: TQ 31580 90450 (Easting: 531580; Northing: 190450) – to be confirmed from OS data
- 1.1.2. The current site arrangement comprises a single-storey lockup garage (B8 use class), constructed in masonry, which occupies the majority of the footprint of the site. The garage is to be demolished to facilitate the proposed development.
- 1.1.3. The proposed development comprises the erection of a single-storey, two-bedroom, detached dwelling with a basement level beneath its footprint, together with a small lightwell/courtyard and green roof. Planning permission was granted by the London Borough of Haringey on 18 September 2023 (ref. HGY/2023/1355).
- 1.1.4. This Basement Impact Assessment (BIA) has been prepared to discharge Condition 7 of that planning permission, which requires submission and written approval of a full BIA – in accordance with Policy DM18 of the Haringey Development Management DPD (2017) – prior to the commencement of any works, including demolition and earthworks. The BIA covers surface flooding, groundwater flow, land stability, environmental effects and residential amenity, in accordance with the scope set out in Haringey's Basement Development Guidance Note.
- 1.1.5. The report is based on information produced by the client's Architects (Studio:08 architecture + planning ltd), publicly available mapping and geological information, including British Geological Survey (BGS) data, together with the prior basement impact letter submitted with the planning application. It is intended to provide the basis for discharge of the planning condition and may be subject to further design development with the appointed main contractor.
- The following assessments are presented in this report:
 - Site Geology
 - Site Hydrology and Flood Risk
 - Screening against the Haringey / CPG4 indicative screening flowcharts
 - Scoping of the identified matters of concern
 - Outline Temporary and Permanent Works proposals
 - Ground Movement and Damage Category Assessment
 - Residential Amenity and Construction Management
- 1.1.6. The construction methodology proposed is a standard top-down sequence using a reinforced concrete contiguous piled perimeter retaining wall (or equivalent secant/embedded wall system), capping beam, ground floor slab, and reinforced concrete basement slab, consistent with the minimum 500 mm thick reinforced concrete retaining walls noted in the basement impact letter submitted with the planning application. Final construction methodology is to be agreed with the successful contractor.
- 1.1.7. The authors of the assessments are: Antony Ronaldson BSc (Hons) BA (Hons) - Engineer; and Daniel Staines BEng, CEng, FStructE – Checking Engineer. JMS Consulting Engineers Ltd. confirm that the BIA

has been prepared under the direction of a Chartered Civil Engineer (MICE) / Chartered Structural Engineer (MIStructE), and that a suitably qualified Chartered Engineer will be appointed to supervise the basement construction works in accordance with Condition 7(b) of HGY/2023/1355.

- 1.1.8 A structural monitoring strategy to control the works and impacts to neighbouring structures will, if required, comprise monitoring targets on the adjoining garden boundary walls and neighbouring rear elevations, together with scheduled movement registration. The engineer must be notified immediately if any unexpected ground movement or slope stability issues are encountered.
- 1.1.9 The drainage strategy is as designed by others; in principle, surface water will be discharged at a restricted rate to the existing Thames Water combined sewer (or SuDS soakaway subject to ground conditions) in accordance with the surface-water drainage condition (Condition 12) of the planning permission.
- 1.1.10 This is a live document and further detailed assessments may be ongoing as the design and construction progress. The report concludes that, subject to the assumptions and site investigation recommendations contained herein, the proposed basement can be constructed safely with no significant residual impact upon the structural stability of neighbouring properties, the local groundwater regime, surface flood risk, the environmental setting or the residential amenity of surrounding residents.

2.0 Introduction

This report has been prepared to set out the proposed design philosophy and construction method statement for the proposed basement at Land at Rear of 88–90 Westbury Avenue, London N22 6RT. It will summarise the basis of the structural and civil engineering design and will be issued to all relevant parties including the Client, the Local Planning Authority (London Borough of Haringey) and the design team.

This report is for the exclusive use of the Client and should not be used in whole or in part by any third parties without the express permission of JMS Consulting Engineers in writing. This report should not be relied upon exclusively by the Client for decision-making purposes and may require reading with other material or reports.

The scope of the proposal is for the creation of a single-level basement beneath the footprint of the proposed new dwelling, with the basement retained within the existing site boundaries.

The report is based on the information produced by the client's Architect (Studio:08 architecture + planning ltd), mapping and borehole data derived from publicly available sources (including the British Geological Survey), and is intended to provide the basis for discharge of the relevant planning condition; it may be subject to further design discussion and development with the successful Contractor.

The work carried out comprises a Basement Impact Assessment (BIA) in accordance with the procedures set out in the London Borough of Haringey's Basement Development Guidance Note (Development Management, June 2012) and Policy DM18 of the Haringey Development Management DPD (2017). The aim of the work is to assess whether the proposed basement will have a detrimental impact on the surroundings with respect to:

- Surface flooding
- Groundwater flow
- Land stability
- Environmental effects
- Residential amenity

and in particular to assess whether the development will affect the stability of neighbouring properties, local and regional hydrogeology, and whether any identified impacts can be appropriately mitigated by the design of the development.

2.1. Sources of Information

The following baseline data have been referenced to complete the BIA in relation to the proposed development:

- Current and historical mapping provided by Ordnance Survey and Google Maps.
- British Geological Survey (BGS) GeoIndex (geology and borehole search).
- Environment Agency – Flood Risk Maps (online).
- Thames Water – DigDat public sewer records.
- Haringey Council – Basement Development Guidance Note (Development Management, June 2012).
- Haringey Local Plan: Development Management DPD (adopted 2017) – Policy DM18.
- North London Strategic Flood Risk Assessment (2008, as updated).
- Architect's site location, floor layout and elevation drawings (LP-01, EX-02/03/04, P-02 to P-08 – Studio:08).
- Basement Impact Letter submitted with planning application HGY/2023/1355 (Studio:08, 19 July 2023).
- BS 8000-0:2014 – Workmanship on construction site.
- BS 8102:2022 – Protection of below ground structures against water ingress.
- CIRIA C580 / C760 – Guidance on embedded retaining walls.

2.2. Existing and Proposed Development

- 2.2.1 The site is currently occupied by a single-storey lockup garage used for storage (Use Class B8). It is enclosed by masonry walls and a shallow pitched / flat roof, and occupies substantially the full area of the 116 m² rear plot. The garage is in a utilitarian condition and is to be demolished to facilitate the new scheme.
- 2.2.2 The site is accessed from Rusper Road, a small residential side-street running south-west off Westbury Avenue (A109). The surrounding area is residential, comprising a dense grain of late-Victorian and inter-war terraces and semi-detached dwellings, broadly built of brickwork on shallow strip or trench-fill foundations.
- 2.2.3 The immediate neighbouring built structures are:
- **To the north-east** – the rear gardens of 88, 90 and 92 Westbury Avenue, separated from the site by a boundary wall.
 - **To the south-east** – the rear garden of 143 Sirdar Road and an adjacent single-storey garage / storage structure of comparable form.
 - **To the south-west** – Rusper Road carriageway and footway.
 - **To the north-west** – a side garden and neighbouring garage / storage structure.
- 2.2.4 The site and adjacent properties are not listed buildings and are not within a designated Conservation Area. The site is not within an Archaeological Priority Area.

- 2.2.5 No underground transport infrastructure (London Underground, Crossrail, DLR, heavy rail) passes beneath the site; a Transport for London Property Asset Register extract is presented in the Appendix 1.
- 2.2.6 Thames Water public sewer records have not been accessed prior to completion of this report, relevant searches/ approvals will be required prior to commencement of works to identify address potential issues.
- 2.2.7 Drainage from the new dwelling is to be directed to the existing public sewer network, subject to discharge-of-condition approval under Condition 12 of the planning permission.
- 2.2.8 The proposed development, as granted under HGY/2023/1355, comprises the demolition of the existing single-storey lockup garage (B8 use) and the erection of a single-storey (plus basement) detached two-bedroom dwelling. The above-ground element is proposed as a contemporary single-storey form with green-roof, and the basement provides the principal sleeping accommodation and services.
- 2.2.9 Basement key parameters (as proposed):
- Basement footprint: approx. 76.4 m² confirmed from P-02 proposed plans
 - Basement depth below existing ground level: approx. 2.80 m single storey below ground confirmed
 - Basement extent: beneath the new dwelling footprint; retained within the site's existing boundaries.
 - Retaining wall type: reinforced concrete perimeter wall, nominally 500 mm minimum thick (per the basement impact letter submitted with the planning application), achieved in practice via either a contiguous / secant piled wall or an underpinned in-situ RC wall formed sequentially. Final selection is subject to ground investigation and contractor preference.
 - Ground floor and basement slabs: reinforced concrete, designed to resist buoyancy uplift (if present) and transfer lateral loads to the perimeter wall.
 - Waterproofing: combined Type A (barrier) and Type C (drained cavity) system, achieving BS 8102:2022 Grade 3 performance consistent with the basement's intended habitable use.
- 2.2.10 Existing and Proposed development drawings are provided by Studio:08 architecture + planning ltd. Reference is made to the Architect's drawings for further details (drawings listed in the Decision Notice HGY/2023/1355).
- 2.2.11 The proposed development will utilise a standard top-down (or modified top-down) construction technique, which includes the sequenced stages of works described in Section 7 of this report. The outline construction programme is indicative only and will be finalised with the appointed contractor.
- 2.2.12 The full extent of the proposal will be within the existing boundaries of the site. No encroachment upon or under the public highway (Rusper Road) or the adjoining properties is proposed.

2.3. London Borough of Enfield

- 2.3.1 The London Borough of Haringey is a north London borough formed in 1965 through the amalgamation of the former boroughs of Hornsey, Tottenham and Wood Green. It covers an area of approximately 29.6 km² and is bounded by Enfield to the north, Waltham Forest to the east, Hackney to the south-east, Islington to the south, and Camden and Barnet to the west.
- 2.3.2 The site at 88–90 Westbury Avenue lies within the Wood Green / Turnpike Lane area of the borough, in the Bounds Green ward, close to the boundary with Enfield. Westbury Avenue (A109) is a principal local distributor road linking Green Lanes with Bounds Green. The area is predominantly residential in character, with a mix of Victorian, Edwardian and inter-war terraced and semi-detached dwellings together with parades of ground-floor shops on the main thoroughfares.
- 2.3.3 The wider topography of the borough rises from the Lee Valley and River Lea floodplain in the east (typically 10–20 m AOD) towards the higher ground of Highgate, Muswell Hill and Alexandra Palace in the west (up to approximately 120 m AOD). The site at Westbury Avenue lies on generally flat, low-lying ground at approximately.
- 2.3.4 A review of historic mapping indicate the plot to the rear of 88-90 Westbury Avenue was farmland until the construction of the adjacent housing estate circa 1900, with the plot still showing as vacant on the 1912 maps. There does not appear to be an other documented land use until the later construction of the garages.

3.0 Site Geology

3.1 Bedrock Geology

- 3.1.1 The British Geological Survey (BGS) 1:50,000 scale bedrock map indicates that the site is underlain by the London Clay Formation, comprising stiff, over-consolidated silty clay with localised silt, sand and nodules of calcareous mudstone (claystones / septaria). The London Clay is a common and well-understood stratum across the majority of north London.
- 3.1.2 Haringey's Basement Development Guidance Note (para 4.3) identifies that in the Wood Green / Turnpike Lane area there is typically **made ground to a depth of approximately 1 m**, below which the strata becomes London Clay. Clay sub-soil then continues as one moves east, with gravel content appearing in the clay towards Tottenham High Road and the Lee Valley. The Westbury Avenue site sits within this Wood Green characterisation.
- 3.1.3 The London Clay Formation is described by the BGS as broadly impermeable, with very low hydraulic conductivity. It has a characteristic tendency to shrink and swell with changes in moisture content, making it sensitive to tree roots, construction dewatering and prolonged drought cycles. Design of foundations and retaining walls must take account of this behaviour.
- 3.1.4 Indicative geotechnical parameters assumed for the London Clay at this site (to be verified by site-specific intrusive ground investigation):
- Bulk unit weight: $\gamma \approx 19 \text{ kN/m}^3$
 - Undrained shear strength at 3 m depth: $c_u \approx 60\text{--}80 \text{ kN/m}^2$ (typical for stiff London Clay near surface)
 - Drained (effective) parameters: $c' \approx 0 \text{ kN/m}^2$, $\phi' \approx 22\text{--}25^\circ$
 - Young's modulus: $E' \approx 20\text{--}40 \text{ MPa}$ (increasing with depth)
 - At-rest earth-pressure coefficient: $K_0 \approx 1.0\text{--}1.5$ (reflecting over-consolidated nature of London Clay)
 - Presumed allowable bearing pressure at 3 m below ground level: $\approx 125\text{--}150 \text{ kN/m}^2$ (typical stiff London Clay)

(Source: Cobb, Structural Engineer's Pocket Book: Eurocodes; CIRIA C580 / C760; BGS rock lexicon.)

These values are typical and should not be relied upon for final structural design until confirmed by a site-specific ground investigation.

3.2 Superficial Geology

- 3.2.1 The BGS 1:50,000 scale superficial (Quaternary) map shows no significant mapped superficial deposits across the Westbury Avenue site. However, shallow made ground is anticipated in practice, consistent with Haringey's characterisation of the Wood Green area (para 4.3 of the Basement Development Guidance Note) and the site's history of prior buildings and hardstanding. Made ground is typically of made / reworked origin, comprising clay, sand, brick and concrete fragments, and is expected to extend to a depth of approximately 0.5–1.5 m.
- 3.2.2 To the east of the site, beyond Tottenham High Road and within the Lee Valley, alluvium and river terrace deposits (Kempton Park Gravels, Enfield Silts) become more prominent; to the west, the ground rises onto the Claygate Beds and Bagshot Formation capping Highgate and Muswell Hill. Neither of these settings pertains to the Westbury Avenue site, which lies within the broad plateau of London Clay at the centre of the borough.

- [BGS GeolIndex extract for the site – to be inserted in appendix]

3.3. Boreholes

- 3.2.1 At the time of preparing this BIA, a site-specific intrusive investigation has not yet been undertaken. The following observations are drawn from the BGS GeolIndex and proximate historical borehole records:
- 3.2.2 [BGS borehole record A The feature WESTBURY AVENUE BH1-2 (Water Well Reference: N/A) is located at Easting 531670 and Northing 189870, within Ordnance Survey grid reference TQ38NW294, with a spatial precision of approximately ± 10 metres and a recorded length of 9 metres.
- 3.2.3 [BGS borehole record B The feature A105 DIVERSION 15 (Water Well Reference: N/A) is located at Easting 531,620 and Northing 189,790, within OS grid reference TQ38NW504, with an estimated positional accuracy of ± 10 metres and a recorded length of 10 metres.
- 3.2.4 Based on the typical stratigraphy described in Section 3.1 above, and by analogy with other BIA works in the Wood Green area, the following indicative ground profile is adopted for the purposes of this desk-based BIA:
- – ~1.0 m bgl: MADE GROUND – variable clayey, sandy silty fill with brick and concrete fragments; low strength; moisture-sensitive.
 - ~1.0 – ~3.0 m bgl (and below): LONDON CLAY FORMATION – firm to stiff brown to grey-brown slightly sandy silty CLAY. Bulk unit weight $\sim 19 \text{ kN/m}^3$; $c_u \sim 60\text{--}80 \text{ kN/m}^2$; typical allowable bearing pressure $\sim 125\text{--}150 \text{ kN/m}^2$.
- 3.2.5 Groundwater: not anticipated within the anticipated basement formation (typically drier than London Clay formations further east in the Lee Valley). Localised perched water in made ground cannot be discounted without GI.
- 3.2.6 Recommendation: a minimum of two boreholes or window-sampling locations should be undertaken within the site, to a depth of not less than 6 m bgl, with one standpipe installed for a minimum 28-day groundwater-level monitoring period. In-situ SPT and undisturbed U100 samples should be obtained for laboratory classification, triaxial and Atterberg testing, and for environmental contamination screening (including asbestos given the B8 use).

4.0 Hydrology

4.1 Hydrogeology

- 4.1.1 Under the Water Framework Directive the London Clay Formation is classified by the Environment Agency as Unproductive Strata; it does not support significant groundwater flow or yield. The underlying Chalk is a major Principal Aquifer but lies at substantial depth beneath the site (typically >60 m bgl in this area) and is not material to the proposed basement.
- 4.1.2 The site does not lie within a Source Protection Zone (SPZ). The nearest recorded abstraction licences and SPZs are associated with the Lee Valley Chalk aquifer to the east, which is too remote to be affected by a single residential basement excavation of this scale.
- 4.1.3 Haringey's "Hidden Streams Revealed" publication identifies a number of historic natural streams in the borough, most flowing from the Highgate / Muswell Hill northern heights southwards and eastwards. The closest of these to the site is the culverted Moselle Brook, which runs approximately 1.5 km to the south and therefore does not materially interact with the site.
- 4.1.4 No ponds, springs, lakes or open watercourses are recorded within 50 m of the site.
- 4.1.5 Groundwater is not anticipated within the depth of the proposed excavation (typically ~3.0 m below existing ground level). In the event that perched groundwater is encountered in the shallow made ground during excavation, this can be managed by localised sump-pumping within the excavation, with water discharged under permit via a silt trap to the combined sewer.

4.2 Surface Water Flood Risk

- 4.2.1 The Environment Agency's Flood Map for Planning places the site within **Flood Zone 1** – land with a low probability (<0.1% per annum) of flooding from rivers or the sea. This is confirmed by the basement impact letter submitted with the planning application.
- 4.2.2 The Environment Agency's Risk of Flooding from Surface Water map shows the site as being at a very low risk of surface water flooding. This is consistent with the site's broadly flat topography and the presence of kerbed carriageway channels on Rusper Road and Sirdar Road that convey surface water to the existing Thames Water highway drainage.
- 4.2.3 The site is not identified as a Critical Drainage Area (CDA) within Haringey's Surface Water Management Plan. The site is not likely within a reservoir-flood inundation extent; the William Girling and King George V reservoirs lie approximately 6 km to the east, and Alexandra Park reservoir approximately 1.5 km to the north – neither is expected to affect this site).
- 4.2.4 The proposed basement will be constructed with raised door thresholds at ground-floor level, a fully tanked / waterproofed perimeter, and an internal sump-pump arrangement to the lightwell / drainage cavity. These measures are consistent with Haringey's guidance (paras 3.15 and 12.1) and reduce residual flood risk to an acceptable level for habitable basement accommodation in Flood Zone 1.

5.0 CPG4 Screening Flowcharts

For the purposes of this screening stage, reference has been made to Appendix E of the Arup / Camden Planning Guidance CPG4 screening tools (widely used in the North London boroughs), together with the scope set out in Section 9 of Haringey's Basement Development Guidance Note. The screening comprises a series of questions within flowcharts addressing three core matters – land stability, surface flow and flooding, and groundwater flow – plus the cross-cutting matters of residential amenity and cumulative development.

5.1 Slope Stability

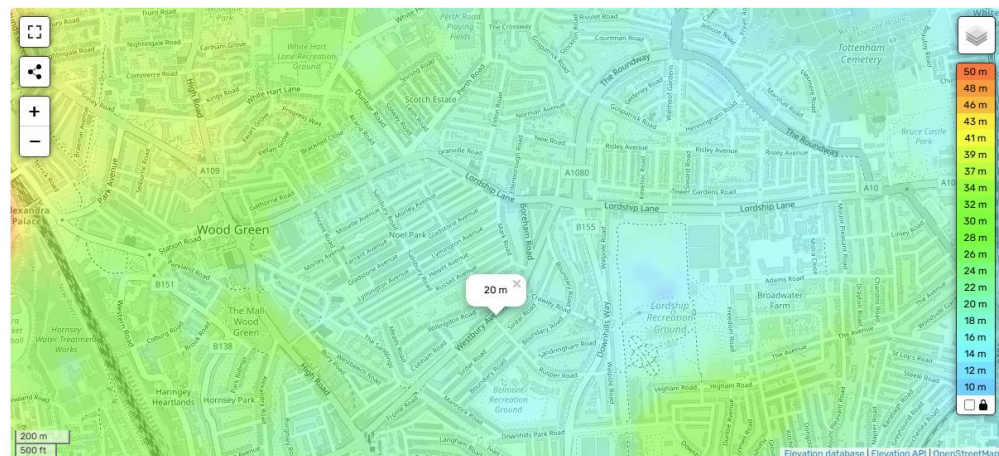
5.1.1 Does the existing site include a slope, natural or man-made, greater than 7° (approximately 1 in 8)?

No. The site and its immediate environs are substantially flat, at approximately 20m. The topography of the Wood Green / Turnpike Lane area is broadly level plateau above the Lee Valley.

England topographic map

[United Kingdom > England](#)

Click on the map to display elevation.



5.1.2 Will the proposed re-profiling or landscaping at the site change slopes at the property boundary to greater than 7° (approximately 1 in 8)?

Yes – in a localised sense, the proposed basement perimeter wall introduces a vertical face of approximately 3.0 m depth at the site boundary. **Carry forward to scoping stage** – this is addressed through the structural design of the perimeter retaining wall (Section 7).

5.1.3 Does the development neighbour land (including railway cuttings and the like) with a slope greater than 7°?

No. The adjoining gardens and garages are at a comparable level to the site.

5.1.4 Is the site within a wider hillside setting in which the general slope is greater than 7°?

No. The wider gradient is well below 1:8.

5.1.5 Is London Clay the shallowest stratum on the site?

No – shallow Made Ground is expected to be the shallowest stratum, over London Clay. **Carry forward to scoping stage** for treatment of made ground within retaining-wall and slab design.

- 5.1.6 Will any trees be felled as part of the proposed development and/or are there any proposed works within the tree protection zones of trees to be retained?**
- No trees are indicated on the site or within 15 m of the site boundary on the existing ground-floor plan (EX-02). The site is not within a Conservation Area and there are no recorded Tree Preservation Orders (TPOs) affecting the site or adjoining sites – to be confirmed via Haringey’s TPO mapping before commencement.
- 5.1.7 Is there a history of shrink-swell subsidence in the local area and/or evidence of such effects at the site?**
- There is no observed evidence of shrink-swell distress to the existing garage structure or to the adjoining garden walls. London Clay is a shrinkable clay (Plasticity Index typically > 40), and the design of the new foundations will take account of this by founding all new ground-level structures below the zone of seasonal moisture variation (typically > 1.0 m bgl, or deeper adjacent to any retained trees). Trees are present within the construction influence zone species or maturity cannot be confirmed.
- 5.1.8 Is the site within 100 m of a watercourse or spring line?**
- No. The nearest recorded watercourse is the culverted Moselle Brook, approximately 1.5 km to the North. No spring lines are mapped in the vicinity. And 0.5km to the East is Lordship Recreation Ground Pond
- 5.1.9 Is the site within an area of previously worked ground?**
- No, not within any recorded large-scale made or worked ground. However, localised made ground arising from the historic construction of the existing garage and former use of the rear plots is expected. **Carry forward to scoping stage** for GI confirmation.
- 5.1.10 Is the site within an aquifer? If so, will the proposed basement extend beneath the water table such that dewatering will be required during construction?**
- No. The site is underlain by London Clay (Unproductive Strata). The basement does not extend into a significant aquifer and significant dewatering is not anticipated.
- 5.1.11 Is the site within 50 m of any ponds?**
- No. There are no ponds, lakes or reservoirs within 50 m of the site.
- 5.1.12 Is the site within 5 m of a public highway or pedestrian right of way?**
- Yes – the south-west boundary of the site abuts the footway of Rusper Road. **Carry forward to scoping stage** for treatment of highway-loading and construction management (Section 6 and Section 8).
- 5.1.13 Will the proposed basement significantly extend the differential depth of basements relative to neighbouring properties?**
- Yes. There do not appear to be any basements within the immediate block of neighbouring properties, each of which is a single-storey garage/storage structure or a non-basemented dwelling. **Carry forward to scoping stage** for assessment of the 45° party-wall zone of influence.
- 5.1.14 Is the site over (or within the exclusion zone of) any tunnels (e.g. railway or utility tunnels)?**
- 5.1.15** No. A review of the Transport for London Property Asset Register and the National Underground Asset Register indicates no tunnels or deep infrastructure assets beneath the site or within their exclusion zones.

5.2. Surface Flow and Flooding

5.2.1 Is the site within a catchment area?

Yes – the site lies within the surface-water catchment of the culverted Moselle Brook, ultimately draining to the River Lee. The chance of fluvial flooding at the site is very low (<0.1% per annum, Flood Zone 1).

There is no reservoir-flooding risk mapped at the site.

5.2.2 As part of the proposed site drainage, will surface water flows (e.g. volume of rainfall and peak run-off) be materially changed from the existing route?

No. The proposed site is already substantially impermeable (covered by the existing garage and surrounding hardstanding). The new dwelling will have an equivalent or lesser hard-surface footprint, particularly given the proposed green roof (per Condition 3(b) of HGY/2023/1355) and the lightwell/courtyard planted area. The drainage strategy required under Condition 12 will incorporate SuDS features to achieve betterment.

5.2.3 Will the proposed basement development result in a change in the proportion of hard surfaces / paved external areas?

No net increase is expected; a small reduction may be achievable through the provision of the green roof and lightwell garden – to be confirmed in the surface-water drainage strategy.

5.2.4 Q18. Will the proposed basement result in changes to the profile of the inflows (instantaneous and long-term) of surface water being received by adjacent properties or downstream watercourses?

No. Peak and total surface-water discharge from the site will be controlled in accordance with Haringey's surface-water drainage policy (Policy DM24 / London Plan Policy SI13), at a rate not exceeding the existing brownfield runoff rate and ideally restricted towards the equivalent greenfield rate. This is demonstrated in the drainage strategy to be submitted under Condition 12.

5.2.5 Will the proposed basement result in changes to the quality of surface water being received by adjacent properties or downstream watercourses?

No. The development is residential and does not generate contaminated run-off. SuDS features incorporated into the drainage design will provide source-control water-quality treatment.

5.2.6 Is the site in an area known to be at risk of surface-water flooding? Or is the proposed basement below the static water level of a nearby surface-water feature?

Very low risk only – see Section 4.2. The basement is not below the static water level of any open water feature in proximity to the site.

5.3. Ground Water flow

5.3.1 Is the site on permeable strata?

No. The site is underlain by London Clay (impermeable, Unproductive Strata) over ~1 m of made ground.

5.3.2 Will the basement intercept known groundwater flow paths?

No. London Clay does not support significant groundwater flow. No springs, seepages, culverted watercourses or lost rivers are mapped beneath or immediately adjacent to the site.

5.3.3 Will dewatering be required, and for how long?

No significant dewatering is anticipated. Localised sump-pumping of rainwater and any perched water in the made ground during the excavation period may be required. This will be of short duration (days–weeks) and confined within the excavation; any discharge will be via silt-trap to the public combined sewer under a Thames Water temporary discharge agreement.

5.3.4 Will the completed basement act as a dam to groundwater flow ("damming effect")?

No material damming effect is expected. The basement is small in plan (~90 m²), is oriented perpendicular to no significant groundwater flow path, and is embedded in an impermeable London Clay matrix.

5.4. SUDs Considerations

Consideration of Sustainable Drainage Systems (SuDS) is a planning requirement for all new developments to provide betterment to the runoff regime post-development. SuDS are designed to replicate the natural course of drainage as closely as possible, with a view to reducing the impact of flooding, removing pollutants at source and combining water management with green space. The final SuDS strategy will be agreed with the appointed civil / drainage engineer and submitted under Condition 12 of the planning permission. London Borough of Haringey is the Lead Local Flood Authority (LLFA).

The following hierarchy for surface-water disposal is considered, in priority order, where reasonably practicable:

- Store rainwater for later use (e.g. water butt for green roof / garden irrigation).
- Infiltrate into the ground (via soakaway) – unlikely to be viable owing to the clay geology; to be confirmed by BRE Digest 365 soakage testing.
- Attenuate rainwater in ponds or open features for gradual release – limited by the small site area.
- Discharge to a surface-water sewer at a restricted rate.
- Discharge to a combined sewer as a last resort, at a restricted rate.

5.5. Surface Water Strategy

Based on the above, the indicative surface-water strategy is as follows:

- Green roof to the new dwelling, providing source-control attenuation consistent with Condition 3(b) of the planning permission.
- Rainwater harvesting from the green roof for garden / lightwell irrigation and, where possible, for WC flushing.
- Infiltration to be tested – if viable, a shallow soakaway may be provided in the lightwell/courtyard.

- Attenuation – if infiltration is not viable – by means of a sub-surface attenuation crate or oversized perforated pipe, sized for the 1-in-100-year event including a +40% allowance for climate change (consistent with EA guidance current at design).
- Restricted discharge to the Thames Water public combined sewer in Rusper Road (location to be confirmed from Thames Water sewer records) at a rate not exceeding the equivalent greenfield runoff rate, with a Hydrobrake-type vortex flow control.

6.0 Scoping Stage

The purpose of the scoping stage is to assess in more detail the factors identified by the screening as requiring further consideration. Potential consequences are assessed for each of the identified potential impact factors. The scope of this investigation is considered to comply with the guidance issued by London Borough of Haringey and is a suitable basis on which to assess the potential impacts.

6.1 Groundwater Flow

- 6.1.1 Based on the BGS desktop data and the characterisation of the Wood Green area in Haringey's guidance, groundwater is not anticipated to be encountered within the depth of the proposed basement excavation. Localised perched water in the upper made ground cannot be discounted without a site-specific ground investigation and will be managed, if present, by construction-phase sump-pumping.
- 6.1.2 The London Clay in which the basement will be seated is broadly impermeable and does not support lateral groundwater flow at a scale that would be materially altered by a 90 m² residential basement. The proposed basement is not expected to create an appreciable "damming" effect on groundwater movement in the locality.
- 6.1.3 In the longer term, once the basement is constructed and tanked, any negligible residual groundwater movement in the upper made ground will simply re-route around the basement footprint. Given the size of the site and the absence of significant permeable strata, cumulative or off-site groundwater-regime impacts are not anticipated.
- 6.1.4 Notwithstanding the above desktop conclusion, a minimum 28-day standpipe monitoring period is recommended within the site-specific ground investigation to confirm groundwater conditions prior to detailed design.

6.2 Slope Stability

- 6.2.1 Made ground is likely to be the shallowest stratum on the site. The structural design of the perimeter retaining wall and basement slab will take account of this, with the retaining wall embedded into the competent London Clay and designed for at-rest earth pressures ($K_0 \approx 1.0$ – 1.5 in the London Clay, $K_0 \approx 0.5$ – 0.8 in the made ground) supplemented by water pressure, surcharge and accidental loading consistent with BS EN 1997 and BS 8002.
- 6.2.2 The absence of existing basements in the immediately adjoining structures means that the differential depth of the proposed basement relative to the neighbours is significant (of the order of 3.0 m) over the relatively short (~10 m) shared boundary lengths. The proposed top-down construction sequence, with contiguous-pile (or equivalent) perimeter wall restrained at two levels (capping beam and ground-floor slab), minimises wall displacement and hence ground movement at the neighbouring boundary.
- 6.2.3 Due to the limited intrusive soils information available at this stage, the following parameters are to be assumed within the preliminary structural designs:
 - At-rest earth-pressure coefficient K_0 : 0.5–0.6 for normally consolidated made ground; 1.0–1.5 for London Clay (over-consolidated).

- Active (Ka) and passive (Kp) pressures to be mobilised only where wall movement permits – for an embedded contiguous piled wall, **at-rest** pressures will be used on the retained side, with passive resistance taken below formation.
- Surcharge: 10 kN/m² adjacent to the highway (Rusper Road); 5 kN/m² adjacent to neighbouring gardens; accidental construction loads as appropriate.

(Source: Fiona Cobb, Structural Engineer's Pocket Book: Eurocodes; CIRIA C580 / C760.)

- 6.2.4 Party-Wall Act 1996 notices will be served on all adjoining owners prior to construction, including the owners of 92 Westbury Avenue and 143 Sirdar Road, where excavation works are proposed within 3 m of a neighbouring structure or within the 6 m / 45° zone of influence of foundations.

6.3. Residential Amenity

- 6.3.1 The construction of the basement has the potential to impact upon the amenity of the immediate neighbours through noise, vibration, dust and vehicle movements. The proposed construction period is estimated at approximately 9–12 months – to be confirmed with contractor, with the basement / groundworks phase expected to take approximately 12–16 weeks.
- 6.3.2 A full Construction Method Statement is required under Condition 8 of the planning permission. This will include parking and management of site vehicles, loading / unloading arrangements, plant and material storage, programme, hoarding, wheel-washing and traffic management. The contractor will be expected to work within the hours permitted under the Control of Pollution Act 1974 (08:00–18:00 Monday–Friday; 08:00–13:00 Saturday; no Sundays or Bank Holidays) and to adhere to the Considerate Constructors Scheme.
- 6.3.3 Once constructed, the new dwelling does not give rise to any abnormal residential-amenity impacts. No external plant with significant noise output is proposed, and the green roof and brickwork elevations are consistent with the character of the surrounding area (per Conditions 3, 4, 11 of HGY/2023/1355).

6.4. Cumulative Development

- 6.4.1 Haringey's guidance (para 9.1) requires consideration of the cumulative effect of basement development in the locality. A review of the Haringey planning history portal for the immediately surrounding properties (indicatively within a 100 m radius of the site) should be undertaken:
- 6.4.2 A cumulative basement review has been undertaken using the Haringey planning portal. No consented basement developments have been identified in the immediate vicinity of the site at the time of writing. On this basis, no cumulative impacts arising from neighbouring basement excavation are anticipated.
- 6.4.3 Given the small scale of the proposed basement, its restriction to the site's own footprint, and the absence of known adjoining consented basements, the cumulative impact on local land stability and groundwater flow is expected to be negligible.

7.0 Construction Methodology/ Engineering Statements

7.1 Outline Temporary and Permanent Works Proposals

- 7.1.1 This method statement has been prepared to provide information on the likely methods for basement construction, subject to confirmation of details and final input from the successful contractor.
- 7.1.2 The final methods will be subject to the limitations and constraints noted in this document. Any revised matters associated with the Method Statement will be issued for review and comment prior to any site construction works.
- 7.1.3 The method of construction is to be agreed by all parties, with specific reference to the potential for vibration and noise from the basement construction, given the proximity of the rear gardens of 88, 90 and 92 Westbury Avenue and 143 Sirdar Road.
- 7.1.4 A detailed method statement for means of access, site logistics and intended vehicle movements – particularly spoil removal down Rusper Road – will be agreed with the main contractor prior to commencing any site works. Any variations will be reported accordingly, in compliance with Condition 8 of the planning permission.
- 7.1.5 All services surveys, diversion agreements and temporary-supply requirements will be agreed, and approvals will be in place prior to commencement of works. A CCTV drainage survey will be undertaken to confirm any existing sewers within 3 m of the works; a Thames Water build-over / divert agreement will be sought where necessary.
- 7.1.6 Existing building condition surveys (photographic and crack-monitoring) will be carried out on all adjoining properties (88, 90 and 92 Westbury Avenue; 143 Sirdar Road; and the adjoining garages) prior to commencing any demolition or excavation works. Party-wall awards will be in place prior to commencement.

7.2 Sequence of works

- 7.2.1 Serve Party-Wall Notices and agree awards with adjoining owners.
- 7.2.2 Establish site access and full-perimeter hoarding, with a single locked pedestrian / site vehicle gate from Rusper Road.
- 7.2.3 Investigatory works as required for full detailed design (site-specific ground investigation, drainage CCTV, topographic / dilapidation survey of adjoining structures).
- 7.2.4 Demolition of the existing single-storey garage, with demolition undertaken by hand or with small plant to minimise vibration. Demolition arisings to be segregated and recycled wherever practicable.
- 7.2.5 Installation of the perimeter retaining wall. Two options are presented and will be finalised subject to ground investigation:
 - **Option A – Contiguous piled wall:** ~450–600 mm diameter CFA or rotary bored piles at ~600 mm centres, installed from ground level down to a toe at approximately 6.0 m below ground level (i.e. ~3.0 m below formation), forming a non-interlocking embedded retaining wall.
 - **Option B – Traditional underpin / sequenced in-situ RC wall:** "hit-and-miss" reinforced concrete mass/pin sections installed in approximately 1.0 m wide bays, each cast to full depth, forming a

continuous RC retaining wall around the site perimeter. This option is feasible given the stiff London Clay and the compact site and has been the assumption of the original basement impact letter (minimum 500 mm thick RC concrete).

- 7.2.6 Casting of the reinforced concrete capping beam atop the perimeter wall, tying all sections together and forming the first permanent prop.
- 7.2.7 Casting of the ground-floor slab at existing ground level, incorporating openings for the stair / spoil-removal core. Once cured, this slab becomes the primary horizontal prop to the retaining wall, bracing all four walls against rotation.
- 7.2.8 Staged excavation of the basement via the stair/core opening, in 1.0–1.2 m lifts, with spoil removed by mini-excavator and skip. Excavation is monitored by the engineer and contractor; crack-monitoring and movement-monitoring targets on adjacent walls are read at specified intervals.
- 7.2.9 Trimming of internal piles / preparation of formation level; installation of blinding and waterproofing membrane (Type A barrier).
- 7.2.10 Casting of the reinforced concrete basement slab, designed to resist any hydrostatic uplift (if encountered) and to transfer vertical and lateral loads back into the perimeter wall.
- 7.2.11 Installation of the internal drained cavity (Type C) system with sump and twin duty/standby pumps, achieving BS 8102:2022 Grade 3 performance.
- 7.2.12 First-fix MEP, internal walls and linings; superstructure works above ground to follow in the normal sequence.

It is presumed that all temporary works to ensure stability to adjacent properties are provided during demolition and excavation as designed and specified by the contractor. It is the contractor's responsibility to take all necessary steps to ensure that the structure is adequately propped, shored and braced to ensure that, during the progress of the works, excessive deflections and deformations do not occur. The contractor shall discuss with the engineer any proposals for temporary works. The contractor is to allow in his tender price for all propping, shoring and bracing to ensure that the works may be safely undertaken with no undue disruption to the adjoining structures.

The recommended construction method uses a top-down sequencing to safely form a basement and ground-floor structure, mitigating the hazards and challenges posed by shallow made ground and any potential groundwater ingress. The initial installation of the embedded retaining wall, followed by the capping beam and ground-floor slab, provides early lateral restraint – controlling ground movement and stabilising the retaining system before any excavation begins.

During excavation, the contractor shall take all the necessary steps to prevent softening of the ground. The contractor shall ensure that the size of the excavation matches the required size agreed with the engineer and local authority. Excessive overbreak will not be permitted; the contractor shall provide all necessary means to prevent overbreak.

All concrete shall be grade C32/40 (unless specified otherwise) and strictly placed and cured in accordance with BS 8500 and BS EN 206. Reinforcement shall be to BS 4449. It should be noted that concrete should be adequately compacted with a vibrator poker to ensure adequate density.

The final sequence of working in detail will be agreed with the successful main contractor and any variations reported accordingly. Retaining-wall sections may be punctured by services entering the building; the means of sleeving these services shall be agreed with the engineer during the progress of the works.

7.3. Establish Access & Hoarding

- 7.3.1 The hoarding will be located around the entirety of the site perimeter to enclose all works. A plywood or corrugated steel hoarding will be erected on vertical standards anchored to the ground, to a height of not less than 2.4 m. The hoarding will be fully secure with a lockable gate for access. The hoarding height, materials and colour will be agreed with Haringey's Highways and Planning teams in accordance with the Construction Method Statement (Condition 8).
- 7.3.2 Vehicular access will be from Rusper Road via the existing crossover position (noting that the crossover is to be removed and the pavement reinstated prior to first occupation, under Condition 9, via a Section 278 agreement with Haringey Highways).

7.4. Waterproofing System and Screed

- 7.4.1 For all basement areas, the Architect will prepare design details in conjunction with a specialist waterproofing contractor. The waterproofing system will be installed in accordance with the Architect's details and the specialist contractor's technical specifications once the basement slab is complete.
- 7.4.2 The floor finishes, which may include insulation and underfloor heating, will then be laid in accordance with the Architect's details. A cement-and-sand screed will be applied on the slab surface.
- 7.4.3 The height of the basement and the relative level of the water table mean that Types A (barrier), B (structurally integrated) or C (drained) protection against the ingress of water will be satisfactory, as defined by **BS 8102:2022 – Code of practice for protection of below-ground structures against water ingress**. The basement will be constructed and detailed to achieve a **Grade 3 Level of Performance** (habitable with no dampness or water penetration), as defined by BS 8102:2022.
- 7.4.4 To achieve Grade 3 performance, we propose a combined system comprising:
- Type A – a waterproofing membrane (sheet or liquid applied) bonded to the external or internal face of the RC wall, and externally beneath the basement slab.
 - Type C – an internal drained cavity system (high-density polyethylene cavity membrane and drainage channel), discharging to a sump chamber with twin duty/standby pumps on a battery-backed inverter, with high-level alarm.
 - Use of a waterproof concrete mix (admixture-based integral waterproofing) for the perimeter RC wall and basement slab, to BS EN 206 with crack-control detailing to BS EN 1992.

7.5. Ground Movement and Damage Impact Assessment

- 7.5.1 The proposed basement will be constructed using a top-down sequence with an embedded RC retaining wall, capping beam and ground-floor slab as the primary restraints. The excavation will result in a reduction in vertical stress due to the removal of overburden soils. Based on an assumed excavation depth of approximately 3.0 m and a bulk unit weight of 19 kN/m^3 , the stress relief is estimated to be in the order of $\sim 55\text{--}60 \text{ kN/m}^2$. This is modest in comparison to many multi-storey basement schemes.
- 7.5.2 Groundwater is not anticipated within the depth of the excavation; accordingly, hydrostatic uplift on the base slab is not a governing design action. The base slab will nevertheless be designed to resist any residual perched-water pressure and accidental buoyancy conditions (e.g. mains burst) with an appropriate factor of safety (typically ≥ 1.1 per BS EN 1997).
- 7.5.3 Ground heave will occur due to stress relief; however, this will be significantly restrained by the perimeter embedded wall and the early installation of the ground-floor slab, which acts as a horizontal prop in the top-down construction sequence.
- 7.5.4 Indicative elastic calculations suggest potential unrestrained heave in the order of 5–10 mm, although actual movements are expected to be lower due to the restraint provided by the embedded wall, capping beam and slab system.
- 7.5.5 The capping beam and embedded wall provide early lateral restraint, limiting wall movement and associated ground deformation. As excavation progresses beneath the ground-floor slab, the structure transitions into a load-sharing system, further reducing the potential for both heave and lateral displacement.
- 7.5.6 Predicted lateral wall movements for an embedded retaining wall in stiff London Clay, top-down constructed and propped at two levels, are typically in the range 0.05–0.15% of excavation depth – i.e. approximately 1.5–4.5 mm at the top of the wall for a 3.0 m excavation, reducing to zero at the toe of the pile. These are well within the limits set out in CIRIA C580 for adjacent low-rise masonry structures.
- 7.5.7 Based on the Burland (1977) and CIRIA C580 damage-classification methodology, and on the limited tensile strains predicted at the neighbouring garden walls and rear elevations, the anticipated damage category to adjacent structures is assessed as:
- **Category 0 – Negligible** damage expected in neighbouring residential buildings at 88, 90 and 92 Westbury Avenue and 143 Sirdar Road. Hairline cracks $< 0.1 \text{ mm}$ may occur in garden walls or in existing rendered finishes; these are aesthetic only, with no impact on structural integrity or function.
- 7.5.8 Movement-monitoring targets will be installed on the adjoining garden walls and neighbouring rear elevations prior to demolition, and will be read on an agreed frequency (typically weekly during works, reducing to monthly thereafter). Trigger levels for amber / red response will be set at 5 mm / 10 mm cumulative movement; any exceedance will trigger a halt and review of works.

- 7.5.9 These conclusions assume that construction is undertaken in accordance with BS 8000, BS EN 1992, BS EN 1997, BS 8102 and good engineering practice, with appropriate sequencing of the top-down works, effective use of the embedded retaining system, and careful control of groundwater, uplift pressures and ground movements throughout the construction process.

7.6. Existing Drainage

- 7.6.1 A Thames Water asset search will be carried out prior to the commencement of works. Should existing public sewers be found within 3 m of the development, a formal build-over / diversion application will be made. All necessary documentation required to form the application will be compiled. Submission will be made to Thames Water and consultation undertaken to secure technical approval.
- 7.6.2 Any foul drainage from the new dwelling will be connected to the existing public sewer network, with appropriate falls and backflow-prevention devices. The detailed drainage design will be submitted for discharge of Condition 12 of the planning permission.

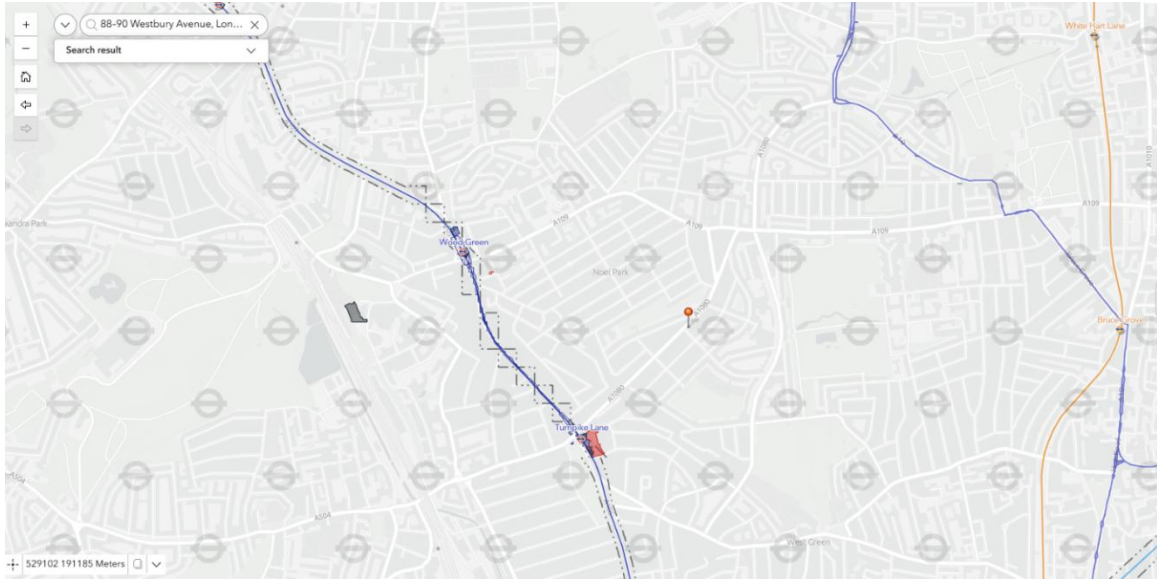
8.0 Residential Amenity & Construction Management

- 8.1 Residents of the adjoining properties at 88, 90 and 92 Westbury Avenue, 143 Sirdar Road, and houses to the far side of Rusper Road, will be notified in writing of the proposed works, the construction programme and the 24-hour emergency contact details for the contractor, prior to the commencement of works.
- 8.2 The contractor shall register the site under the Considerate Constructors Scheme and shall comply with all requirements of the Construction Method Statement to be agreed under Condition 8 of HGY/2023/1355.
- 8.3 Construction working hours will be restricted to those permitted under the Control of Pollution Act 1974 (see Informative 1 of the Decision Notice):
- Monday to Friday: 08:00 – 18:00
 - Saturday: 08:00 – 13:00
 - Sundays and Bank Holidays: no audible site work.
- 8.4 Noise-critical activities (e.g. piling, breaking, concrete pumping) will be further restricted to mid-morning and mid-afternoon windows within the permitted hours, and will be preceded by formal neighbour notification.
- 8.5 Vibration will be monitored at the adjoining boundary walls during piling and demolition. Trigger values consistent with BS 5228-2 / BS 7385-2 (peak particle velocity) will be agreed at project start.
- 8.6 Dust and air-quality impacts will be controlled by:
- Full-height perimeter hoarding (see Section 7.3).
 - Damping-down of excavation and demolition arisings.
 - Covering of spoil-skips and haulage vehicles.
 - Wheel-washing at the single site vehicle exit onto Rusper Road.
- 8.7 Light pollution impacts during construction will be managed by directing all site lighting inwards / downwards and shielding upper luminaires; no night-time work is proposed. Once constructed, the new dwelling uses normal residential lighting and does not give rise to amenity light-pollution concerns.
- 8.8 On completion, the Rusper Road crossover will be removed and the pavement reinstated under a Section 278 agreement with Haringey Highways (in accordance with Condition 9 of the planning permission).

9.0 Conclusion

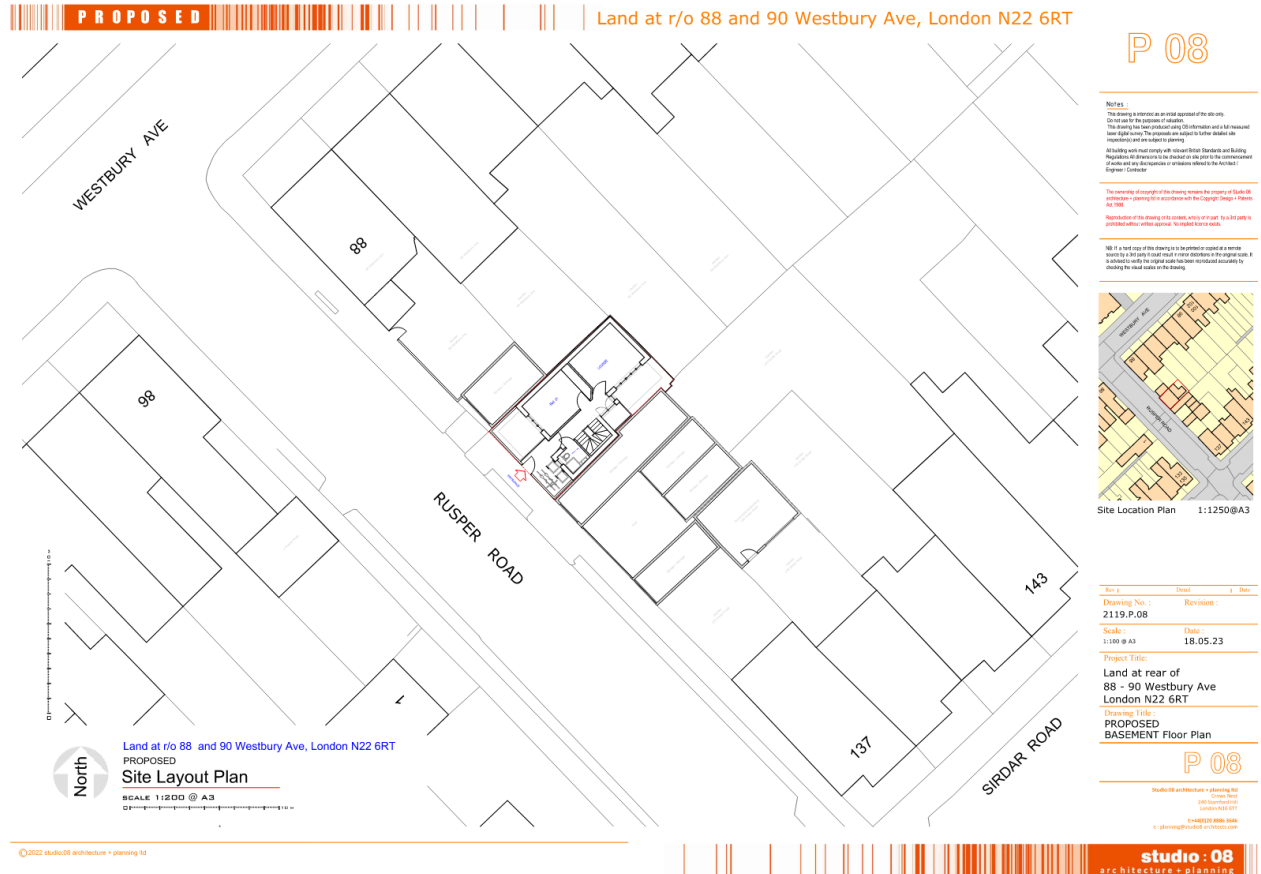
- 9.1 The proposed redevelopment at Land at Rear of 88–90 Westbury Avenue, London N22 6RT can be achieved using standard top-down construction techniques and materials, with a reinforced concrete embedded retaining wall (contiguous piled or traditional underpin / in-situ sequenced wall, minimum 500 mm thick as noted in the basement impact letter originally submitted with the planning application) and a reinforced concrete basement slab.
- 9.2 Where mechanical means are necessary to construct the permanent works, these can be of a type that generates low vibrations, to which the surrounding masonry garages and residential properties have a form of construction that is robust and resistant.
- 9.3 Subject to the commissioning of a site-specific intrusive ground investigation (recommended in Section 3.3), the proposed development is anticipated to have **no significant adverse impact** upon:
 - **Surface flooding** – the site is in Flood Zone 1, has a very low surface-water flood risk, and the development will not materially increase impermeable area relative to the existing garage footprint. A SuDS-led drainage strategy will be provided under Condition 12.
 - **Groundwater flow** – the site is underlain by London Clay (Unproductive Strata); no significant groundwater flow is anticipated to be intercepted, and no damming effect is expected.
 - **Land stability** – the perimeter retaining wall will be designed to CIRIA C580/C760 and BS EN 1997, propped at two levels, restraining ground movement at the neighbouring boundaries to within Damage Category O (Negligible).
 - **Environmental effects** – the development is residential, is not in a Conservation Area or Archaeological Priority Area, is not listed, and is not in proximity to any Site of Archaeological Importance or nature-conservation designation.
 - **Residential amenity** – construction-phase impacts will be managed under the Construction Method Statement (Condition 8) and the Considerate Constructors Scheme; once occupied, the dwelling does not give rise to any abnormal amenity impacts.
- 9.4 The current limited desk-based review has concluded that the predicted damage to neighbouring properties would generally be Category O – Negligible. This should be reassessed and confirmed once the site-specific ground investigation has been completed and the detailed retaining-wall design has been carried out.
- 9.5 On the basis of the evidence presented herein, the BIA demonstrates that the basement element of the permitted development can be delivered safely and without significant residual impact. It is therefore considered that the requirements of Condition 7(a) of HGY/2023/1355 are satisfied in principle, subject to the items flagged for confirmation (see Section 10).
- 9.6 In accordance with Condition 7(b), a Chartered Civil Engineer (MICE) or Chartered Structural Engineer (MIStructE) will be appointed to supervise the construction works throughout their duration; the confirmation of appointment will be submitted separately to the Local Planning Authority.

Appendix 1: Transport for London Property Asset Register

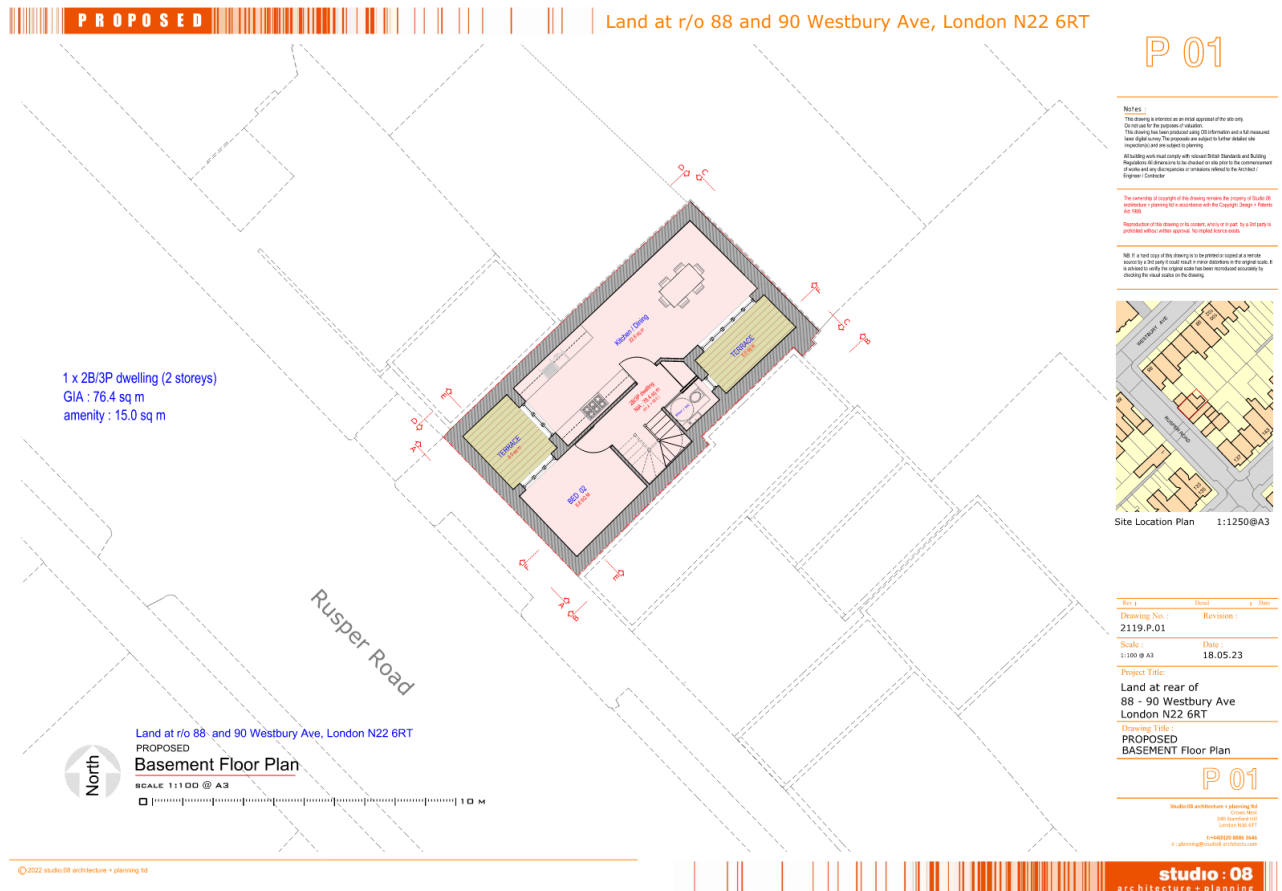


Appendix 2: Proposed Plans

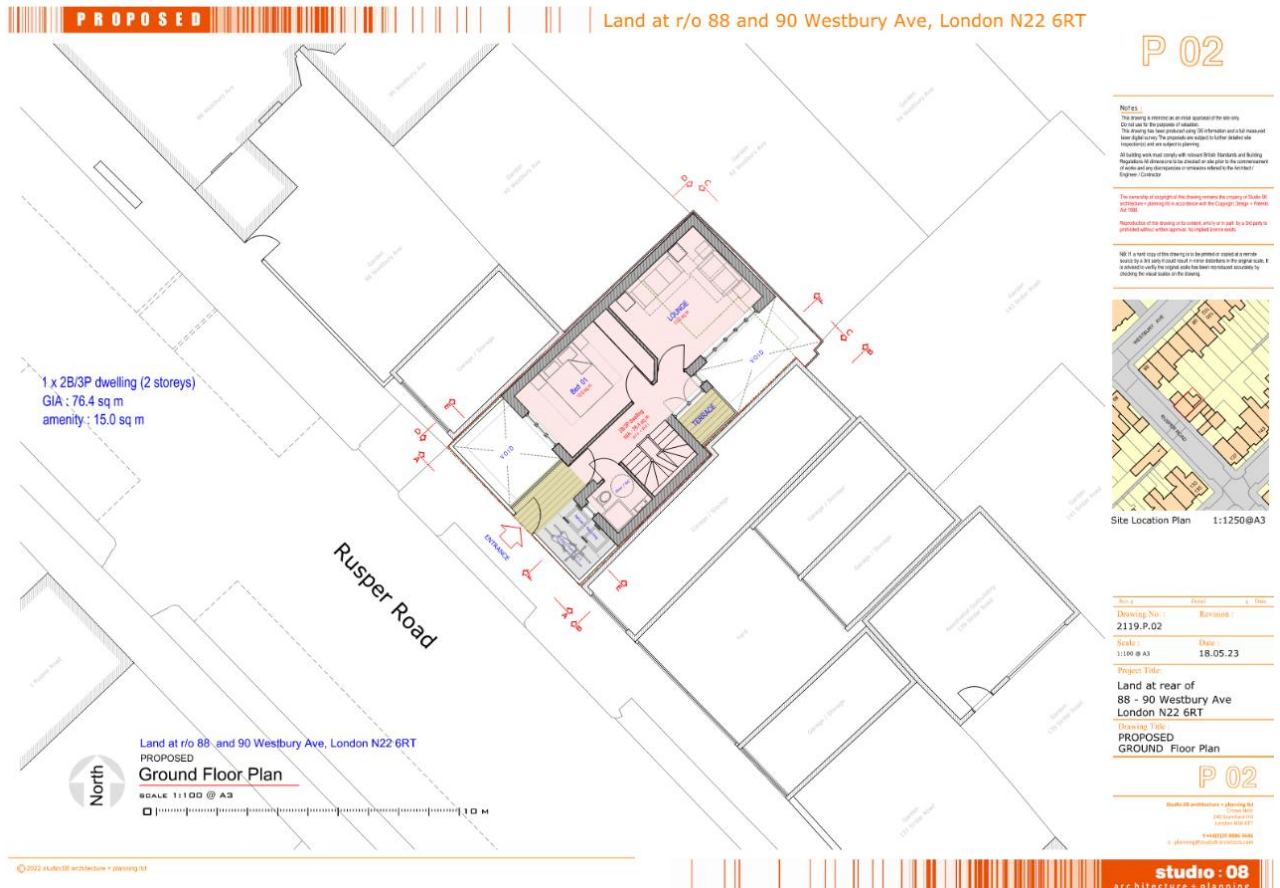
Proposed Site Layout



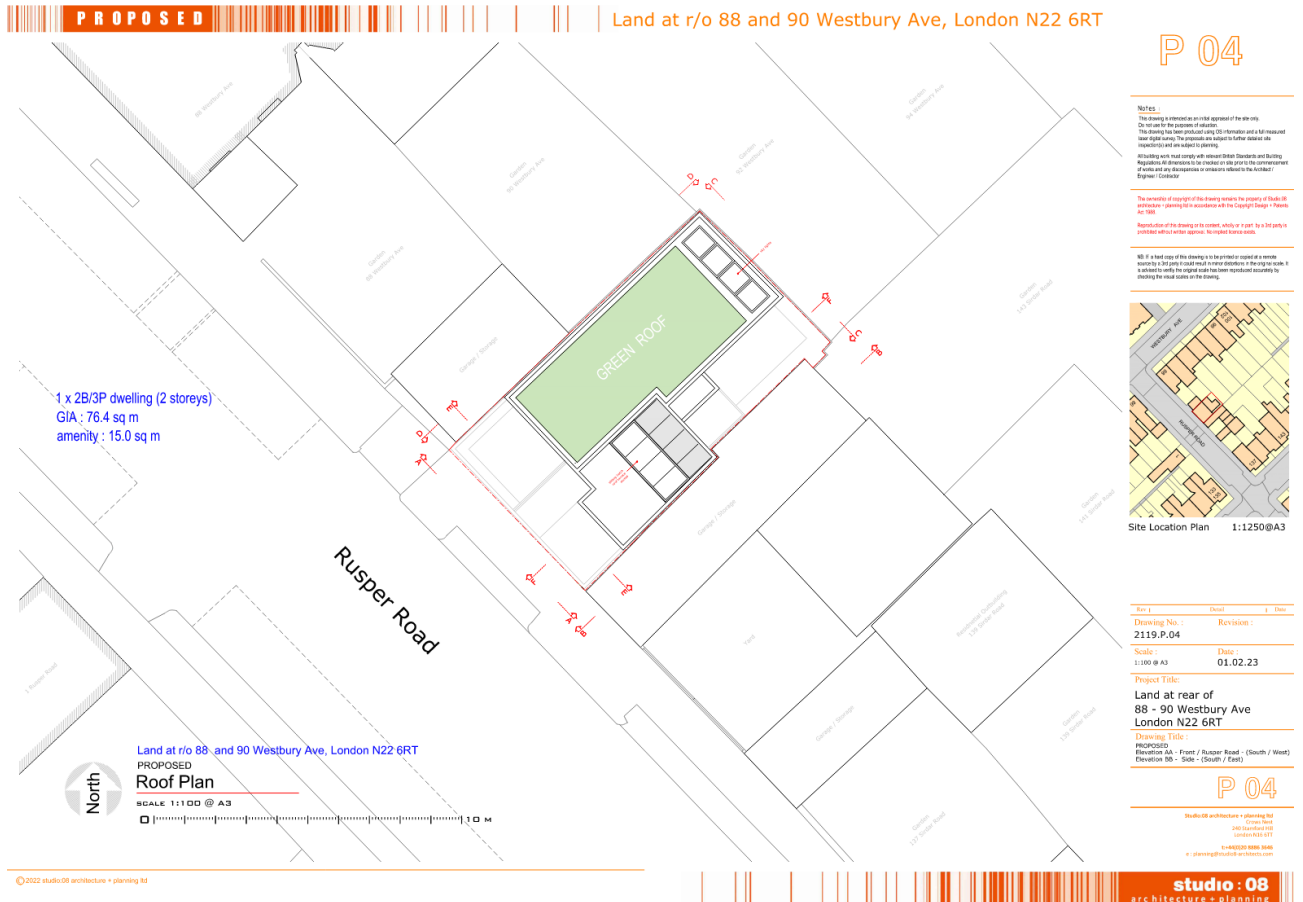
Proposed Basement Floor Plan



Proposed Ground Floor Plan



Proposed Roof Plan

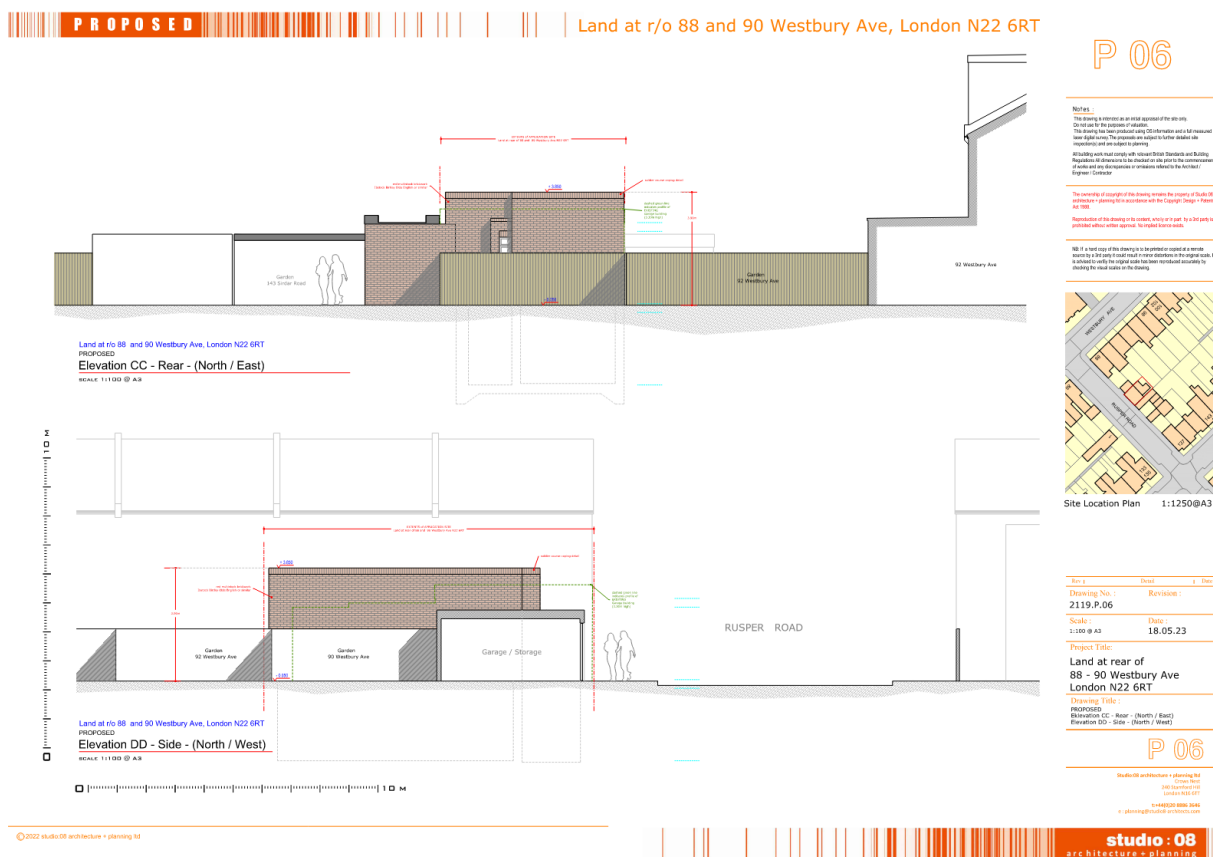


Appendix 3: Proposed Sections and Elevations

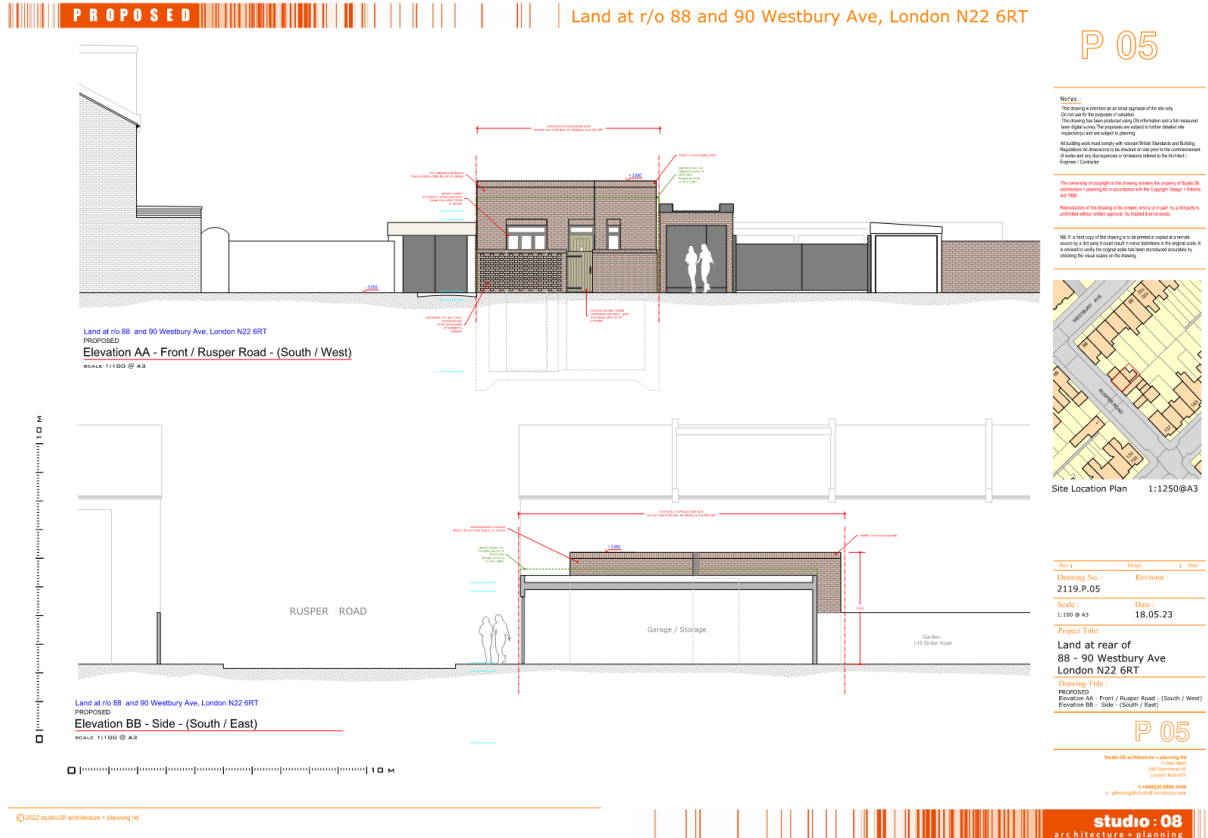
Proposed Section



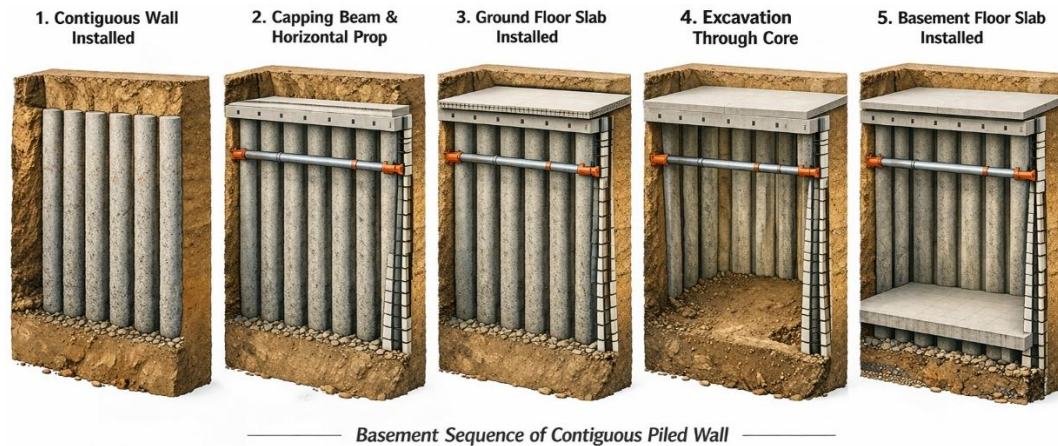
Proposed Side and Rear Elevations



Proposed Front and Rear Elevations



Appendix 4: Typical Top-down basement construction



1. Contiguous Piling Wall

- Set out the basement perimeter and install guide wall
- Drill and construct contiguous piles along the boundary (slight overlap/gaps between piles)
- Reinforce and cast piles to required depth for retention and groundwater control
- Allow piles to gain strength, forming the primary retaining system

2. Capping Beam & Props

- Break down pile heads to the required level
- Fix reinforcement tying all pile heads together
- Cast the reinforced concrete capping beam across the full wall length
- Install temporary props where required to provide additional restraint
- Allow capping beam to cure, providing early-stage lateral support to the retaining wall

3. Ground Floor Slab

- Install internal piles and any necessary load-bearing elements
- Prepare ground level and services zones
- Cast the ground floor slab, incorporating openings for stair/core access
- Connect slab structurally to the piled wall and internal supports
- Once cured, the slab acts as the **primary horizontal prop** to the retaining wall

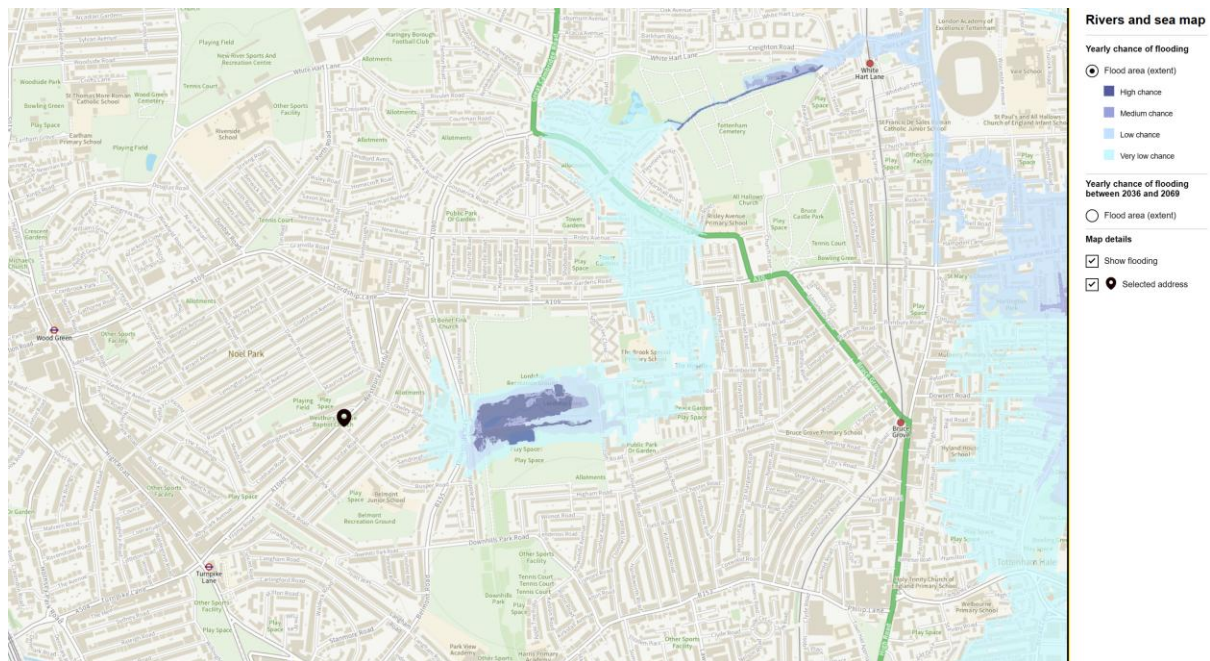
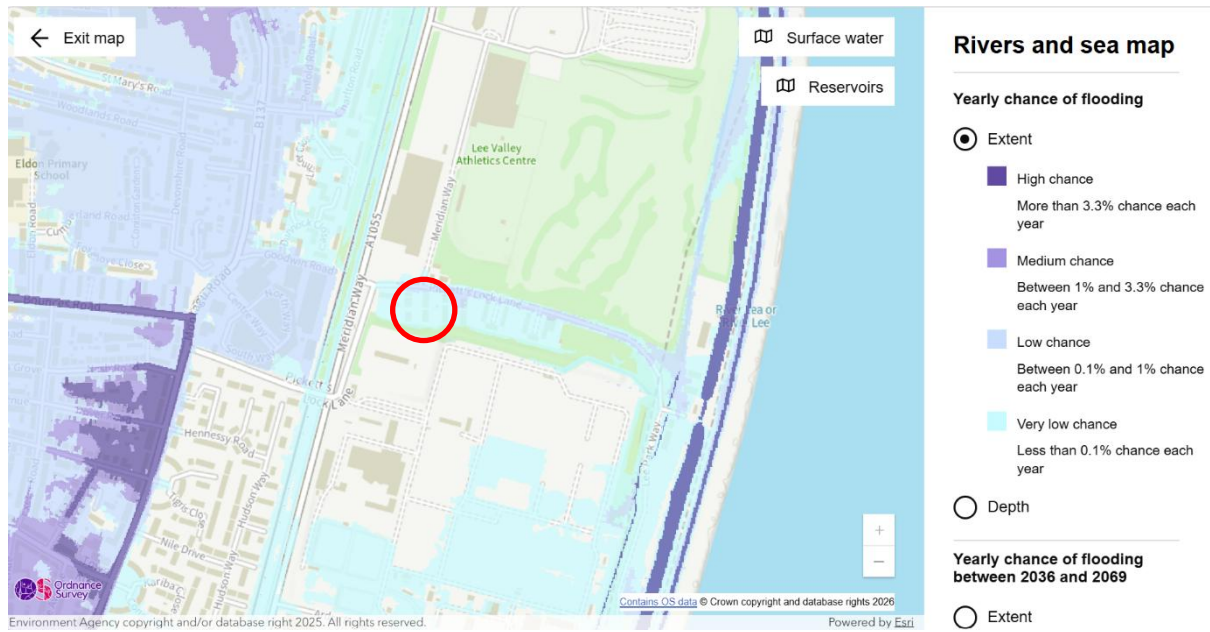
4. Excavation Through Core

- Begin excavation through the central core or stair opening in the slab
- Remove soil in controlled stages beneath the slab (top-down sequence)
- Manage spoil removal and groundwater ingress as excavation progresses
- Maintain stability, with the slab and wall system continuing to restrain ground movement

5. Basement Floor Slab

- Continue excavation down to formation level
- Trim internal piles to the required level
- Prepare sub-base and install waterproofing measures
- Cast the basement floor slab, designed to resist loads and **hydrostatic uplift**
- Install drainage and internal waterproofing systems to manage groundwater and seepage
- Complete the basement structure and integrate with the overall building above

Appendix 5: Flood Risk Maps



Taken from Environment Agency Mapping (Available Online)

Appendix 6: Borehole details

Borehole: TQ38NW294 Approx 180m from site

1Q 38 NW / 294 A
3167 8987

Soil Mechanics				Borehole No. 1 Sheet 1 of 2			
Test & Methods All boring techniques using 200 mm dia 4 in then open hole.		Location No. 6340 WESTBURY AVENUE, ENHARMENT					
Test for The Borough of Haringey.		Ground Level 4.00 *		Coordinates TQ31678984			
Date 17-18/11/73							
Description	Reduced Level	Legend	Depth & Thickness	Samples/Tests			Field Records
				Depth	Sample Type No.	Test	
brown organic clayey silty SAND fine to coarse flint and gravel with occasional roots. (MADE GROUND)			0.00				
			0.30	D	1		
			(1.00)				
			0.50-0.95	U	2		70% recovery 13 blows
			0.95	J	3		
red silty CLAY and very weak, red BRICK fragments in silt coarse gravel size, with local traces of ash, and coal with very little flint gravel. (MADE GROUND)			1.00				
			1.15	D	4		No recovery brick in end of about 23 blows.
			1.35	D	5		
			1.50-1.95	U	6		50% recovery 24 blows.
			1.95	D	7		
red silty CLAY and very weak, red BRICK fragments in silt coarse gravel size, with local traces of ash, and coal with very little flint gravel. (MADE GROUND)			(2.20)				
			2.00-2.45	U	8		80% recovery 25 blows.
			2.45	D	9		
			2.50-2.95	U	10		100% recovery 36 blows.
			2.95	D	11		
brown, mottled with grey, silty CLAY little brick rubble and traces of ash etc. (MADE GROUND)			3.20				
			3.00-3.45	U	12		70% recovery 47 blows
			3.45	D	13		
			3.50-3.95	U	14		100% recovery 42 blows.
			3.95	D	15		
brown, mottled with grey, silty CLAY little brick rubble and traces of ash etc. (MADE GROUND)			(2.60)				
			4.00-4.45	U	16		100% recovery 27 blows.
			4.45	D	17		
			4.50-4.95	U	18		100% recovery 35 blows.
			4.95	D	19		
brown, mottled with grey, silty CLAY little brick rubble and traces of ash etc. (MADE GROUND)			6.00				
			5.00-5.45	U	20		70% recovery 37 blows.
			5.45	D	21		
			5.50-5.95	U	22		100% recovery 38 blows.
			5.95	D	23		
brown, mottled with grey, silty CLAY little brick rubble and traces of ash etc. (MADE GROUND)			(2.60)				
			6.00-6.45	U	24		100% recovery 40 blows.
			6.45	D	25		
			6.50-6.95	U	26		100% recovery 32 blows
			6.95	D	27		
brown mottled with grey silty CLAY occasional thin lenses of red and fine sand. (HEATHERED LONDON CLAY)			(3.00)				
			7.00-7.45	U	28		100% recovery 38 blows.
			7.45	D	29		
			7.50-7.95	U	30		100% recovery 36 blows.
			7.95	D	31		
brown mottled with grey silty CLAY occasional thin lenses of red and fine sand. (HEATHERED LONDON CLAY)			(3.00)				
			8.00-8.45	U	32		100% recovery 40 blows
			8.45	D	33		
			8.50-8.95	U	34		100% recovery 42 blows.
			8.95	D	35		
		END OF BOREHOLE					

Whole left 0.3m penetration has not been achieved the number of blows for the quoted penetration is given (not N-value).

All depths and reduced levels in metres. Thickness given in brackets in depth column.

Wave burst observations down borehole are

Sample/Test Key.
 D Disturbed Sample
 B Bulk Sample
 W Water Sample
 P Proton (P) Tube (U) or cone sample. Length to scale
 S Standard Penetration Test
 V Vane Test

Remarks *Level above arbitrary datum.
See Fig 3

Logged by
H.K.B

Scale
1:50

Borehole: TQ38NW504 Approx 200m from site

 British Geological Survey	BGS ID: 846278 : BGS Reference: TQ38NW504 British National Grid (27700) : 531620,189790

TQ38NW504

Contract Name		HARINGEY CENTRAL AREA DEVELOPMENT A 105 DIVERSION		Borehole No. B 15	
				Sheet 1 of 1	
Method of boring Shell and Auger		Ground level 23.14 m OD			
Diameter 200 mm		Start 14.8.79			
		Finish 15.8.79		3162 8979	

Daily progress	Water levels	In-situ tests	Samples	Depth (m)	Reduced level (m OD)	Thickness (m)	Description of Strata	Legend
							Pavement slab on soft dark brown/black sandy soil with bricks, ash and clinker, pockets of chalk fragments, bone and coal fragments, becoming firm light brown/grey silty clay at depth	Made
14/8				3.70	19.44	0.70	Firm brown and light grey silty clay with much fine to coarse gravel becoming sandy silty clay at bottom of core	Ground
15/8				4.40	18.74	4.10	Firm to stiff fissured brown silty clay with light blue-grey discolourations and light brown silt partings along fissures and traces of selenite crystals (London Clay)	
				8.50	14.64	1.50	Stiff fissured dark brown silty clay (London Clay)	
				10.00	13.14			

Notes
 No water added for drilling and no groundwater observed. Bottom of Borehole
 Digging services pit to 1.50 m - 1½ hours.
 Reinstating pit - 1½ hours.
 Piezometer installed to 8.00 m.
 Depth of water before piezometer installed - none observed.
 Depth of water after piezometer installed - none observed.

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Terresearch Limited	Report No. S.29/648	Appendix 1	Sheet 38

Appendix 7: Conservation & TPO Maps

Check if you live in a conservation area

90 Westbury Avenue, London, N22 6RT

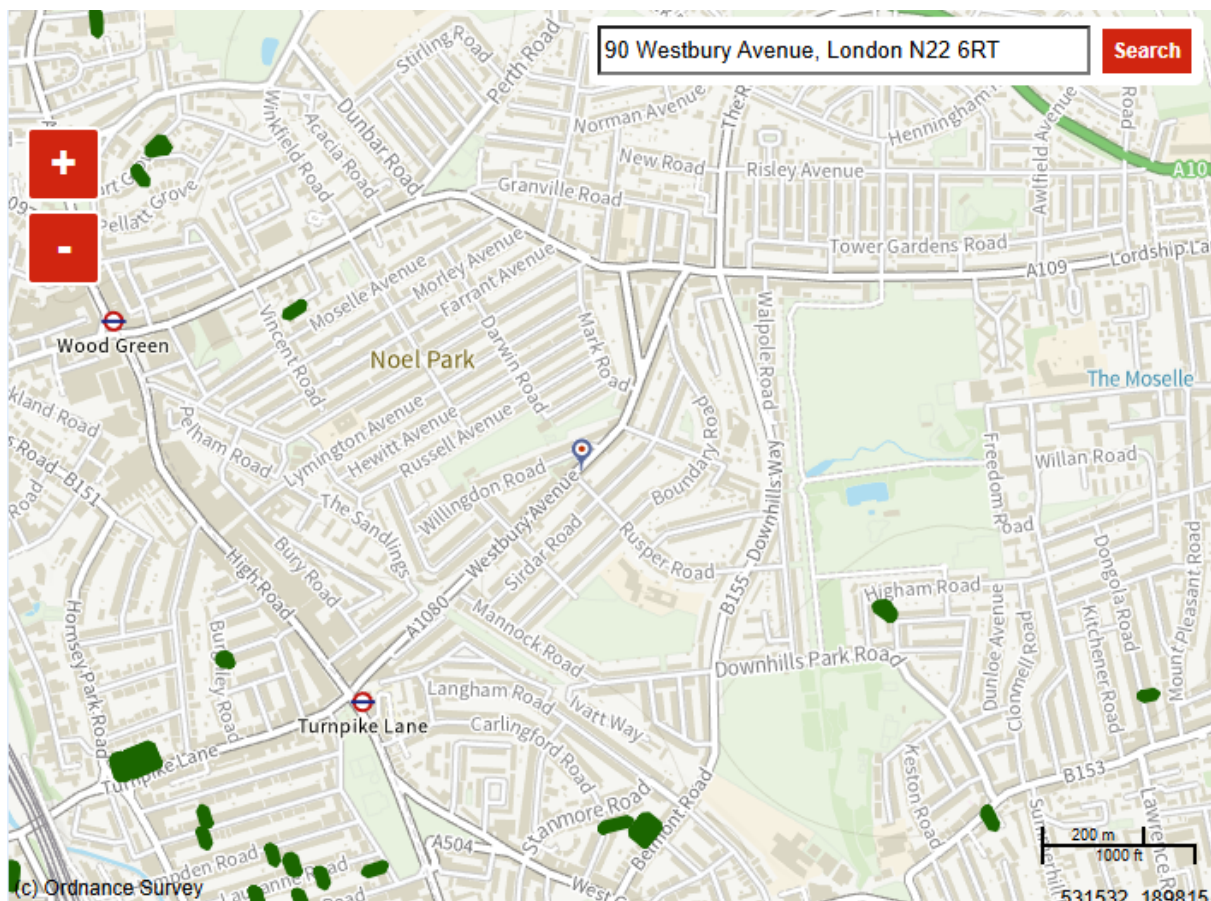
This property is not in a Conservation Area

The character and appearance of conservation areas should be preserved and improved, and local authorities have a responsibility to identify which places should be conservation areas.

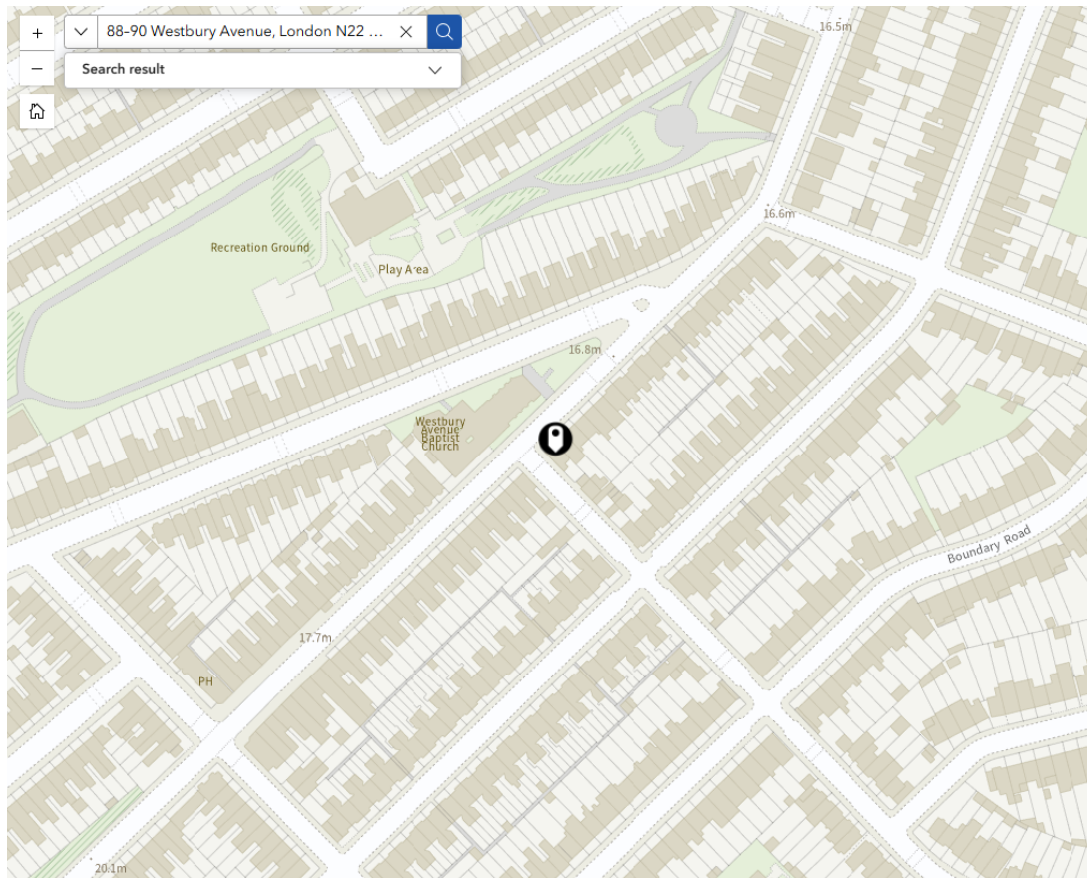
Map of conservation areas

You can [download a map of conservation areas in Haringey \(PDF, 1 page\(s\), 4.01 MB\)](#).

You can also [view the conservation areas in Haringey on the interactive map](#).



Nearby Tree Protection Orders (TPO's)



Appendix 8: Map of Listed Buildings (Source: Historic England website)

