GeoSmart Information

FloodSmart BIA

Basement Impact Assessment

Site Address

21 Mornington Crescent
London
NW1 7RG

Date

2024-10-09

Report Status

FINAL

Site Area

0.02 ha

Grid Reference

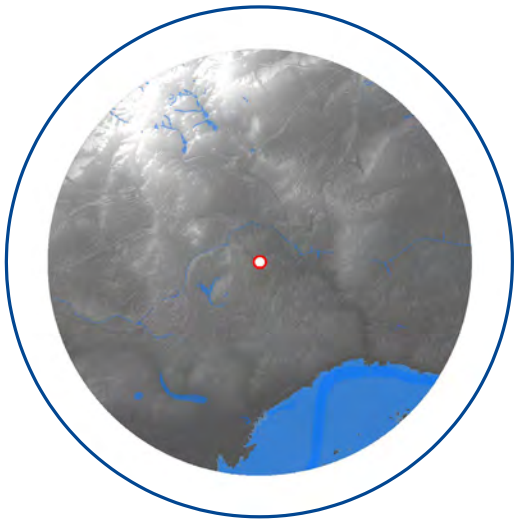
529061, 183245

Report Reference

83434R1

Report Prepared for

Mornington Property Investment Ltd
21 Mornington Crescent
London
NW1 7RG



RISK – Very Low to Low

The proposed basement development is located within the London Clay bedrock, which has a generally low permeability and is designated as Unproductive Strata. It is thus considered unlikely to interact with a significant groundwater system.

The risks of the proposed basement to impact upon surface water or groundwater flows, as well as any related flooding to the basement itself, are considered to be Very Low to Low.

The development is considered unlikely to increase the groundwater or surface water risk to neighbouring properties.

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1. Executive summary

Site analysis

Flood risks and impacts		Baseline*	After Mitigation **
Groundwater flooding	At surface level	Negligible	
	Below ground	Low†	Negligible
Surface water flooding	At surface level	Very Low to Low	Very Low
	Below ground	Very Low‡	

*BASELINE risks have been calculated for the whole Site, using national risk maps. Note that the 'At surface level' risks presented in the baseline mapping are applicable to surface development only, whereas the 'Below ground' risks presented on the table are applicable to the proposed subterranean development and therefore may be higher.

**FINAL RISK RATING Includes a detailed analyses of flooding risks over the lifetime of the proposed development, including allowances for climate change AND assumes recommended mitigation measures are implemented.

†The Low risk rating reflects the identified presence of localised pockets of groundwater during Site Investigation, as well as the proposed sleeping accommodation within the basement level.

‡Whilst a Very Low to Low risk of surface water flooding is mapped at the Site, the area of the proposed basement development is mapped within an area at Very Low risk. As the proposals do not involve the alteration of external ground levels nor the addition of potential ingress points for surface water to enter the basement, the risks of surface water ponding and/or ingress to the basement are considered to be limited.

Summary of existing and proposed development

The Site is currently used within a residential capacity as a four-storey terraced house with basement level. Site plans are included within Appendix A.

The existing basement finished floor level (FFL) is set at approximately 2.60 m below ground level (bgl), with the basement foundation at an approximate depth of 3.10 m bgl.

Development proposals comprise the conversion of the existing maisonette to provide two self-contained flats. The existing front cellar vaults are to be excavated to accommodate a bathroom and utility room, and the existing front lightwell is proposed to be partially infilled beneath the entrance bridge for the use of the basement flat.

The existing vaults are proposed to be excavated a further 1.04 m in depth (to an estimated 3.64 m bgl; foundation depth estimated at 4.14 m bgl), with internal stepped access within the infilled lightwell. FFL of the main basement are understood to remain as existing.

Access to the basement will be via a set of internal stairs, as well as external stairways within the front lightwell and rear patio. It is proposed that the basement will be used for sleeping accommodation.

Summary of groundwater flood risks

The Site setting is summarised as follows:

- Site investigation has been undertaken (Key GeoSolutions, 2021) which confirmed the underlying geology to comprise Made Ground to a depth of 1.20 m below ground level (bgl), overlying London Clay to a depth of at least 5.45 m bgl.
- No groundwater was encountered during the initial boring of the on-Site boreholes in 2021; however, a perched water table was encountered within Made Ground (brick and concrete foundation) during the excavation of a trial pit (FP02).
- Groundwater monitoring undertaken between June and July 2023 confirmed that groundwater was present within the on-Site boreholes at depths of between 0.92 and 2.00 m bgl; however, this groundwater was noted to reflect pockets within localised lenses of permeable material and/or cracks and fissures within the London Clay, rather than a significant groundwater system.
- BGS 1:50,000 mapping indicates the Site is underlain directly by London Clay bedrock geology, which is classified as Unproductive Strata, and as such are unlikely to support significant groundwater flows. The Site is mapped within an area of Worked Ground (void), representing an artificial lowering of land surface through man-made excavations.
- The London and Thames Valley Model indicates the geology underlying the Site comprises Worked Ground (void) to a depth of 3 m bgl, overlying London Clay formation to a depth of 29 m bgl.
- The nearest available BGS borehole within the same geological strata as the Site (TQ28SE653) indicates the underlying geology to comprise Made Ground to a depth of 0.46 m bgl, overlying London Clay to a depth of at least 18.29 m bgl. The borehole was noted to remain dry throughout.
    - It is noted, however, that given the significant distance (c. 172 m) between the borehole and the Site, it would be unlikely to be representative of the underlying hydrogeological conditions at the Site.
- The Site is located within Flood Zone 1 and the Risk of Flooding from Rivers and Sea (RoFRS) mapping indicates a Very Low risk of fluvial flooding. No surface watercourses or lost rivers have been identified within 500 m of the Site.
- The Risk of Flooding from Surface Water (RoFSW) mapping shows the Site to be at Very Low to Low risk of pluvial flooding. The area of the proposed basement development is mapped as at Very Low risk
- It is noted that the surface water flood risk mapping indicates the risk to the development at the surface. Whilst the proposed basement development does reflect an excavation, no alteration to external ground levels nor potential additional

ingress points would be anticipated. As such, the risk of surface water ponding and ingress to the basement are considered to be limited.

- Flooding of the existing basement has not been reported.

The sources reviewed, including BGS mapping, the London Thames Valley Model, BGS borehole data and site-specific ground investigation, indicate that the Site is underlain by London Clay bedrock which is unlikely to contain significant groundwater. Groundwater seepage from isolated permeable horizons within the London Clay has been encountered during Site investigation, at shallow depths between (0.92 and 2.00 m bgl), and whilst this is likely to be encountered during the site development and should be monitored it is unlikely to be a significant flow.

Based upon the available information, the proposed basement extension and partial lowering of finished floor levels (FFL) is considered unlikely to significantly increase the groundwater flood risk at the Site or to other properties in the vicinity (compared to existing), given the modest lowering of FFLs as well as the low productivity of the underlying London Clay bedrock.

There are no nearby watercourses in hydraulic continuity with groundwater beneath the Site and any underlying groundwater is fed by rainwater recharge.

Recommendations / Next steps

Recommendations for mitigation are provided below, based upon the proposed basement and wider development design:

- Given the identified presence of localised pockets of groundwater, flood resilient measures should be incorporated into the basement to prevent water ingress and to reduce flood damage should flooding occur. Preparations should be made in order to handle small volumes of groundwater during the construction process.
- Non return flap valves on sewer lines should be implemented, and a sump and pump could also be considered
- Mitigation measures should be included to reduce the potential for surface water to enter the basement. This should include, where appropriate, re-grading of ground levels to divert overland flows away from the basement and building foundations and ensuring that threshold levels for the basement are at least 0.30 m above surrounding ground levels, or as high as possible where this is not feasible.

2. Introduction

Background and purpose

GeoSmart Information Ltd was commissioned by Mornington Property Investment Ltd to undertake the groundwater and surface water aspects of a Basement Impact Assessment (BIA) for the proposed development at 21 Mornington Crescent, London, NW1 7RG (the Site). The Site is located at national grid reference TQ 29061 83245 within the London Borough of Camden. Existing and proposed Site plans and drawings are provided in Appendix A.

Objective

This document comprises a desk-based assessment of the potential impact of the proposed basement development on surface water and groundwater flow and flooding and has been designed to support a planning submission for the proposed development.

Report scope

The scope of works undertaken includes:

- An outline of the hydrological and hydrogeological conditions with relevance to construction of the basement at the Site.
- An assessment of the impacts of the proposed development on surface water and groundwater flows and levels.
- Assessment will be presented using the clearly-defined reporting framework as outlined in the widely referenced Camden Planning Guidance for Basements. This report will consider the following sections:

    1) Screening – first stage in assessing the impact of a proposed basement development is to recognise what issues are relevant to the proposed site.
    2) Scoping – identify the potential impacts for each of the matters of concern identified in the screening stage.
    3) Recommendations – recommendations are made based on the outcome of the assessment.

Report limitations

It is noted that the findings presented in this report are based on a desk study of information supplied by third parties. Whilst we assume that all information is representative of past and present conditions, we can offer no guarantee as to its validity and a proportionate programme of site investigations would be required to fully verify these findings.

The basemap used is the OS Street View 1:10,000 scale, however the Site boundary has been drawn using BlueSky aerial imagery to ensure the correct extent and proportion of the Site is analysed.

This report excludes consideration of potential hazards arising from any activities at the Site other than normal use and occupancy for the intended land uses. Hazards associated with any other activities have not been assessed and must be subject to a specific risk assessment by the parties responsible for those activities.

Datasets

The following table shows the sources of information that have been consulted as part of this report:

Table 1. Datasets consulted to obtain confirmation of sources of flooding and risk

Source of flooding	Datasets consulted				
	Commercial Flood Maps	Local Policy & Guidance Documents*	Environment Agency	Thames Water (Appendix C)	OS Data
Historical	X	X	X		
River (fluvial) / Sea (tidal/coastal)	X	X	X		
Surface water (pluvial)	X	X	X		
Groundwater	X	X			
Sewer		X		X	
Culvert/bridges		X			X
Reservoir		X	X		

*Local guidance and policy, referenced below, has been consulted to determine local flood conditions and requirements for flood mitigation measures.

Relevant local guidance

For this report, several documents have been consulted for local policy and guidance and relevant information is outlined below:

Camden Local Plan (Camden Borough Council, 2017):

Policy A5 Basements

The Council will only permit basement development where it is demonstrated to its satisfaction that the proposal would not cause harm to:

- Neighbouring properties;
- The structural, ground or water conditions of the area;
- The character and amenity of the area;
- The architectural character of the building; and
- The significance of heritage assets.

In determining proposals for basements and other underground development, the Council will require an assessment of the scheme's impact on drainage, flooding, groundwater conditions and structural stability in the form of a Basement Impact Assessment and, where appropriate, a Basement Construction Plan.

The Council will require applicants to demonstrate that proposals for basements:

- Do not harm neighbouring properties, including requiring the provision of a Basement Impact Assessment which shows that the scheme poses a risk of damage to neighbouring properties no higher than Burland Scale 1 'very slight';
- Avoid adversely affecting drainage and run-off or causing other damage to the water environment;
- Avoid cumulative impacts;
- Do not harm the amenity of neighbours;
- Provide satisfactory landscaping, including adequate soil depth;
- Do not harm the appearance or setting of the property or the established character of the surrounding area;
- Protect important archaeological remains; and
- Do not prejudice the ability of the garden to support trees where they are part of the character of the area.

Camden geological, hydrogeological and hydrological study: guidance for subterranean development (Arup, 2010):

- Although the majority of the London Clay is considered to be a fine grained cohesive soil, there are sandier units present, particularly toward the deeper parts of the

London Clay. These tend to be interbedded sandy clayey silts and sandy silts with beds up to 5m thick. These units may affect groundwater flow and the local engineering properties of the ground.

- The London Clay has a relatively low permeability to ground water. In essence, the London Clay presents an almost complete barrier to groundwater. In practice, this barrier is not complete: groundwater can permeate slowly through intact London Clay, and it can move more quickly along any fissures and cracks in the clay, and through localised zones that contain a higher proportion of silts or sands. However, even in the presence of fissures or silty zones, groundwater flow rates in the London Clay are significantly slower than in the River Terrace Deposits and the Bagshot Formation.

Camden Planning Guidance: Basements (Camden Council, 2021)

- The Camden Planning Guidance: Basements policy was adopted in January 2021. The guidance is viewed as an exemplar of policy in regard to development of basements[1] by GeoSmart.
- The Screening questions from this guidance have been used in Section 4 of this report.

Camden Strategic Flood Risk Assessment (URS, 2014):

- All main rivers historically located within LBC are now culverted and incorporated into the TWUL sewer network and therefore there is no fluvial flood risk within LBC. As no main rivers are located within LBC the entire borough is located within Flood Zone 1.
- According to Figure 3i of the SFRA, the Site is located within a Critical Drainage Area (ref: Group3_003). According to Figure 6, the Site is not located within a Local Flood Risk Zone.
- According to Figure 4e of the SFRA, there are no reported incidents of groundwater flooding within 100 m of the Site. The Site is not mapped within an area with increased susceptibility to elevated groundwater.

[1] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/668958/Basements_Review_Summary_of_Responses.pdf

3. Site Setting

Location Description

The Site is located at 21 Mornington Crescent in a setting of primarily residential land use. It is bound to the east by the highway of Mornington Crescent and is bound to the north and south by mixed use commercial and residential properties, with the Site forming part of a row of attached properties.

The nearest buildings are directly adjacent to the north and to the south of the existing basement.

There has been significant basement development within the vicinity of the Site, with basements a typical design feature of the surrounding properties. A basement level has been identified within the adjacent dwellings using Google Streetview.

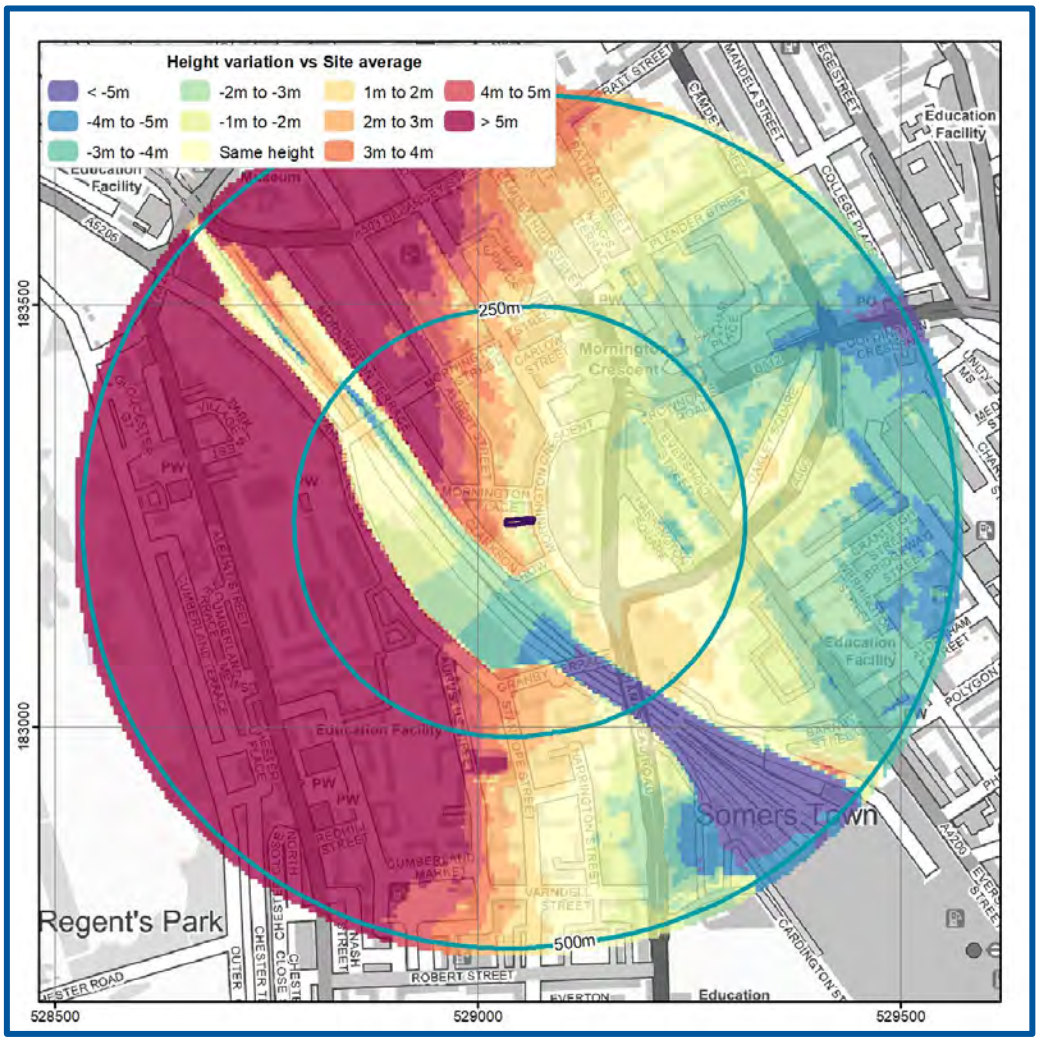
Figure 1. Aerial image of the Site (Bluesky, 2024).

BlueSky copyright and database rights 2024

Figure 2 indicates that ground levels within 500m of the Site generally fall in an easterly direction, with the exception of a railway cutting passing from the north west to the south east, which is set below surrounding ground levels.

According to OS data, the level of the Site is between 23.61 and 27.10 mAOD with the Site falling in an easterly direction. This is based on EA elevation data obtained for the Site to a 1 m resolution with a vertical accuracy of ±0.15 m (Appendix B).

Figure 2. Site Location and Relative Elevations (GeoSmart, 2024).



Proposed Development

The Site is currently used within a residential capacity as a four-storey terraced house with basement level. Site plans are included within Appendix A.

The existing basement finished floor level (FFL) is set at approximately 2.60 m below ground level (bgl), with the basement foundation at an approximate depth of 3.10 m bgl.

Development proposals comprise the conversion of the existing maisonette to provide two self-contained flats. The existing front cellar vaults are to be excavated to accommodate a bathroom and utility room, and the existing front lightwell is proposed to be partially infilled beneath the entrance bridge for the use of the basement flat.

The existing vaults are proposed to be excavated a further 1.04 m in depth (to an estimated 3.64 m bgl; foundation depth estimated at 4.14 m bgl), with internal stepped access within the infilled lightwell. The FFLs of the main basement are understood to remain as existing.

Access to the basement will be via a set of internal stairs, as well as external stairways within the front lightwell and rear patio. It is proposed that the basement will be used for sleeping accommodation.

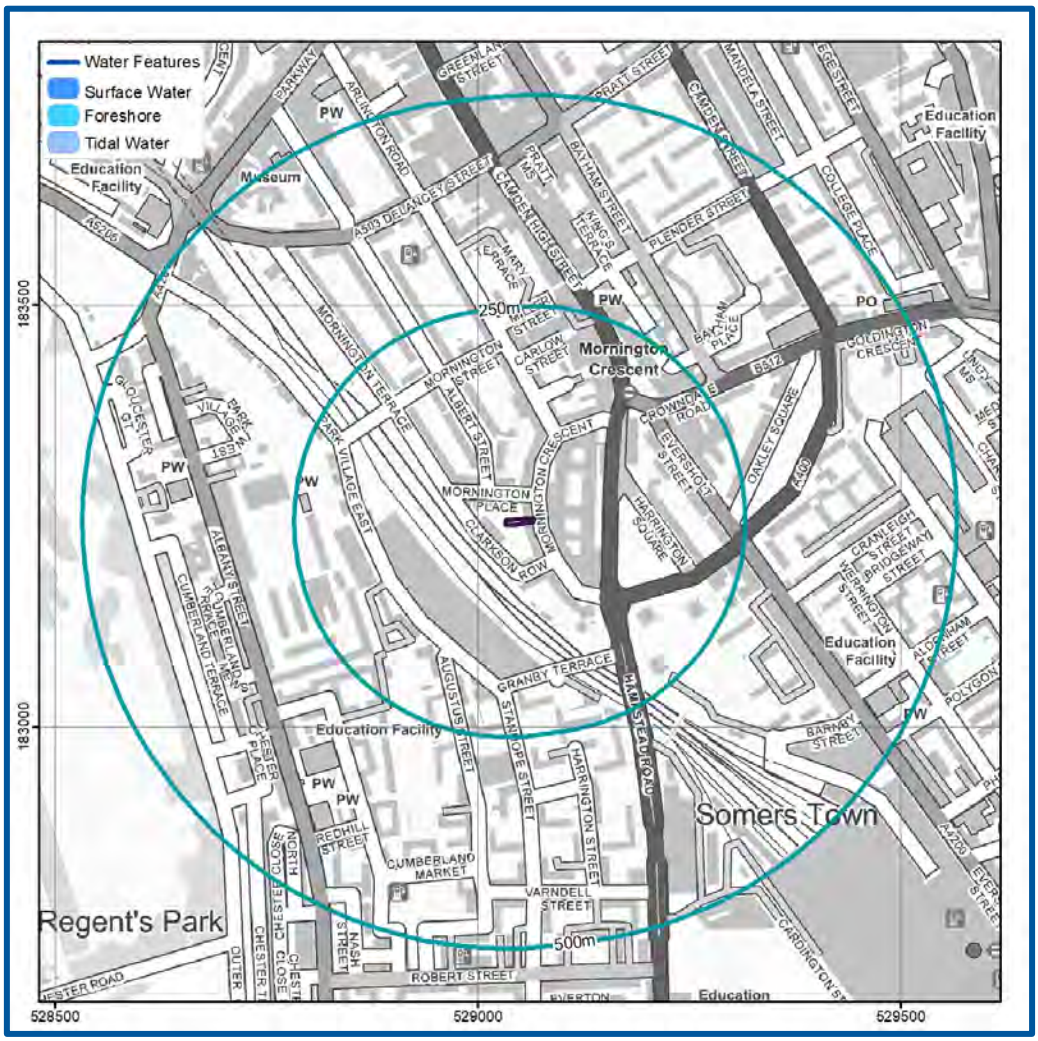
The effect of the overall development will result in an increase in number of occupants and/or users of the building but will not result in the change of use, nature or times of occupation. The estimated lifespan of the development is 100 years.

Surface Water Features

According to Ordnance Survey (OS) mapping included in Figure 3, overleaf, there are no mapped surface water features within 500 m of the Site.

A subterranean river (the River Fleet) is identified as running within the Borough and may run within c. 620 m east of the Site (Talling, 2024; Barton, 1992); however, its exact location is unknown.

Figure 3. EA Surface Water Features (OS, 2024)



Ground Conditions

British Geological Survey (BGS) mapping (Figure 4) indicates that the Site is not underlain by superficial deposits (BGS, 2024). The Site is mapped (Figure 5, overleaf) as being within an area of Worked Ground – Void (WGR), representing an area where the land surface has been artificially lowered as a result of man-made excavations.

Figure 4. Superficial Geology (BGS, 2024)

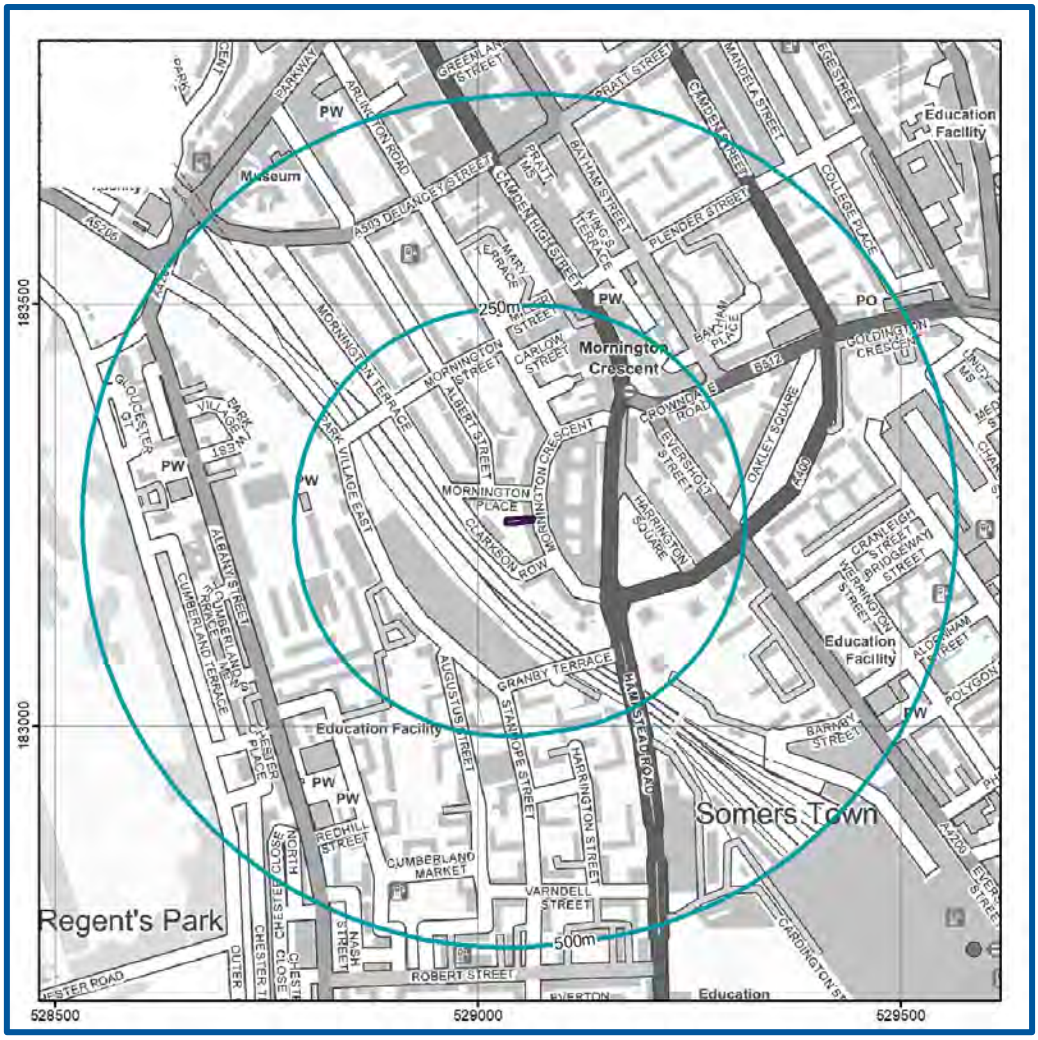
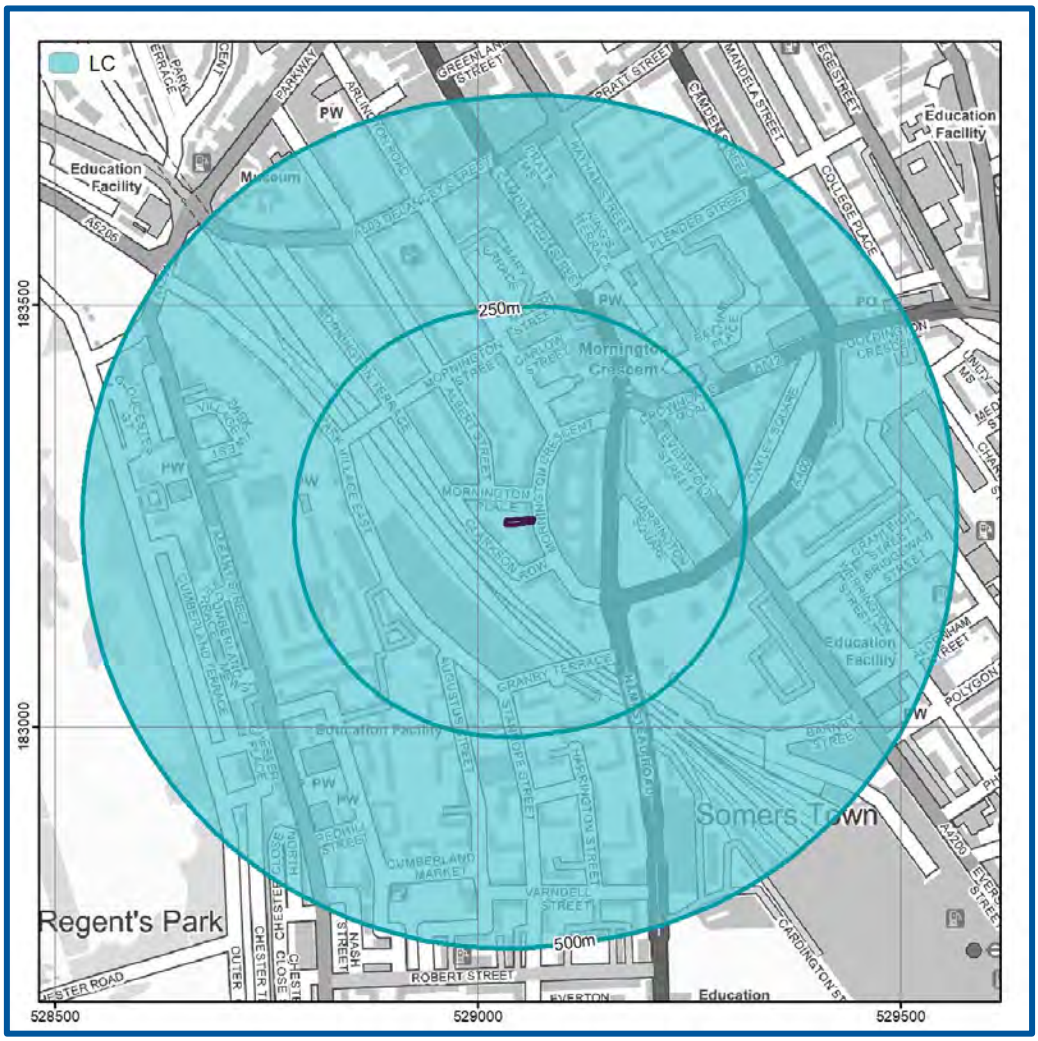


Figure 5. Artificial Ground (BGS, 2024)

BGS mapping indicates that the underlying bedrock geology (Figure 6) consists of the London Clay Formation (LC) (BGS, 2024) and is classified as Unproductive Strata (EA, 2024).

London Clay bedrock mainly comprises bioturbated or poorly laminated, blue-grey or grey-brown, slightly calcareous, silty to very silty clay, clayey silt and sometimes silt, with some layers of sandy clay (BGS, 2024). It is unlikely to support significant groundwater flow (EA, 2024).

Figure 6. Bedrock Geology (BGS, 2024)



BGS Borehole Database

The BGS website was used to extract ground information from the nearest borehole records to the Site (Figure 7, overleaf).

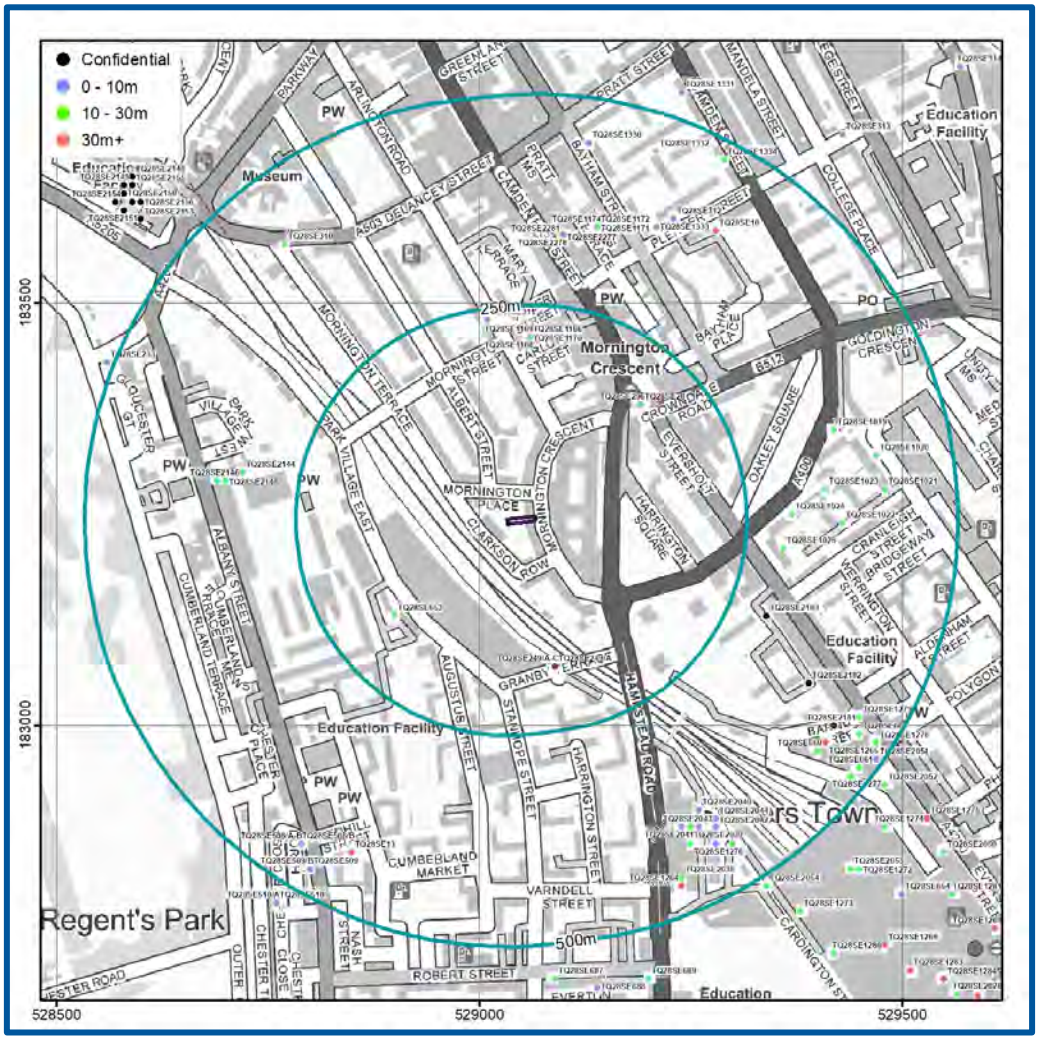
The nearest available BGS borehole mapped within the same geological strata as the Site (ref: TQ28SE653) is located c. 172 m to the south east, at an elevation of 30.40 mAOD.

The corresponding borehole record indicates the underlying geology to comprise:

- Made Ground (brick rubble with some gravelly sandy clay) to a depth of 0.46 m below ground level (bgl);
- Soft to firm becoming firm to stiff brown mottled with blue laminated and slightly fissured silty clay (London Clay) to a depth of 4.27 m bgl;
- Firm to stiff grey laminated and slightly fissured silty clay to a depth of 8.84 m bgl;
- Stiff dark grey laminated and slightly fissured clay with thin parting of silt to a depth of 18.29 m bgl, where the borehole terminates.

It should be noted that given the significant distance between the borehole and the Site it is unlikely to be representative of the underlying hydrogeological conditions beneath the Site itself.

Figure 7. Borehole records (BGS, 2024)



London and Thames Valley Model

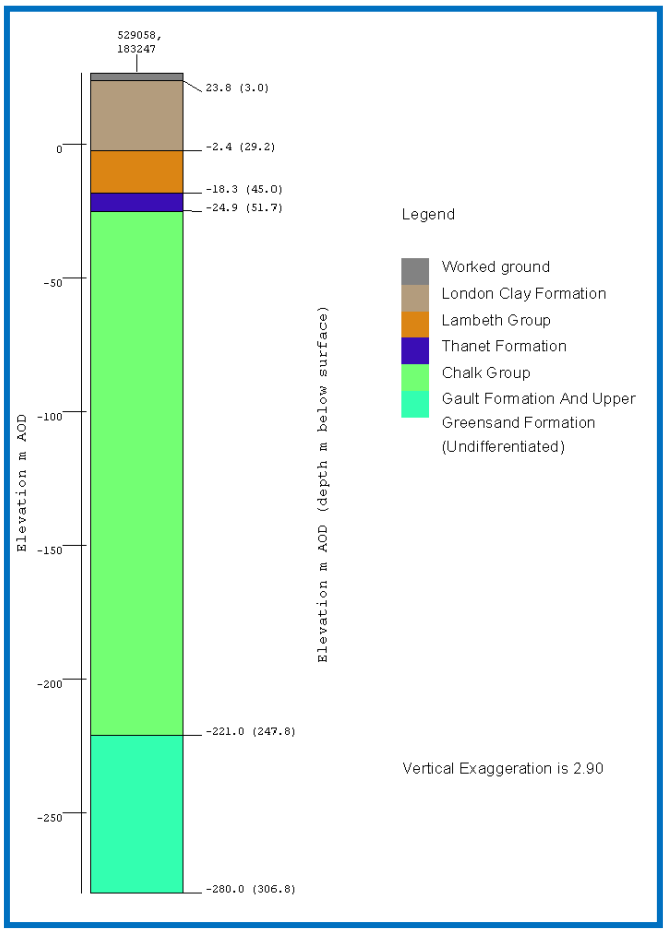
The London and Thames Valley Model has also been considered to further infer the local geology at the Site (BGS, 2024) (Figure 8). This model is a visualisation of the geology across the London and Thames Valley, and is constructed from publicly available data, and as such should not be used as a replacement for site investigation. However, it is a useful tool for inferring the stratigraphy that could be at the Site and presents the data in a clear visual format.

The London and Thames Valley Model indicates the geology underlying the Site comprises:

- Worked Ground (void) to a depth of 3 m bgl;
- London Clay Formation to a depth of 29 m bgl;
- Lambeth Group to a depth of 45 m bgl;
- Thanet Formation to a depth of 52 m bgl; and
- The Thanet Formation is underlain by the Chalk Group, which reaches a depth of 248 m bgl. The Chalk Group is a Principal Aquifer which is likely to contain significant groundwater; however, this groundwater is at such a significant depth that the risk to the Site from the chalk aquifer is negligible.

The boreholes and London and Thames Valley Model are consistent with the published geological mapping (BGS, 2024) and indicate the underlying geology to comprise London Clay bedrock to a depth between at least 18.29 and 29 m bgl.

Figure 8. BGS London and Thames Valley Model (BGS, 2024)



Site investigation

A site-specific ground investigation has been previously undertaken at the Site (Key Geosolutions, 2021) which includes confirmation of the underlying geology and monitoring of the groundwater table between the months of June and July 2023.

The site investigation included 2 boreholes (both within the rear garden) and 2 trial pits (along the northern and southern boundary of the Site) to a maximum depth of 5.45 mbgl. The logs provide ground levels in mAOD; however, these levels are significantly different to the ground levels provided by LiDAR elevation data (within the region of 8 to 9 m). As such, the levels have been compared to the LiDAR data to estimate the levels in mAOD.

The first borehole (WS01), at an elevation of c. 24.78 mAOD, indicated the following underlying geology:

- Paving slab to a depth of 0.05 m bgl;
- Made Ground (yellowish brown gravelly sand with brick, plastic, concrete, glass and rootlets) to a depth of 0.60 m bgl;

- Made Ground (dark reddish brown gravelly sand with brick concrete and occasional rootlets) to a depth of 1.20 m bgl;
- Firm light orangish brown sandy gravelly clay to a depth of 2.00 m bgl;
- Firm to stiff light greyish brown clay with rare (2mm thick) sand bands to a depth of 5.45 m bgl, where the borehole terminates.

The second borehole (WS02), at an elevation of c. 23.63 mAOD, indicated the following underlying geology:

- Paving slab to a depth of 0.05 m bgl;
- Made Ground (yellowish brown sandy gravelly clay with rootlets and inclusions of brick) to a depth of 1.20 m bgl;
- Stiff greyish brown slightly sandy clay to a depth of 5.45 m bgl, where the borehole terminates.

The first trial pit (FP01), at an elevation of 23.66 mAOD, indicated the following underlying geology:

- Paving slab to a depth of 0.05 m bgl;
- Concrete foundations (partially exposed) to a depth of 0.20 m bgl;
- Yellowish brown sandy clay with rootlets to a depth of 0.50 m bgl, where the trial pit terminates.

The results of the Site investigation are consistent with the BGS mapping, boreholes and London and Thames Valley Model.

An assessment of the EA's groundwater Source Protection Zones (SPZs) has been undertaken (Figure 9) within the vicinity of the Site and confirms the Site is not located within an SPZ.

Figure 9. Source protection zone map (EA, 2024)

Groundwater

During the initial Site investigation undertaken by Key GeoSolutions in 2021 no groundwater was encountered during the drilling process of the boreholes and trial pits. Groundwater monitoring equipment was installed within the boreholes during the investigation, and groundwater monitoring data was recorded at the Site (within the rear garden) on the dates of 21/06/2023 and 10/07/2023, and is displayed within the table below:

Date of monitoring	Borehole	Water depth before draining	Water depth after draining	Water depth after 1.5 hours
21/06/2023	WS01	2.00 m	4.10 m	N/A
21/06/2023	WS02	0.92 m	4.38 m	N/A
10/07/2023	WS01	2.00 m	4.01 m	3.81 m
10/7/2023	WS02	1.00 m	4.27 m	3.58 m

The above data indicates that the depth to groundwater is between c. 0.92 and 2.00 m within the boreholes (estimated to be between c. 22.78 mAOD and 21.58 mAOD via comparison with LiDAR elevation data). The groundwater was noted to be likely to have originated from localised lenses of permeable material or cracks/fissures within the London Clay.

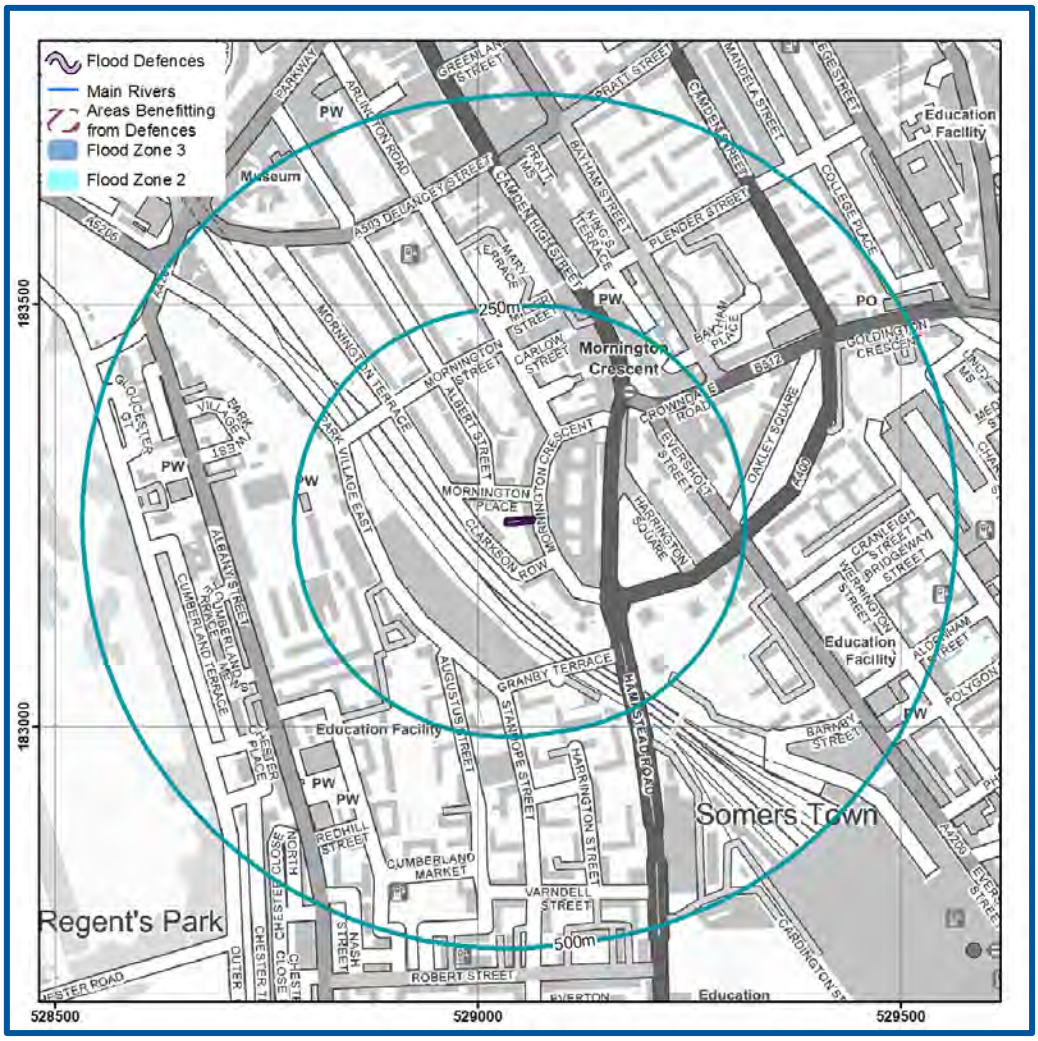
Additionally, BGS borehole TQ28SE653 was reported to remain dry during its 18.29 m depth in April 1959; it should be noted, however, that given the significant distance between the borehole and the Site it is unlikely to be representative of the depth to groundwater at the Site.

4. Flood risk

Fluvial and tidal flood risk

According to the Environment Agency's (EA) Flood Map for Planning Purposes (Figure 10), the Site is located within Flood Zone 1 and is classified as being at Low probability of fluvial and tidal flooding (EA, 2024).

Figure 10. EA Flood Map for Planning Purposes (EA, 2024)



According to the EA's Risk of Flooding from Rivers and the Sea (RoFRS) mapping (Figure 11), which considers the crest height, standard of protection and condition of defences, the flood risk from Rivers and the Sea is Very Low.

Figure 11. Risk of Flooding from Rivers and Sea map (EA, 2024)

Surface water (pluvial) flood risk

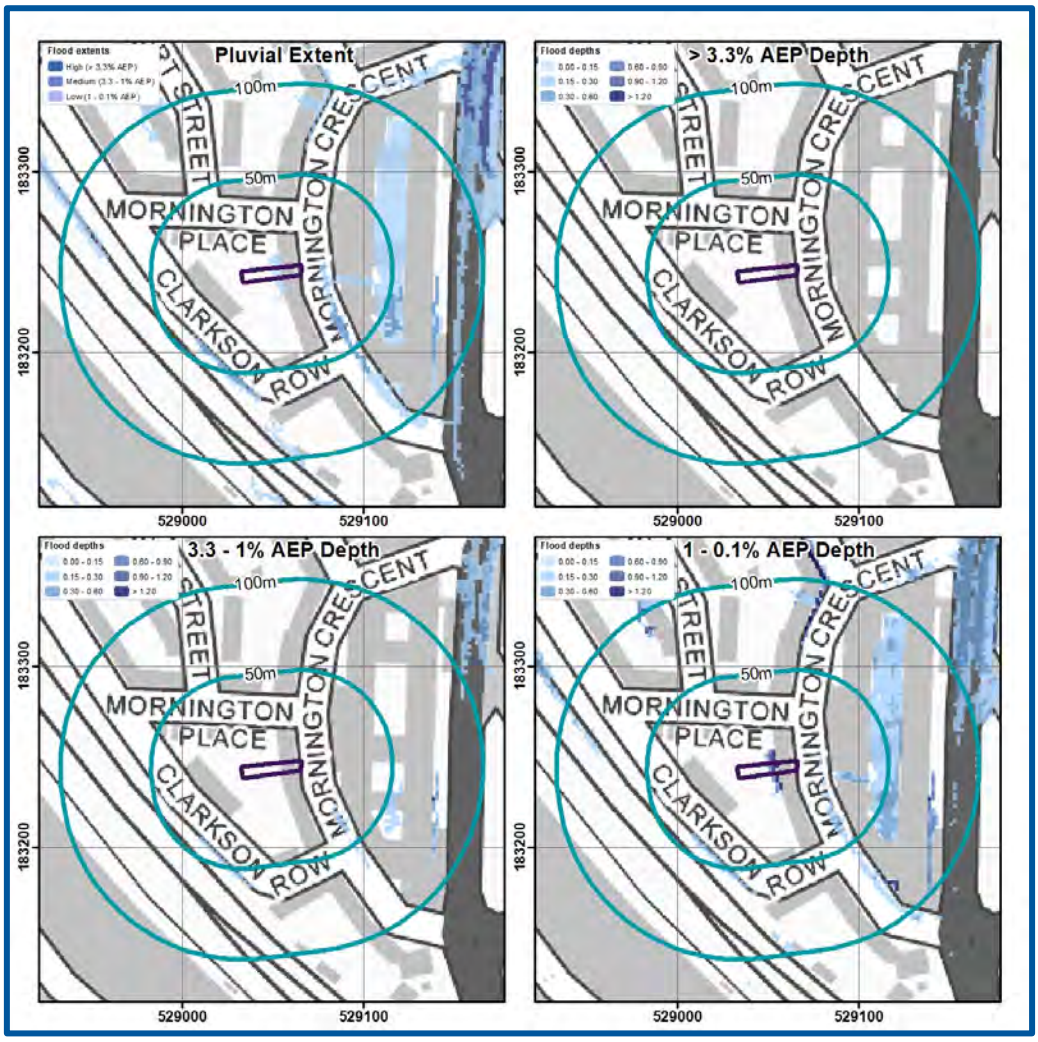
Surface water flooding occurs when intense rainfall exceeds the infiltration capacity of the ground and overwhelms the drainage systems. It can occur in most locations even at higher elevations and at significant distances from river and coastal floodplains.

According to the EA's Risk of Flooding from Surface Water (pluvial) flood mapping, the overall Site is at a variable risk of pluvial flooding ranging from Very Low to Low, with the Low risk mapped to the rear of the properties along Mornington Crescent. The area proposed for development is mapped as at Very Low risk of surface water flooding.

Figure 12, overleaf, confirms the extent and depth of flooding during a 3.3% AEP (1 in 30 year - high risk) event; 1% AEP (1 in 100 year - medium risk) event and a 0.1% AEP (1 in 1000 year - low risk) event. This indicates the proposed development is located in an area at Very Low risk of surface water flooding.

The SFRA confirms the Site is located within a Critical Drainage Area (ref: Group3_003) (AECOM, 2024).

Figure 12. Risk of Flooding from Surface Water (pluvial) depth map (EA, 2024)



It is noted that the surface water flood risk mapping indicates the risk to the development at the surface. Whilst the development proposals comprise lowering of FFL through excavation of the existing cellar vaults, this would represent an enclosed excavation with no additional ingress points for surface water to enter the basement, nor alterations to external ground levels, and as such the proposals are not considered to represent an increased risk of ponding of surface water or collection of interflows.

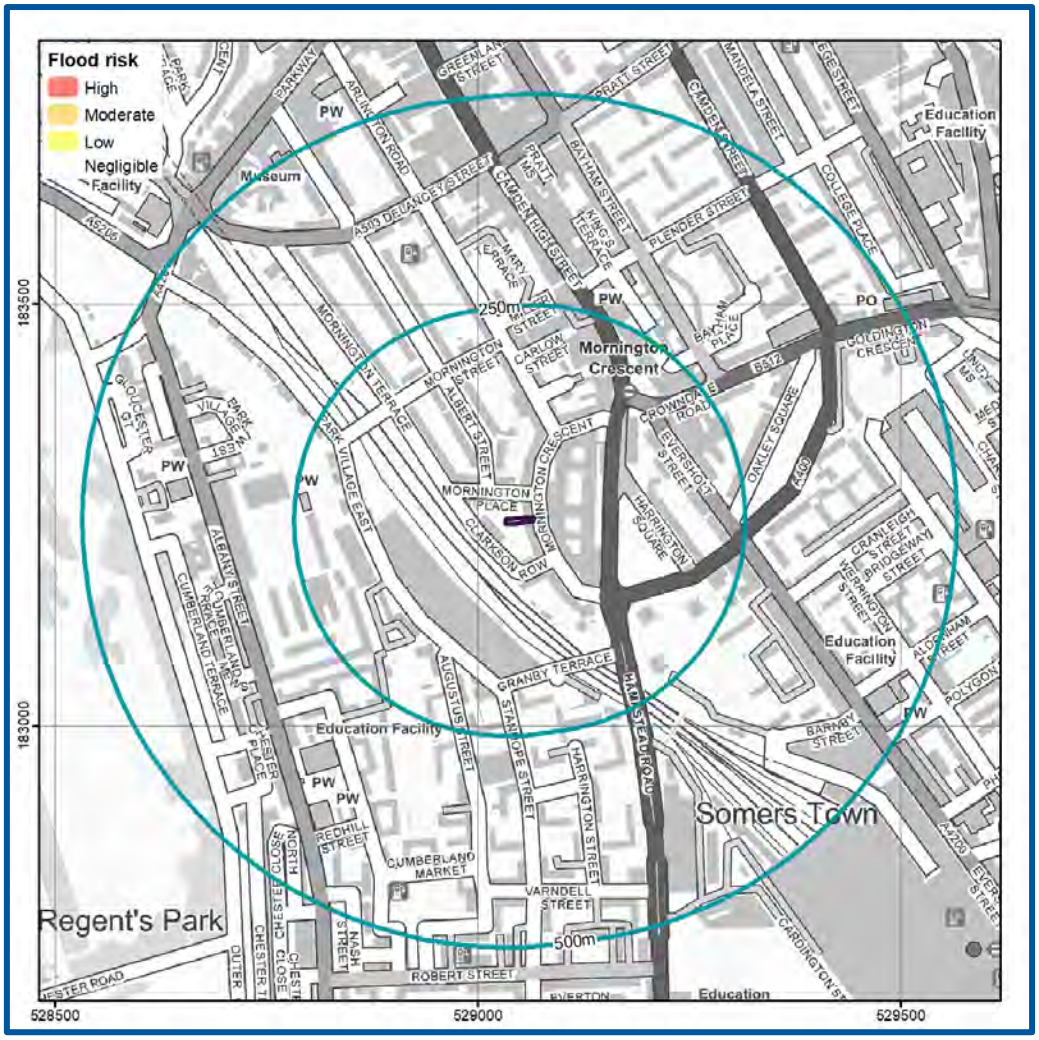
Groundwater flood risk

Groundwater flooding occurs when sub-surface water emerges from the ground at the surface or into Made Ground and structures. This may be as a result of persistent rainfall that recharges aquifers until they are full; or may be as a result of high river levels, or tides,

driving water through near-surface deposits. Flooding may last a long time compared to surface water flooding, from weeks to months. Hence the amount of damage that is caused to property may be substantially higher.

Groundwater Flood Risk screening data (Figure 13) indicates there is a Negligible risk of groundwater flooding at surface in the vicinity from regional scale mechanisms during a 1 in 100 year event.

Figure 13. GeoSmart GW5 Groundwater Flood Risk Map (GeoSmart, 2024)



The SFRA does not indicate any reported incidents of historical ground water flooding within 50 m of the Site (AECOM, 2024).

However, the risks will be higher for the proposed basement. The risks to the basement are summarised below:

- The Site is not underlain by superficial deposits and the underlying London Clay bedrock is classified as Unproductive Strata.

- Site Investigation undertaken by Key GeoSolutions in 2021, as well as groundwater monitoring data recorded between June and July 2023, has confirmed a depth to groundwater ranging from 0.92 to 2.00 m bgl, which was noted to have likely originated from localised lenses of permeable material or cracks/fissures within the London Clay. As such, this is unlikely to represent a significant underlying groundwater system. Flooding of the existing basement has not been reported.
- The nearest BGS borehole to the Site (ref: TQ28SE653) is located c. 172 m to the south east, which was reported to remain dry during its 18.29 m depth; it should be noted, however, that given the significant distance between the borehole and the Site, it is unlikely to be representative of the underlying hydrogeological conditions.
- No surface water features are present within the vicinity of the Site. A subterranean river, the River Fleet, is identified as running within the borough and may run within c. 620 m of the Site (Talling, 2024; Barton, 1992). Given the significant distance and the low permeability of the underlying London Clay bedrock, this 'lost river' is not considered to potentially be in groundwater continuity with the Site.

Development proposals involve the lowering of basement levels within the existing cellar vaults by an additional c. 1.04 m, with the remaining basement levels understood to remain as existing.

The proposed lowered basement foundations will be located within the London Clay strata and therefore are unlikely to be affected by significant groundwater flows. There is potential for localised pockets of groundwater associated with lenses of permeable material or fissures/cracks within the London Clay.

The potential impacts of the proposed development on the local groundwater system and nearby development are summarised below:

- Basements have been identified within the vicinity of the Site, being a common feature of the prevailing area. The directly neighbouring properties, 20 and 22 Mornington Crescent, have visible basement levels with lightwell access similar to the Site.
- However, as the proposed basement development is not considered likely to interact with the underlying groundwater system, it will have minimal cumulative impacts on nearby basements or groundwater.

Flooding from artificial sources

Artificial sources of flood risk include waterbodies or watercourses that have been amended by means of human intervention rather than natural processes. Examples include reservoirs (and associated water supply infrastructure), docks, sewers and canals. The flooding mechanism associated with flood risk from artificial sources is primarily related to breach or failure of structures (reservoir, lake, sewer, canal, flood storage areas, etc.)

Sewer flood risk

Figure 23 of the SFRA has identified 21-40 incidences of flooding between 2013 and 2023 as a result of surcharging sewers within the NW1 7 postcode. However, it is recognised that this four digit postcode covers a large area, and instances of flooding are not specific to the Site (AECOM, 2024).

Records held by Thames Water indicate that there have been no incidences of flooding related to the surcharging of public sewers at the Site (Thames Water, 2024; Appendix C).

Note that in the event of a leak in the sewer or water main service trenches could provide a potential pathway for water to enter the basement. It is therefore recommended that water proof construction methods are used on the basement.

Canal failure

According to Ordnance Survey (OS) mapping, there are no canals within 500 m of the Site.

Culverts and bridges

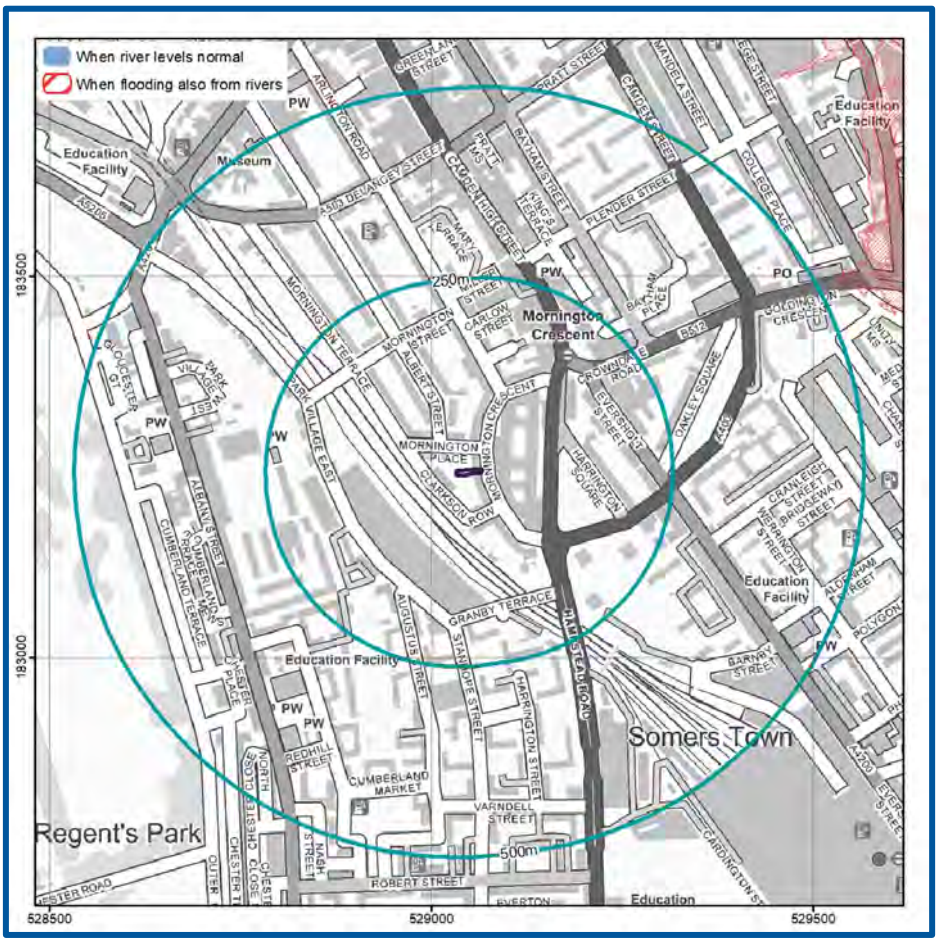
The blockage of watercourses or structures by debris (that is, any material moved by a flowing stream including vegetation, sediment and man-made materials or refuse) reduces flow capacity and raises water levels, potentially increasing the risk of flooding. High water levels can cause saturation, seepage and percolation leading to failure of earth embankments or other structures. Debris accumulations can change flow patterns, leading to scour, sedimentation or structural failure.

Culverts and bridges have not been identified within 50 m of the Site.

Reservoir Flooding

According to the EA's Risk of Flooding from Reservoir mapping, the Site is not at risk of flooding from reservoirs (Figure 14, overleaf) (EA, 2024).

Figure 14. Risk of reservoir flooding map (GeoSmart, 2024)



5. Basement Impact Assessment

The following sections follow guidance discussed in the relevant sections of the Camden Planning Guidance for Basements. This provides a clearly defined reporting framework against which to consider potential matters of concern and to scope out further work required.

Screening

Table 2. Groundwater Screening

Groundwater			
Impact Question	Answer	Justification	Reference
1a. Is the site located directly above an aquifer?	No	The Site is not underlain by superficial deposits. The underlying bedrock comprises the London Clay (Aquifer Designation - Unproductive Strata).	BGS (2024) EA (2024)
1b. Will the proposed basement extend beneath the water table surface?	Unlikely	Site investigation has confirmed a depth to groundwater within the rear garden of 0.92 to 2.00 m bgl; however, this is likely to reflect isolated lenses of permeable material or cracks/fissures within the London Clay, rather than a significant underlying groundwater system. The proposed basement FFLs will be set at approximately 2.60 m to 3.64 bgl, which is located within horizons in the London Clay.	BGS (2024) Key GeoSolutions (2024)

2. Is the site within 100m of a watercourse, well (used / disused) or potential spring line?	No	There are no watercourses within 100 m of the Site. No wells or potential spring lines have been identified within 100 m of the Site.	OS (2024) EA (2024) BGS (2024)
3. Is the Site within the catchment of the pond chains on Hampstead Heath?	No	According to Figure 14 of the Camden geological, hydrogeological and hydrological study, the Site is not located within the Hampstead Chain catchment.	ARUP (2010)
4. Will the proposed basement development result in a change in the proportion of hard surfaced / paved areas?	No	The proposed development involves no alteration to the proportion of impermeable surfaces at the Site.	Site plans
5. As part of site drainage, will more surface water (e.g. rainfall and run-off) than at present be discharged to the ground (e.g. via soakaways and/or SUDS)?	No	The proposed development involves no change in impermeable surface area at the Site, and therefore no alteration to the volume of surface water discharged to ground. Any runoff produced by the Site should be discharged to the nearby sewer network, subject to approval from the drainage provider and the incorporation of appropriate SuDS features.	Site plans
6. Is the lowest point of the proposed excavation (allowing for any drainage and foundation space under the basement floor) close to, or lower than, the mean water level in any local pond or spring line?	No	There are no ponds or watercourses within 500 m of the Site. A subterranean river, the River Fleet, may run within c. 620 m east of the Site. Given the significant distance and the low permeability of the underlying London Clay bedrock, there is unlikely to be groundwater continuity between the lost river and the Site.	OS (2024) EA (2024) London's Lost Rivers (2024)

Table 3. Surface Water and Flooding Screening

Surface Water and Flooding			
1. 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	Surface water runoff from the proposed development should drain to the nearby sewer, subject to approval from the sewerage provider and the incorporation of appropriate SuDS features, if required.	Site plans
2. Will the proposed basement development result in a change in the proportion of hard surfaced / paved external areas?	No	The proposed development involves no alteration to the proportion of impermeable surfaces at the Site.	Site plans
3. 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	Surface water runoff from the proposed development will continue to drain as existing.	Site plans
4. Will the proposed basement result in changes to the quality of surface water being received by adjacent properties or downstream watercourses?	No	The existing and proposed developments are both residential, and therefore a change in the quality of surface water runoff is not anticipated.	Site plans

5. Is the site in an area identified to have surface water flood risk according to either the Local Flood Risk Management Strategy or the Strategic Flood Risk Assessment or is it at risk from flooding, for example because the proposed basement is below the static water level of nearby surface water feature.	Yes	The Site is identified as having surface water flood risk in the Strategic Flood Risk Assessment, being located within a Critical Drainage Area (ref: Group3_003). The risk of pluvial flooding across the Site is Very Low to Low according to EA mapping, with the area of the proposed development mapped as at Very Low risk.	SFRA (AECOM, 2024) EA (2024)

Screening summary

The screening process identifies the following issues to be carried forward to scoping for further assessment:

- The Site is located within a Critical Drainage Area (ref: Group3_003) as defined by the SFRA (AECOM, 2024).

The other potential concerns considered within the screening process have been demonstrated to be not applicable or not significant when applied to the proposed development.

Scoping

Where a potential impact has been identified at the screening stage above, the potential further need for assessment is considered and scoped. The scoping stage should aim to build on the information provided in the screening stage. During this phase, a desk study should be undertaken to determine the preliminary impacts of the proposed basement development. This initial assessment should be used to identify any site investigation works required.

Table 4. Surface Water and Flooding Scoping

Surface Water and Flooding		
5. Is the site in an area identified to have surface water flood risk according to either the Local Flood Risk Management Strategy or the Strategic Flood Risk Assessment or is it at risk from flooding, for example because the proposed basement is below the static water level of nearby surface water feature.	Yes	The Site is identified as having surface water flood risk in the Strategic Flood Risk Assessment, being located within a Critical Drainage Area (ref: Group3_003). The risk of pluvial flooding across the Site is Very Low to Low according to EA mapping, with the area of the proposed basement development mapped as at a Very Low risk. Whilst the proposed basement does reflect additional excavation, given that this would be enclosed and would not alter external ground levels nor increase the potential ingress points for surface water to enter the basement, the risks of surface water flooding within the basement are considered to be limited, and no alteration of surface water flow routes would be anticipated.

6. Conclusions and Recommendations

Site setting constraints

Flood risks and impacts		Baseline*	After Mitigation **
Groundwater flooding	At surface level	Negligible	
	Below ground	Low†	Negligible
Surface water flooding	At surface level	Very Low to Low	Very Low
	Below ground	Very Low‡	

*BASELINE risks have been calculated for the whole Site, using national risk maps. Note that the 'At surface level' risks presented in the baseline mapping are applicable to surface development only, whereas the 'Below ground' risks presented on the table are applicable to the proposed subterranean development and therefore may be higher.

**FINAL RISK RATING Includes a detailed analyses of flooding risks over the lifetime of the proposed development, including allowances for climate change AND assumes recommended mitigation measures are implemented.

†The Low risk rating reflects the identified presence of localised pockets of groundwater during Site Investigation, as well as the proposed sleeping accommodation within the basement level.

‡Whilst a Very Low to Low risk of surface water flooding is mapped at the Site, the area of the proposed basement development is mapped within an area at Very Low risk. As the proposals do not involve the alteration of external ground levels nor the addition of potential ingress points for surface water to enter the basement, the risks of surface water ponding and/or ingress to the basement are considered to be limited.

Recommendations / Next steps

Recommendations for mitigation are provided below, based upon the proposed basement and wider development design:

- Given the identified presence of localised pockets of groundwater, flood resilient measures should be incorporated into the basement to prevent water ingress and to reduce flood damage should flooding occur. Preparations should be made in order to handle small volumes of groundwater during the construction process.
- Non return flap valves on sewer lines should be implemented, and a sump and pump could also be considered
- Mitigation measures should be included to reduce the potential for surface water to enter the basement. This should include, where appropriate, re-grading of ground levels to divert overland flows away from the basement and building foundations and

ensuring that threshold levels for the basement are at least 0.30 m above surrounding ground levels, or as high as possible where this is not feasible.

7. Further information

The following table includes a list of additional products by GeoSmart:

Additional GeoSmart Products			
	Additional assessment: SuDSmart Report		The SuDSmart Report range assesses which drainage options are available for a Site. They build on technical detail starting from simple infiltration screening and work up to more complex SuDS Assessments detailing alternative options and designs. Please contact info@geosmartinfo.co.uk for further information.
	Additional assessment: EnviroSmart Report		Provides a robust desk-based assessment of potential contaminated land issues, taking into account the regulatory perspective. Our EnviroSmart reports are designed to be the most cost effective solution for planning conditions. Each report is individually prepared by a highly experienced consultant conversant with Local Authority requirements. Ideal for pre-planning or for addressing planning conditions for small developments. Can also be used for land transactions. Please contact info@geosmartinfo.co.uk for further information.

8. References and glossary

References

ARUP (2010). Camden geological, hydrogeological and hydrological study. Accessed from: https://www.camden.gov.uk/documents/20142/2247044/GHH+study.pdf/12f5a776-e382-21fe-8dbd-04ea4db575b3 on 07/10/2024.

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GeoSmart (2024). GeoSmart groundwater flood risk (GW5) map (version 2.4).

Key GeoSolutions (2021). Site Investigation.**Ordnance Survey Mapping (2024).** © Crown copyright. All rights reserved. Licence number AL 100054687. For full terms and conditions visit www.ordnancesurveyleisure.co.uk

Talling (2024). London's Lost Rivers. Accessed from: https://www.londonslostrivers.com/ on 07/10/2024.

Thames Water (2024). Thames Water Property Searches – Sewer Flooding History Enquiry. SFH/SFH Standard/2024_5058633.

URS (2014). Camden Strategic Flood Risk Assessment. Accessed from: https://www.camden.gov.uk/evidence-and-supporting-documents on 07/10/2024.

Glossary

General terms

BGS	British Geological Survey
EA	Environment Agency
GeoSmart groundwater flood risk model	GeoSmart's national groundwater flood risk model takes advantage of all the available data and provides a preliminary indication of groundwater flood risk on a 50m grid covering England and Wales. The model indicates the risk of the water table coming within 1 m of the ground surface for an indicative 1 in 100 year return period scenario.
Dry-Island	An area considered at low risk of flooding (e.g. In a Flood Zone 1) that is entirely surrounded by areas at higher risk of flooding (e.g. Flood Zone 2 and 3)
Flood resilience	Flood resilience or wet-proofing accepts that water will enter the building, but through careful design will minimise damage and allow the re-occupancy of the building quickly. Mitigation measures that reduce the damage to a property caused by flooding can include water entry strategies, raising electrical sockets off the floor, hard flooring.
Flood resistance	Flood resistance, or dry-proofing, stops water entering a building. Mitigation measures that prevent or reduce the likelihood of water entering a property can include raising flood levels or installation of sandbags.
Flood Zone 1	This zone has less than a 0.1% annual probability of river flooding
Flood Zone 2	This zone has between 0.1 and 1% annual probability of river flooding and between 0.1% and 0.5 % annual probability sea flooding
Flood Zone 3	This zone has more than a 1% annual probability of river flooding and 0.5% annual probability of sea flooding
Functional Flood Plain	An area of land where water has to flow or be stored in times of flood.
Hydrologic model	A computer model that simulates surface run-off or fluvial flow. The typical accuracy of hydrologic models such as this is ±0.25m for estimating flood levels at particular locations.
OS	Ordnance Survey
Residual Flood Risk	The flood risk remaining after taking mitigating actions.
SFRA	Strategic Flood Risk Assessment. This is a brief flood risk assessment provided by the local council

SuDS	A Sustainable drainage system (SuDS) is designed to replicate, as closely as possible, the natural drainage from the Site (before development) to ensure that the flood risk downstream of the Site does not increase as a result of the land being developed. SuDS also significantly improve the quality of water leaving the Site and can also improve the amenity and biodiversity that a Site has to offer. There are a range of SuDS options available to provide effective surface water management that intercept and store excess run-off. Sites over 1 Ha will usually require a sustainable drainage assessment if planning permission is required. The current proposal is that from April 2014 for more than a single dwelling the drainage system will require approval from the SuDS Approval Board (SABs).

Aquifer Types

Principal aquifer	These are layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale.
Secondary A aquifer	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.
Secondary B aquifer	Predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering.
Secondary undifferentiated	Has been assigned in cases where it has not been possible to attribute either category A or B to a rock type due to the variable characteristics of the rock type.
Unproductive Strata	These are rock layers or drift deposits with low permeability that has negligible significance for water supply or river base flow.

NPPF (2023) terms

Exception test	Applied once the sequential test has been passed. For the exception test to be passed it must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk and a site-specific FRA must demonstrate that the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.
Sequential test	Aims to steer new development to areas with the lowest probability of flooding.
Essential infrastructure	Essential infrastructure includes essential transport infrastructure, essential utility infrastructure and wind turbines.

Water compatible	Water compatible land uses include flood control infrastructure, water-based recreation and lifeguard/coastal stations.
Less vulnerable	Less vulnerable land uses include police/ambulance/fire stations which are not required to be operational during flooding and buildings used for shops/financial/professional/other services.
More vulnerable	More vulnerable land uses include hospitals, residential institutions, buildings used for dwelling houses/student halls/drinking establishments/hotels and sites used for holiday or short-let caravans and camping.
Highly vulnerable	Highly vulnerable land uses include police/ambulance/fire stations which are required to be operational during flooding, basement dwellings and caravans/mobile homes/park homes intended for permanent residential use.

Data Sources

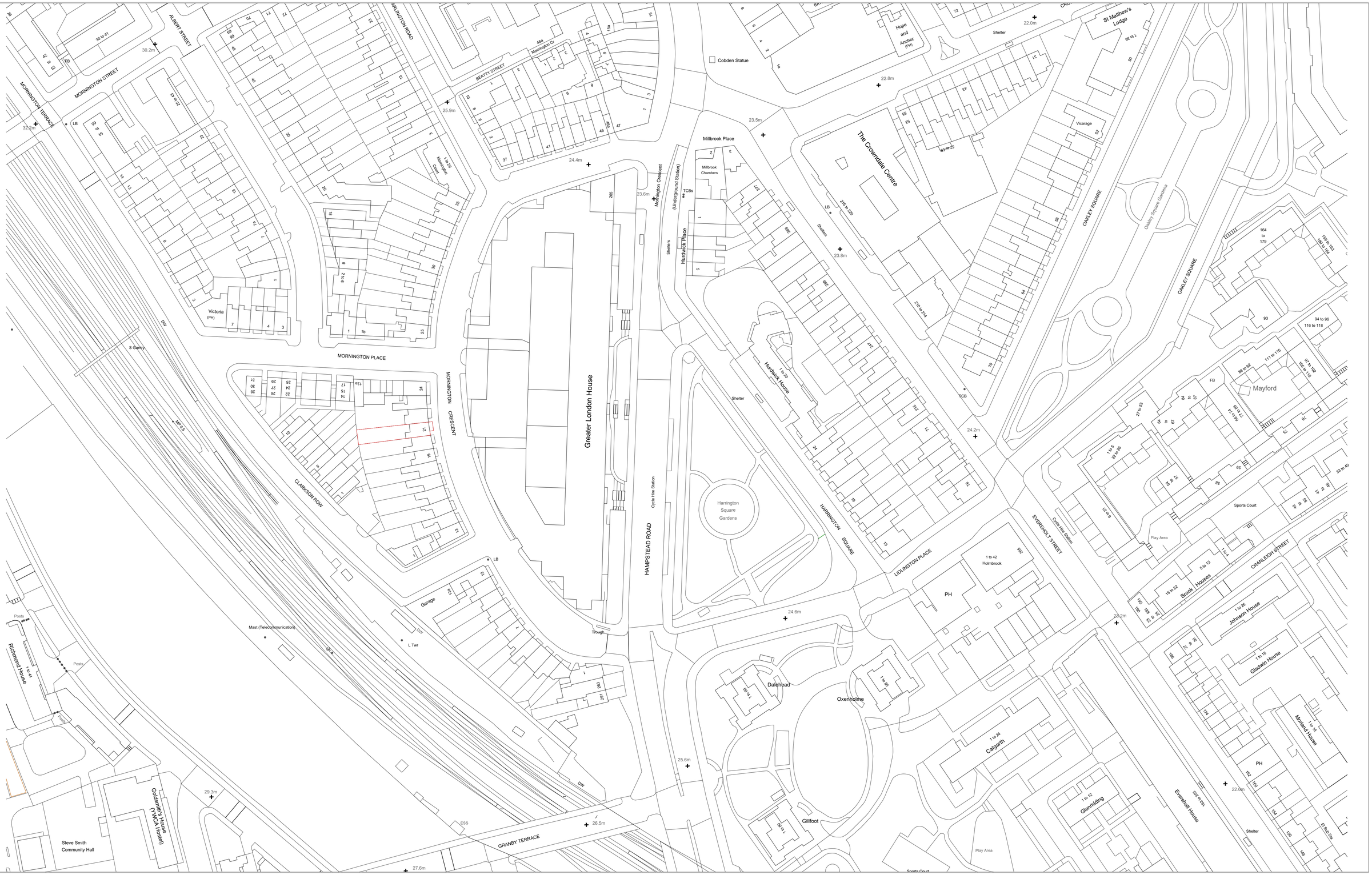
Aerial Photography	Contains Ordnance Survey data © Crown copyright and database right 2024 BlueSky copyright and database rights 2024
Geology (Bedrock/Superficial/Borehole locations)	Contains British Geological Survey materials © NERC 2024 Ordnance Survey data © Crown copyright and database right 2024
Flood Risk (Flood Zone/RoFRS/Pluvial/Surface Water Features/Reservoir/SPZ)	Environment Agency copyright and database rights 2024 Ordnance Survey data © Crown copyright and database right 2024
Flood Risk (Groundwater)	GeoSmart, BGS & OS GW5 (v2.4) Map (GeoSmart, 2024) Contains British Geological Survey materials © NERC 2024 Ordnance Survey data © Crown copyright and database right 202
Topographic Data	OS LiDAR/EA Contains Ordnance Survey data © Crown copyright and database right 2024 Environment Agency copyright and database rights 2024

9. Appendices

GeoSmart Information

Appendix A

Site plans



	Site highlighted in red outline. Do not scale from the drawing. All dimensions to be verified on site by contractor prior to commencement of any shop drawings and any works on site. Report all discrepancies to the Architect immediately. This drawings is to be read in conjunction with all related consultant/engineers drawings and all other relevant information.

REV	DATE	DESCRIPTION	CKD
P1	19/01/2023	Planning Issue	KAS

REV	DATE	DESCRIPTION	CKD

KAS Architects Ltd.

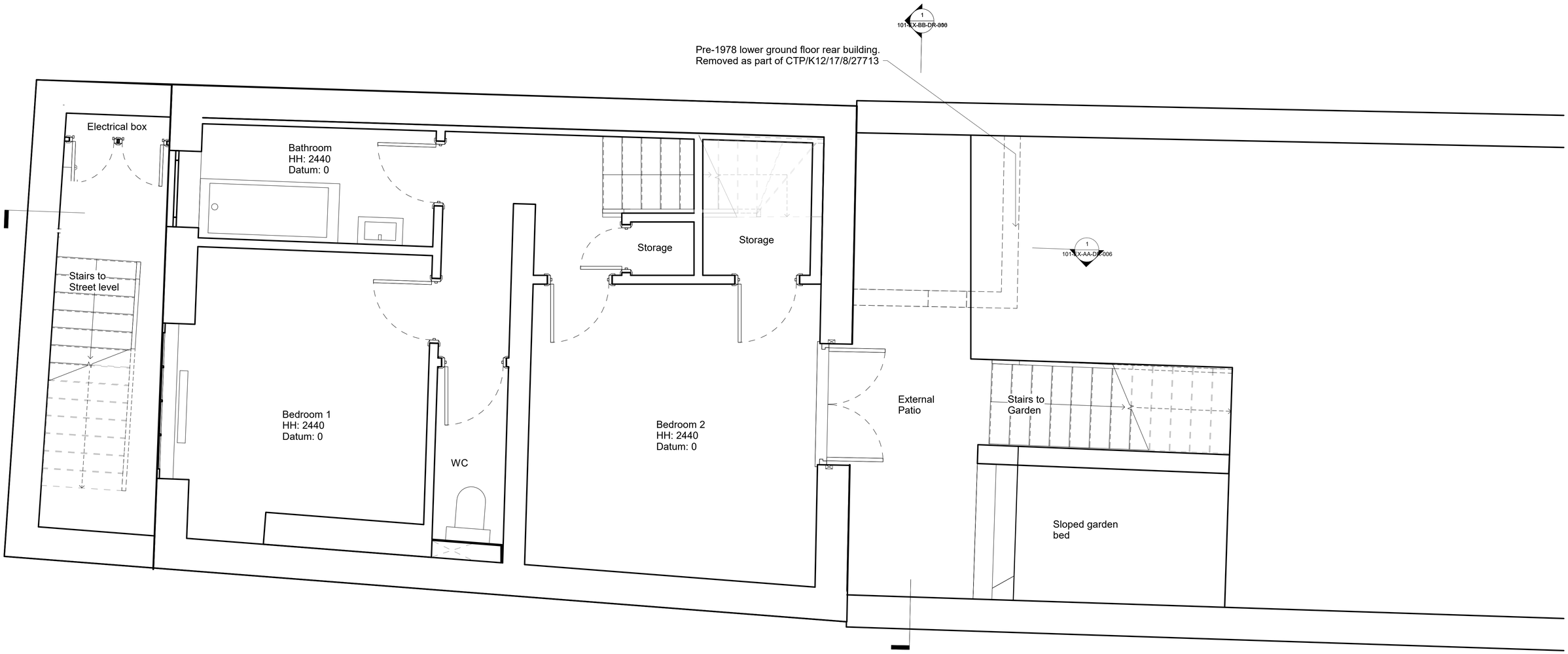
2 Lord Cameron House
London NW3 7SU

telephone 07791420636
email info@kasarchitects.com

KAS JOB NO: 101

21 Mornington Crescent, NW1 7RG
Site Location
101-00-DR-001

Client: Xuelin Bates
Scale: 1:1250 @A1 / 1:2500 @A3



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P2	04/11/2021	Scale bar added	KAS

REV	DATE	DESCRIPTION	CKD

KAS Architects Ltd.
2 Lord Cameron House
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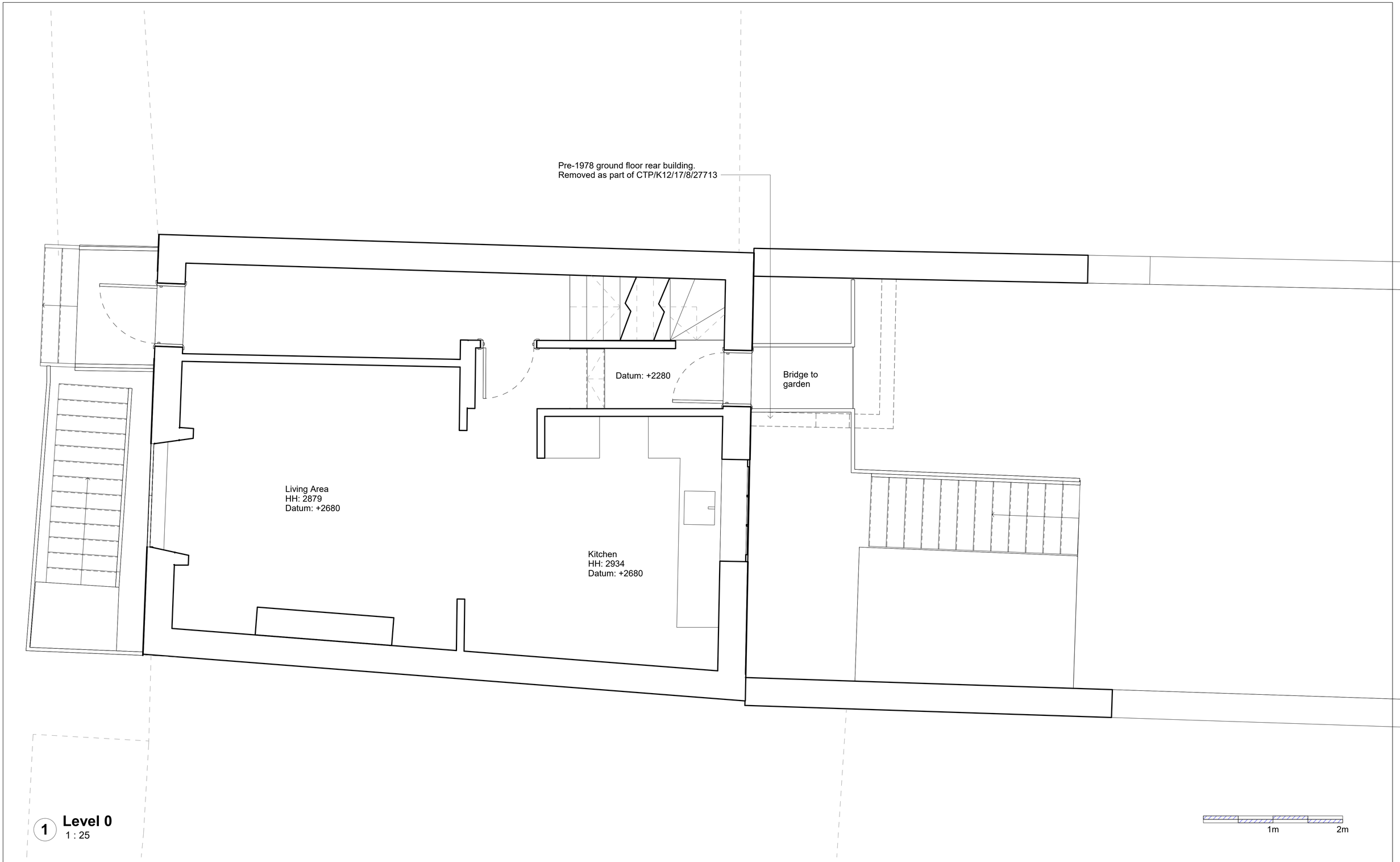
email info@kasarchitects.com

KAS JOB NO: 101

21 Mornington Crescent
Existing Lower Ground Floor
101-EX-LG-DR-001

Client: Xuelin Bates
SCALE @ A1: 1 : 25

P2



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P2	04/11/2021	Scale bar added	KAS

REV	DATE	DESCRIPTION	CKD

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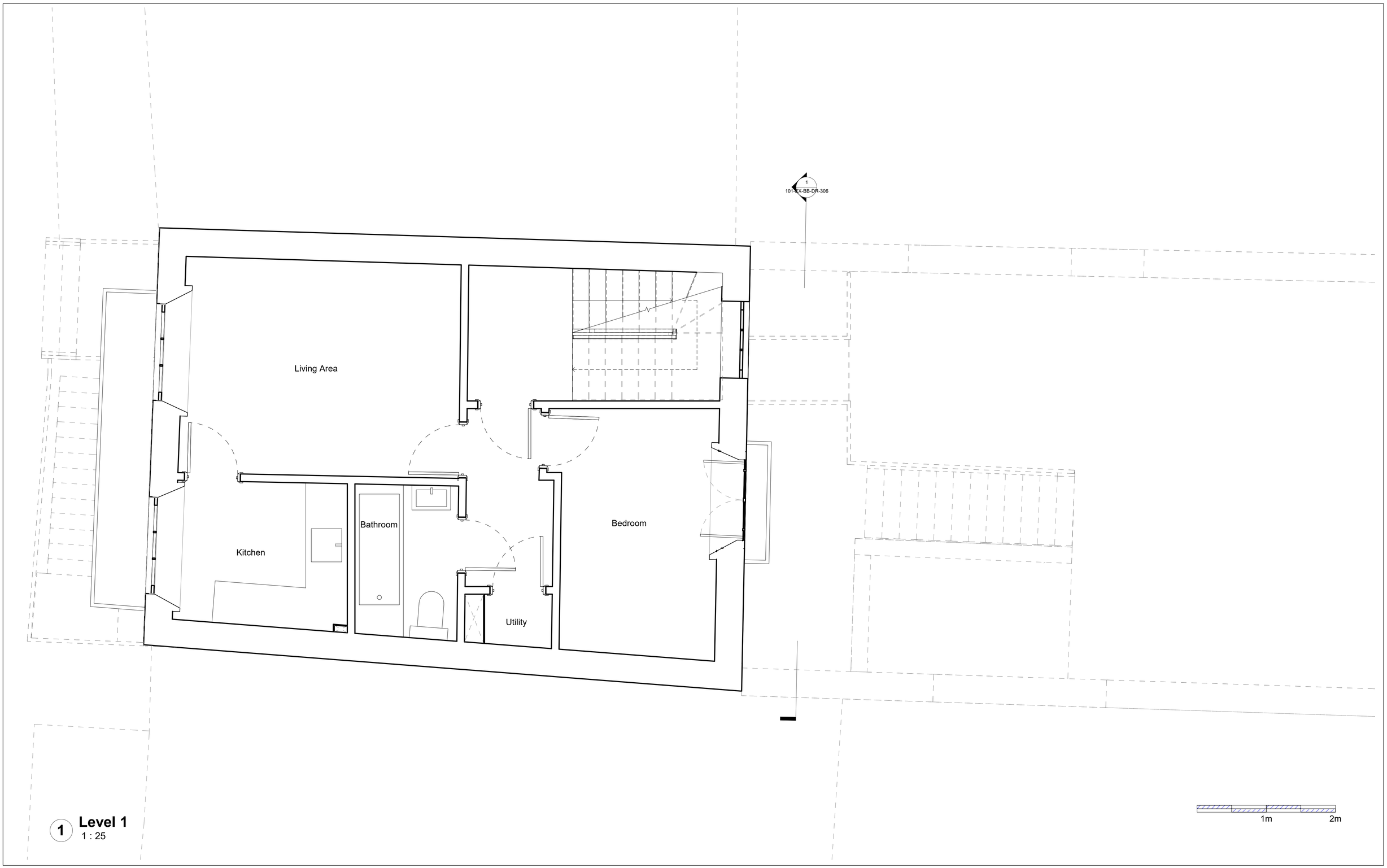
KAS JOB NO: 101

21 Mornington Crescent
Existing Ground Floor
101-EX-GF-DR-002

Client: Xuelin Bates
SCALE @ A1: 1 : 25

P2



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REV	DATE	DESCRIPTION	CKD

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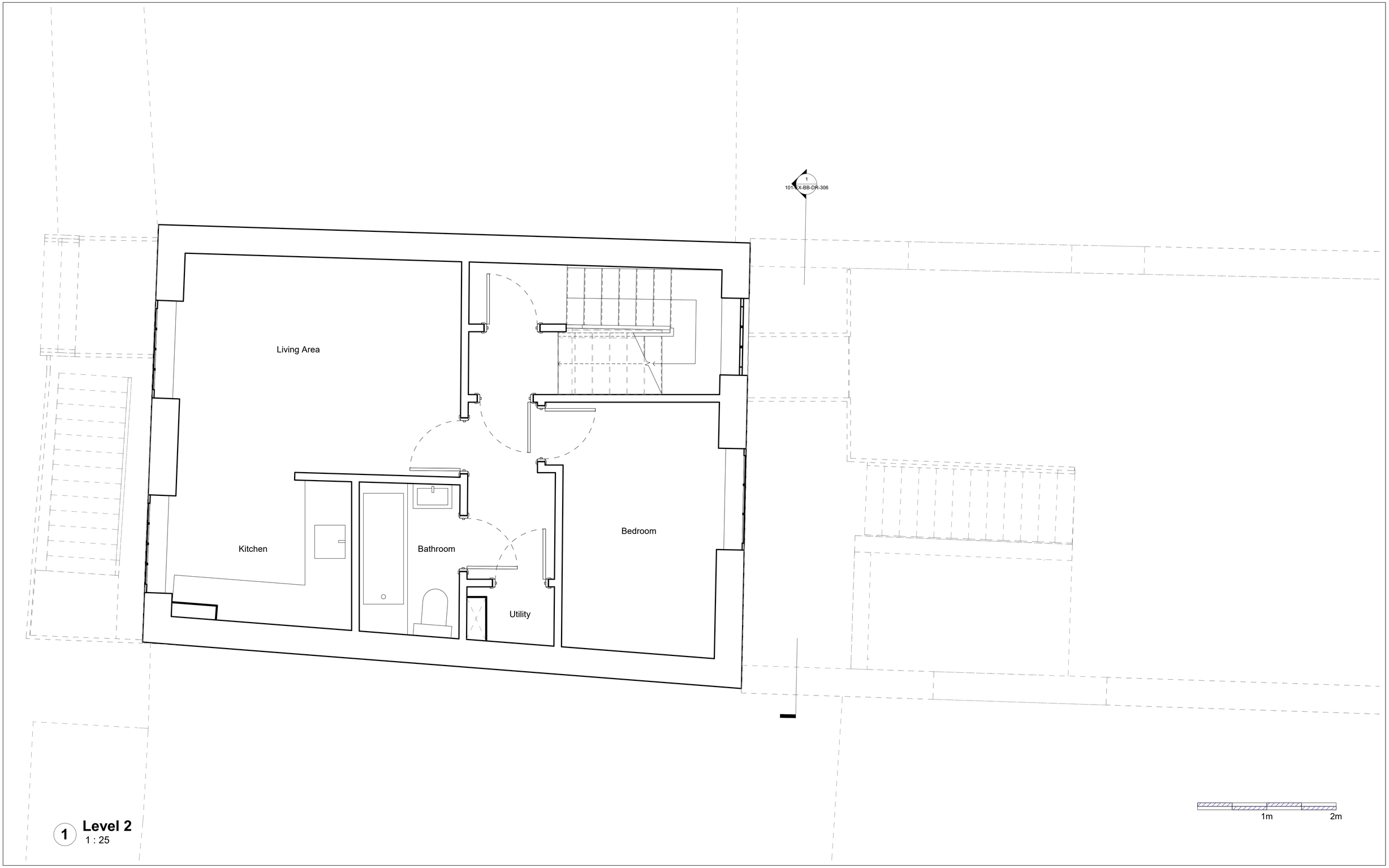
KAS JOB NO: 101

21 Mornington Crescent
Existing First Floor
101-EX-01-DR-003

Client: Xuelin Bates
SCALE @ A1: 1 : 25

P2



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KAS JOB NO: 101

21 Mornington Crescent
Existing Second Floor
101-EX-02-DR-004

Client: Xuelin Bates
SCALE @ A1: 1 : 25

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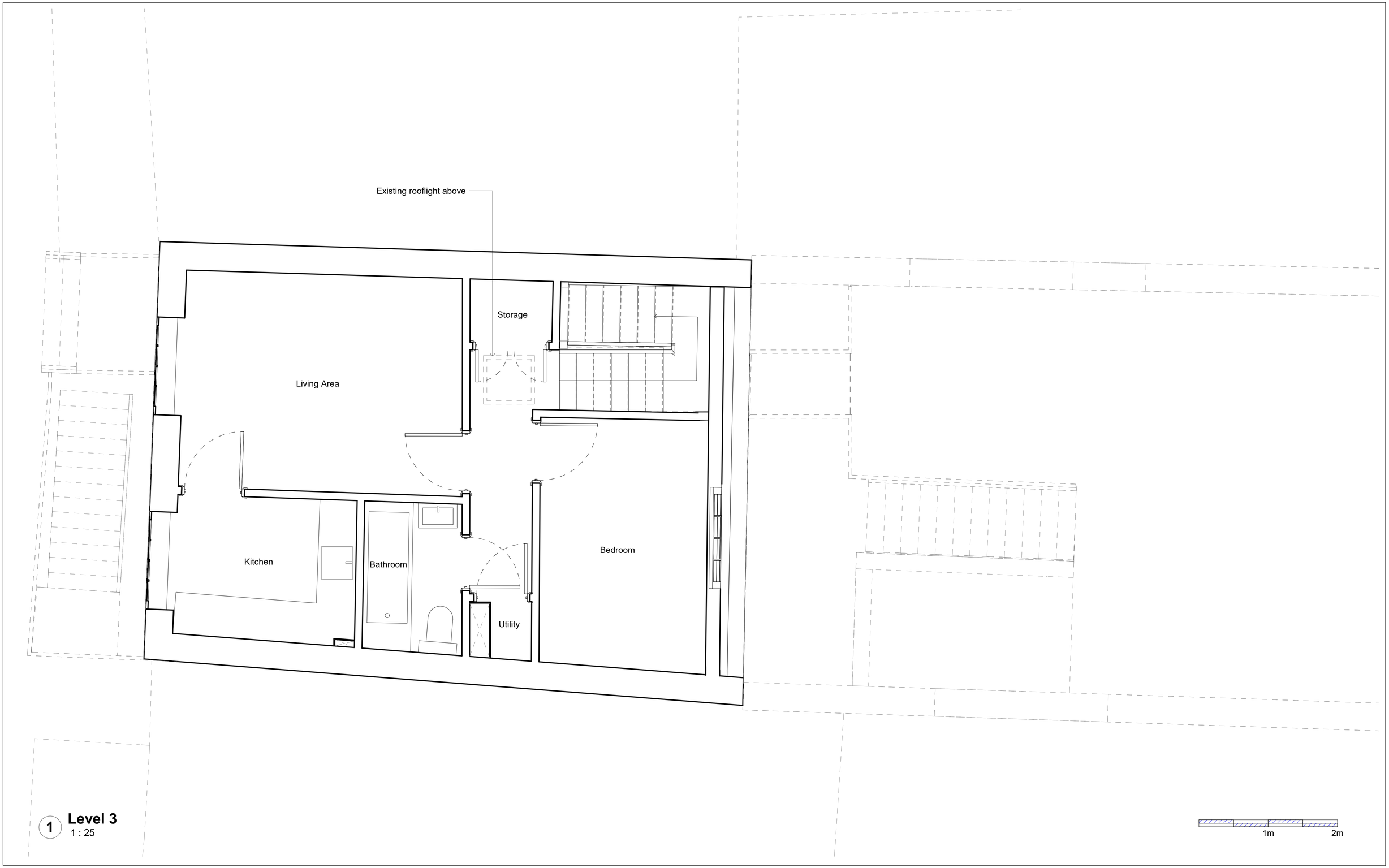

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P1	28/05/2021	Planning Issue	KAS
P2	04/11/2021	Scale bar added	KAS

REV	DATE	DESCRIPTION	CKD

KAS Architects Ltd.
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telephone 07791420636
email info@kasarchitects.com

KAS JOB NO: 101

21 Mornington Crescent
Existing Third Floor
101-EX-03-DR-005

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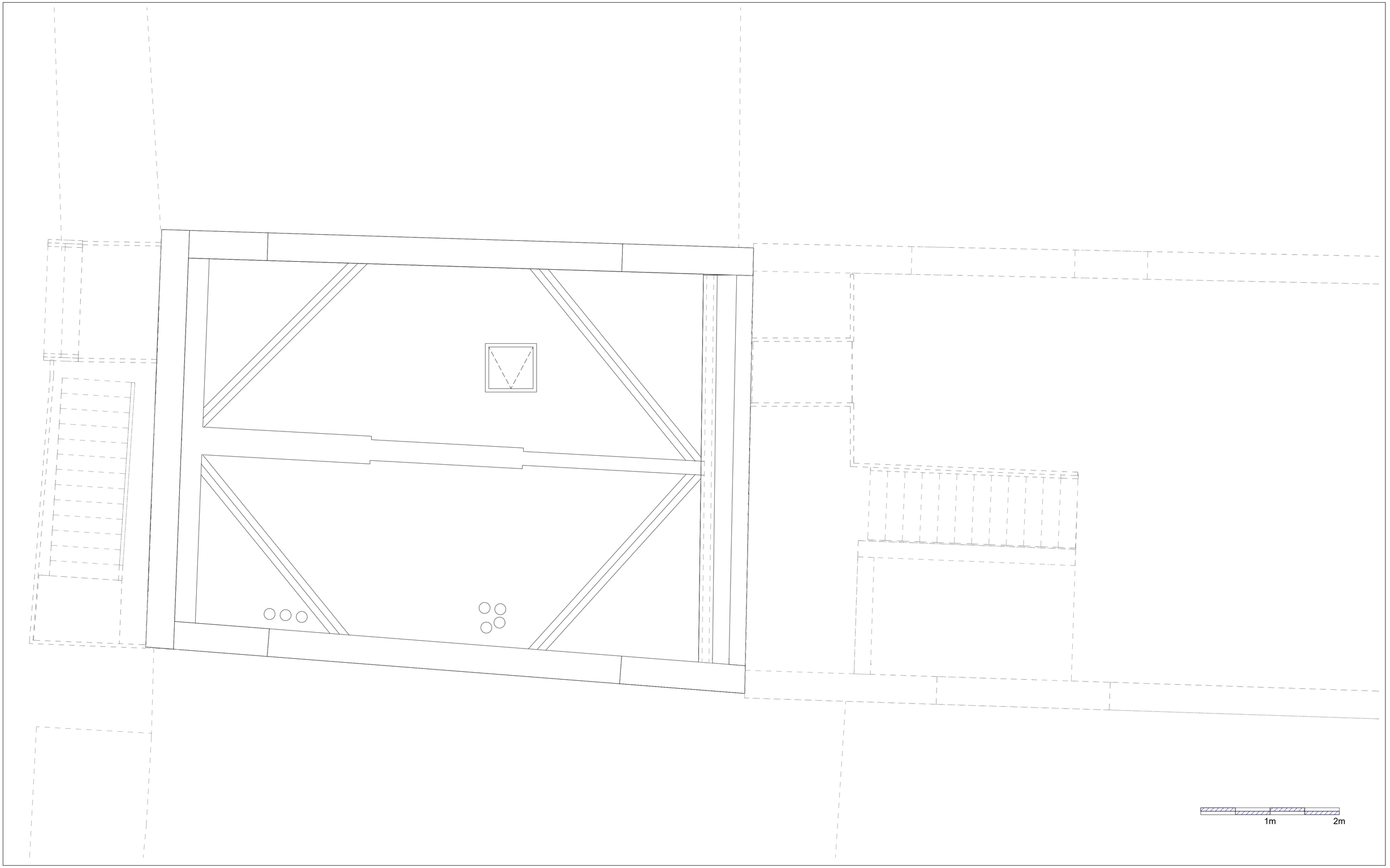

Do not scale from the drawing. All dimensions to be verified on site by contractor prior to commencement of any shop drawings and any works on site. Report all discrepancies to the Architect immediately.

This drawing is to read in conjunction with all related consultant/engineers drawings and all other relevant information.

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P1	28/05/2021	Planning Issue	KAS
P2	04/11/2021	Scale bar added	KAS

REV	DATE	DESCRIPTION	CKD

KAS Architects Ltd.
2 Lord Cameron House
London NW3 7SU
telephone 07791420636
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KAS JOB NO: 101

21 Mornington Crescent

Existing Roof Plan

101-EX-RF-DR-009

Client: Xuelin Bates

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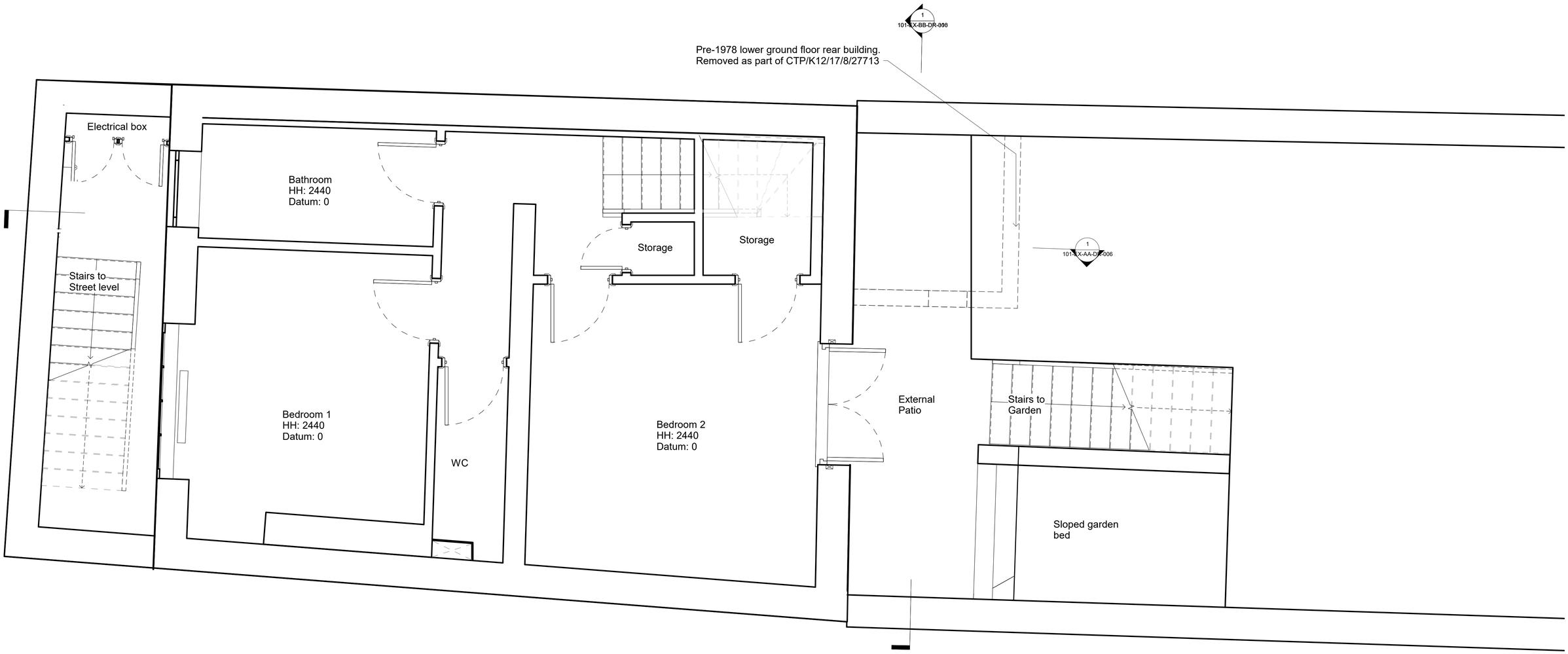

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This drawing is to read in conjunction with all related consultant/engineers drawings and all other relevant information.

REV	DATE	DESCRIPTION	CKD
			KAS

REV	DATE	DESCRIPTION	CKD

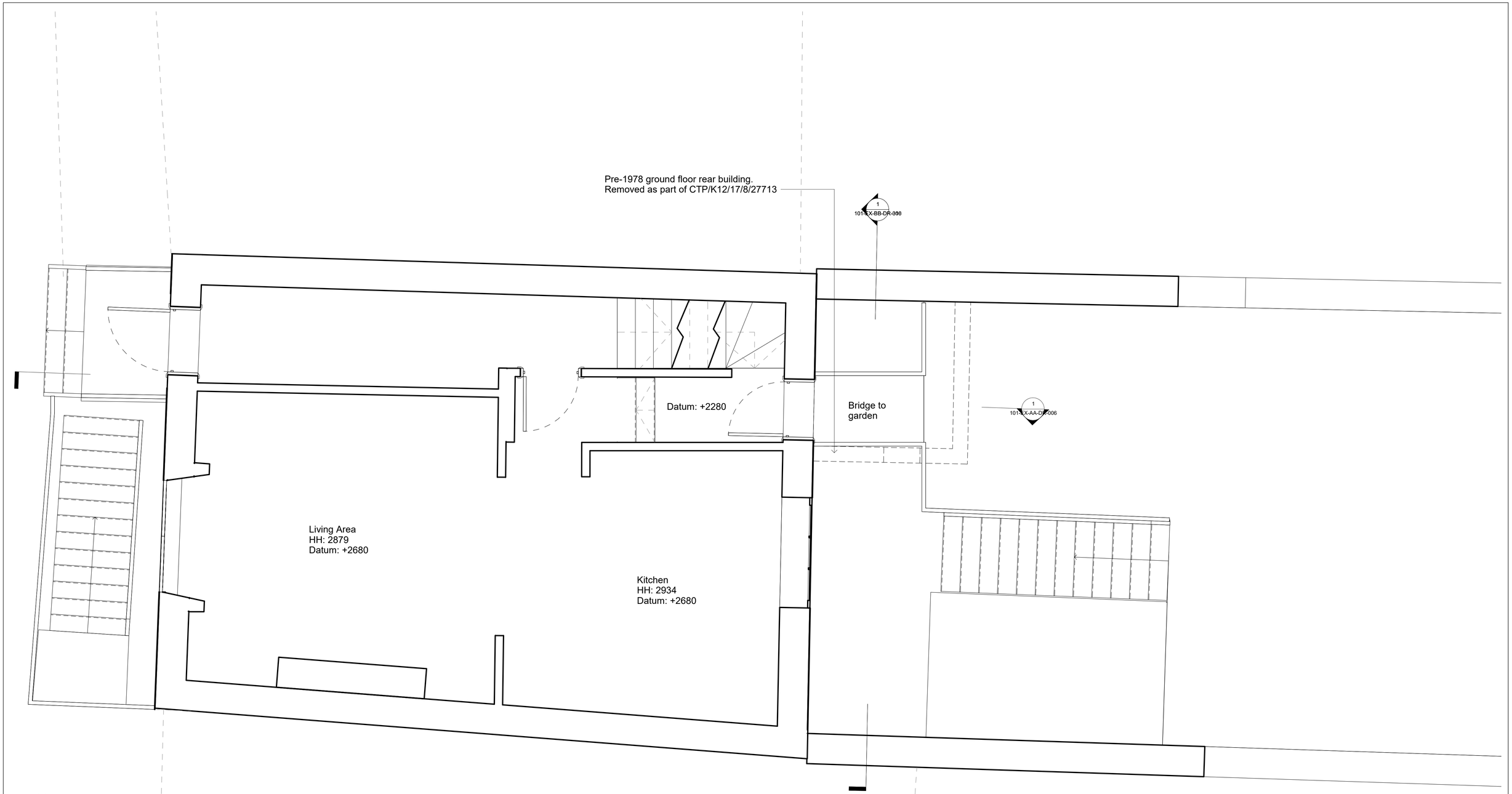
KAS Architects Ltd.
8 Kidderpore Avenue
London NW3 7SU
telephone 07791420636
email info@kasarchitects.com

KAS JOB NO: 101

21 Mornington Crescent
Existing Lower Ground Floor
101-EX-LG-DR-001

Client: Xuelin Bates
SCALE @ A1: 1 : 25

P2



1 Level 0
1 : 25

Do not scale from the drawing. All dimensions to be verified on site by contractor prior to commencement of any shop drawings and any works on site. Report all discrepancies to the Architect immediately.

This drawing is to read in conjunction with all related consultant/engineers drawings and all other relevant information.

REV	DATE	DESCRIPTION	CKD
			KAS

REV	DATE	DESCRIPTION	CKD

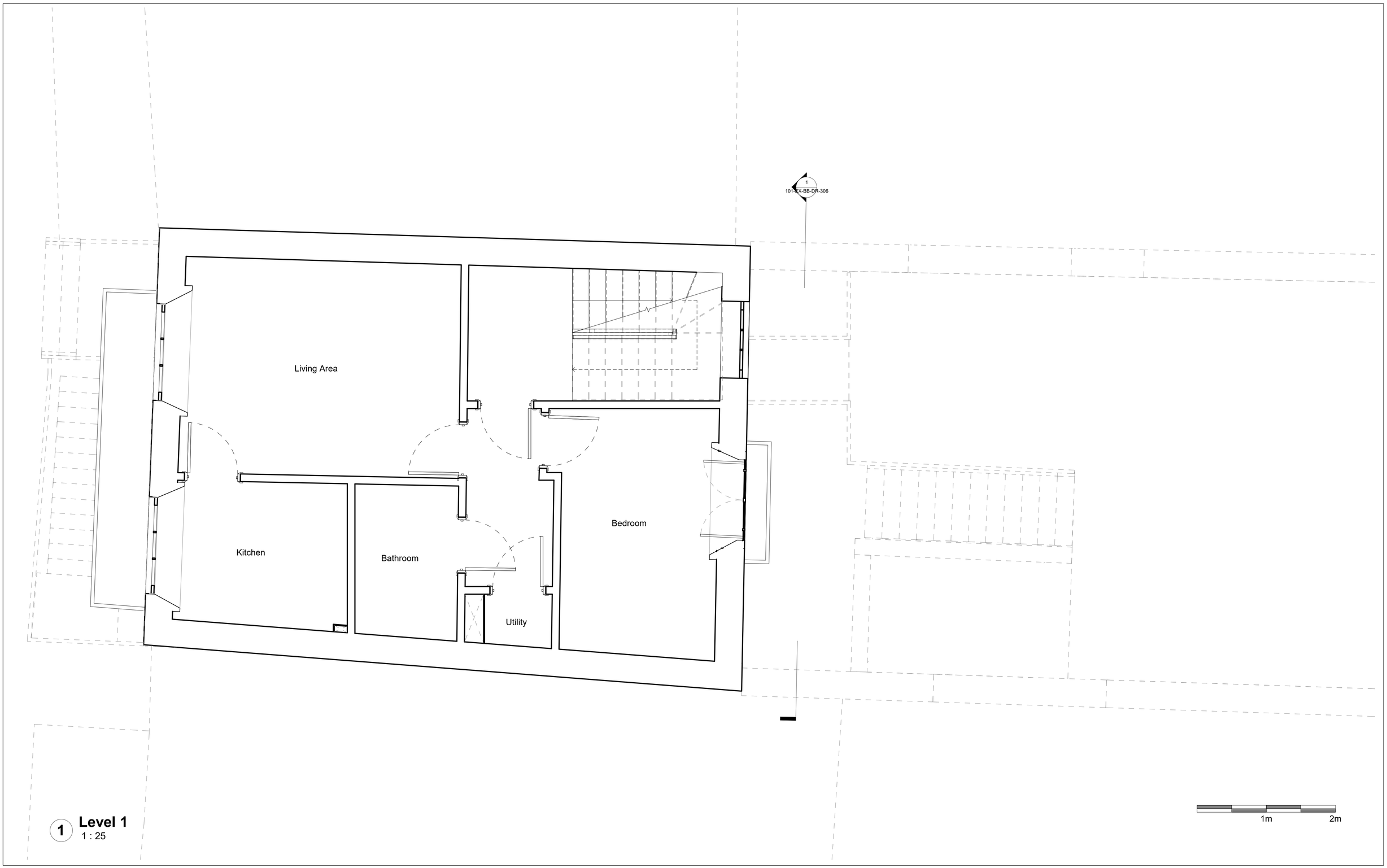
KAS Architects Ltd.
8 Kidderpore Avenue
London NW3 7SU
telephone 07791420636
email info@kasarchitects.com

KAS JOB NO: 101

21 Mornington Crescent
Existing Ground Floor
101-EX-GF-DR-002

Client: Xuelin Bates
SCALE @ A1: 1 : 25

P2



1 **Level 1**
1 : 25

Do not scale from the drawing. All dimensions to be verified on site by contractor prior to commencement of any shop drawings and any works on site. Report all discrepancies to the Architect immediately.

This drawing is to read in conjunction with all related consultant/engineers drawings and all other relevant information.

REV	DATE	DESCRIPTION	CKD
			KAS

REV	DATE	DESCRIPTION	CKD

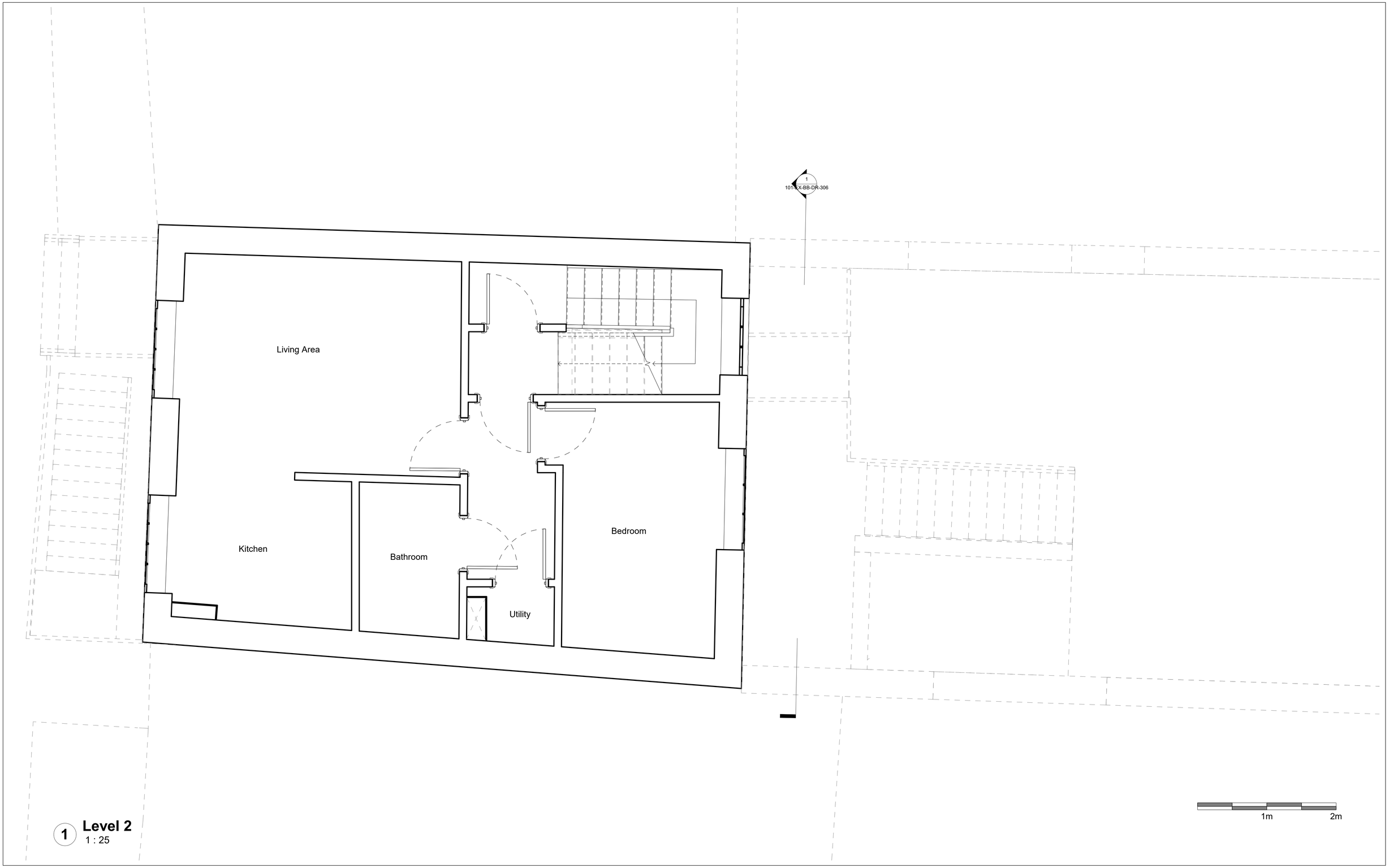
KAS Architects Ltd.
8 Kidderpore Avenue
London NW3 7SU
telephone 07791420636
email info@kasarchitects.com

KAS JOB NO: 101

21 Mornington Crescent
Existing First Floor
101-EX-01-DR-003

Client: Xuelin Bates
SCALE @ A1: 1 : 25

P2



1 Level 2
1 : 25

Do not scale from the drawing. All dimensions to be verified on site by contractor prior to commencement of any shop drawings and any works on site. Report all discrepancies to the Architect immediately.

This drawing is to read in conjunction with all related consultant/engineers drawings and all other relevant information.

REV	DATE	DESCRIPTION	CKD
			KAS

REV	DATE	DESCRIPTION	CKD

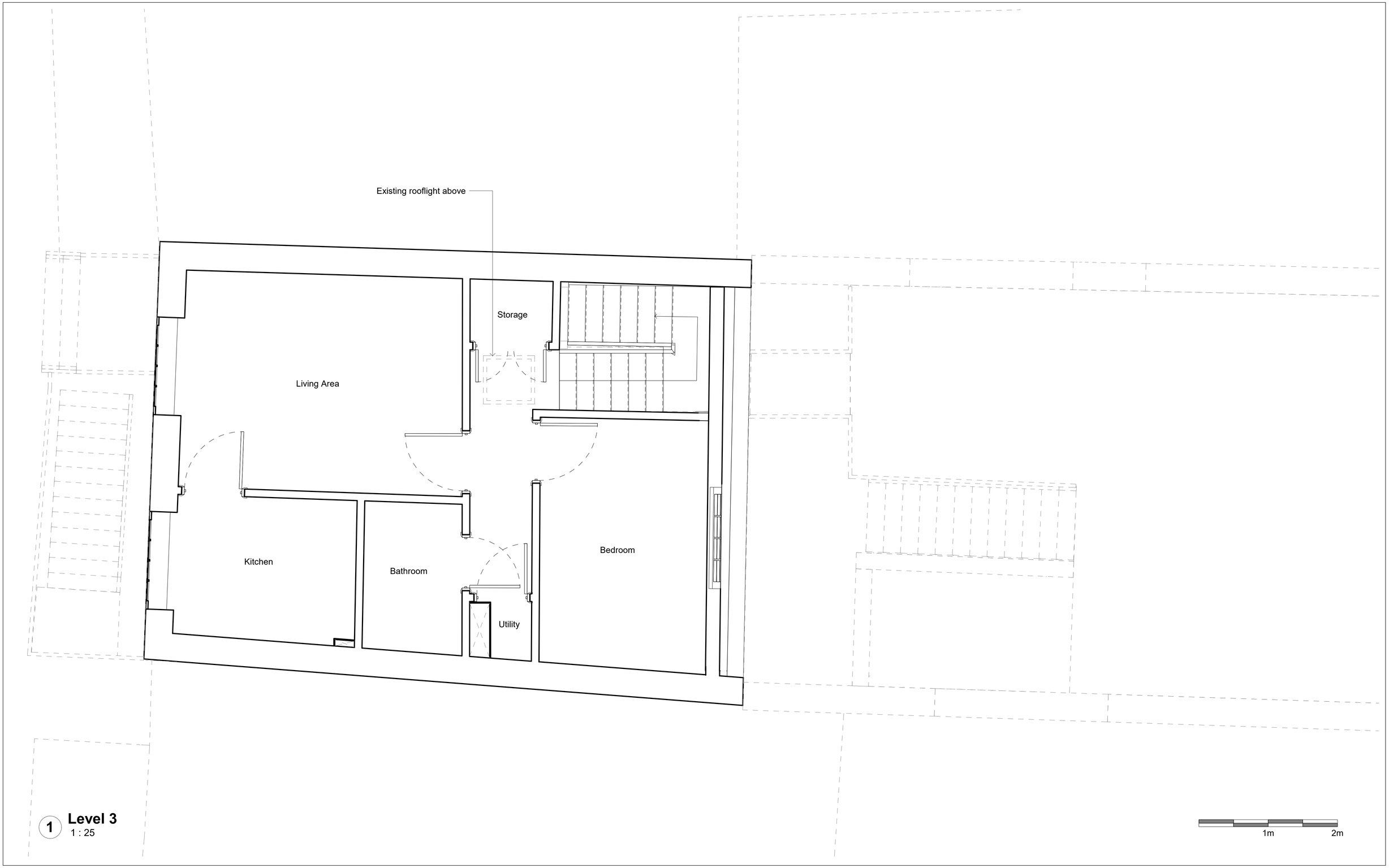
KAS Architects Ltd.
8 Kidderpore Avenue
London NW3 7SU
telephone 07791420636
email info@kasarchitects.com

KAS JOB NO: 101

21 Mornington Crescent
Existing Second Floor
101-EX-02-DR-004

Client: Xuelin Bates
SCALE @ A1: 1 : 25

P2



1 **Level 3**
1 : 25

Do not scale from the drawing. All dimensions to be verified on site by contractor prior to commencement of any shop drawings and any works on site. Report all discrepancies to the Architect immediately.

This drawing is to read in conjunction with all related consultant/engineers drawings and all other relevant information.

REV	DATE	DESCRIPTION	CKD
			KAS

REV	DATE	DESCRIPTION	CKD

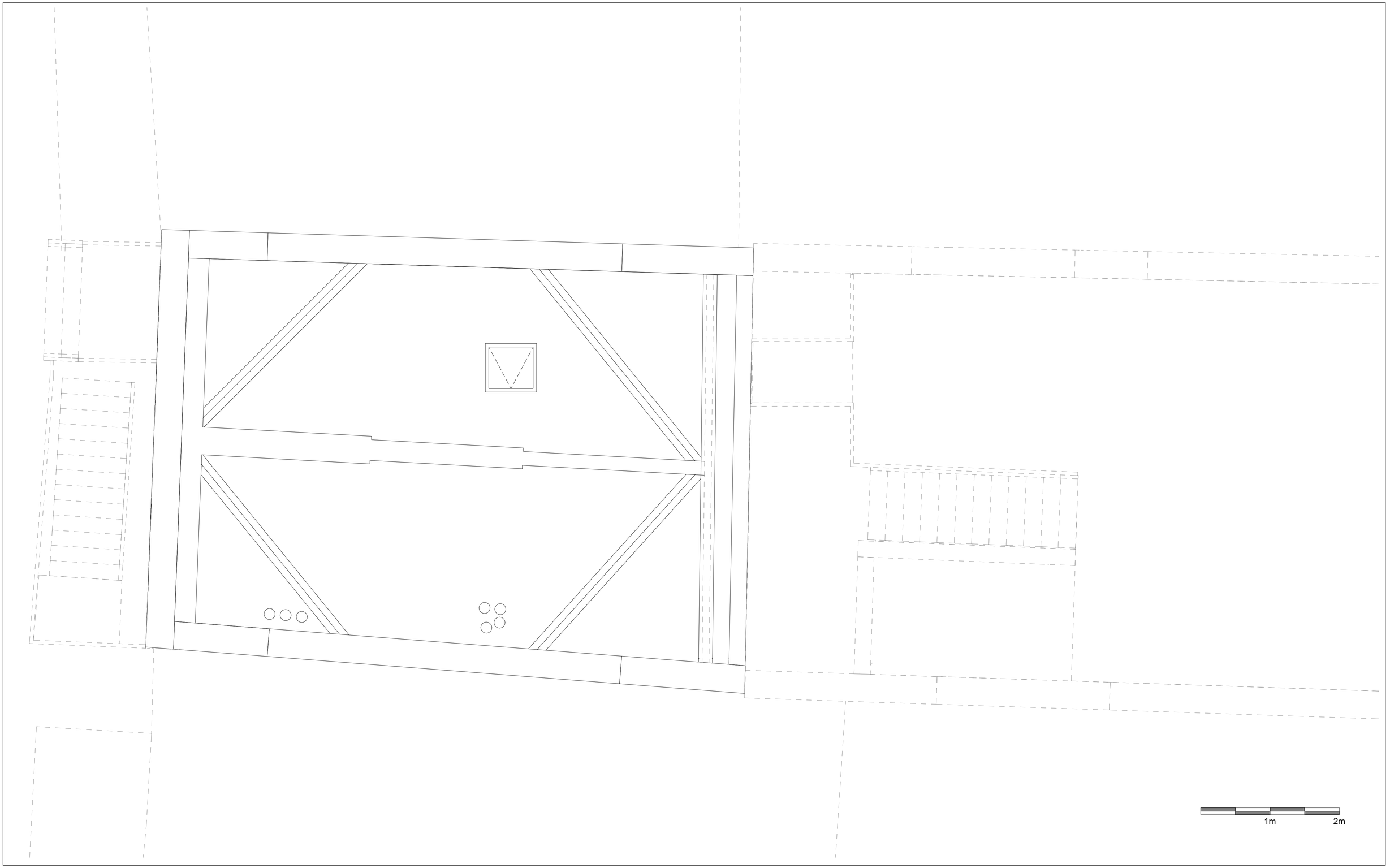
KAS Architects Ltd.
8 Kidderpore Avenue
London NW3 7SU
telephone 07791420636
email info@kasarchitects.com

KAS JOB NO: 101

21 Mornington Crescent
Existing Third Floor
101-EX-03-DR-005

Client: Xuelin Bates
SCALE @ A1: 1 : 25

P2



Do not scale from the drawing. All dimensions to be verified on site by contractor prior to commencement of any shop drawings and any works on site. Report all discrepancies to the Architect immediately.

This drawing is to read in conjunction with all related consultant/engineers drawings and all other relevant information.

REV	DATE	DESCRIPTION	CKD
			KAS

REV	DATE	DESCRIPTION	CKD

KAS Architects Ltd.
8 Kidderpore Avenue
London NW3 7SU
telephone 07791420636
email info@kasarchitects.com

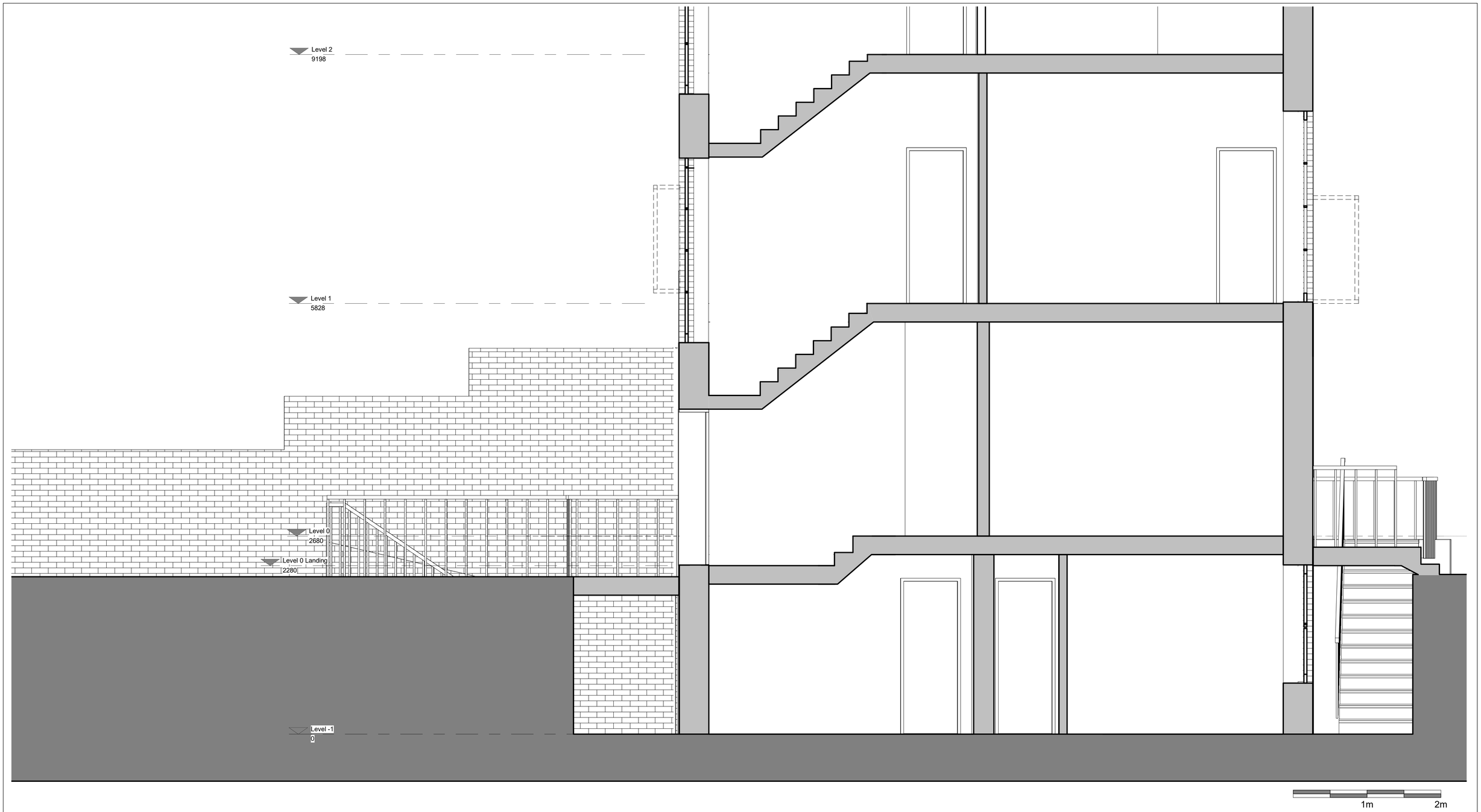
KAS JOB NO: 101

21 Mornington Crescent
Existing Roof Plan
101-EX-RF-DR-009

Client: Xuelin Bates

SCALE @ A1: 1 : 25

P2



1 Section AA

1 : 25

Do not scale from the drawing. All dimensions to be verified on site by contractor prior to commencement of any shop drawings and any works on site. Report all discrepancies to the Architect immediately.

This drawing is to read in conjunction with all related consultant/engineers drawings and all other relevant information.

REV	DATE	DESCRIPTION	CKD
			KAS

REV	DATE	DESCRIPTION	CKD

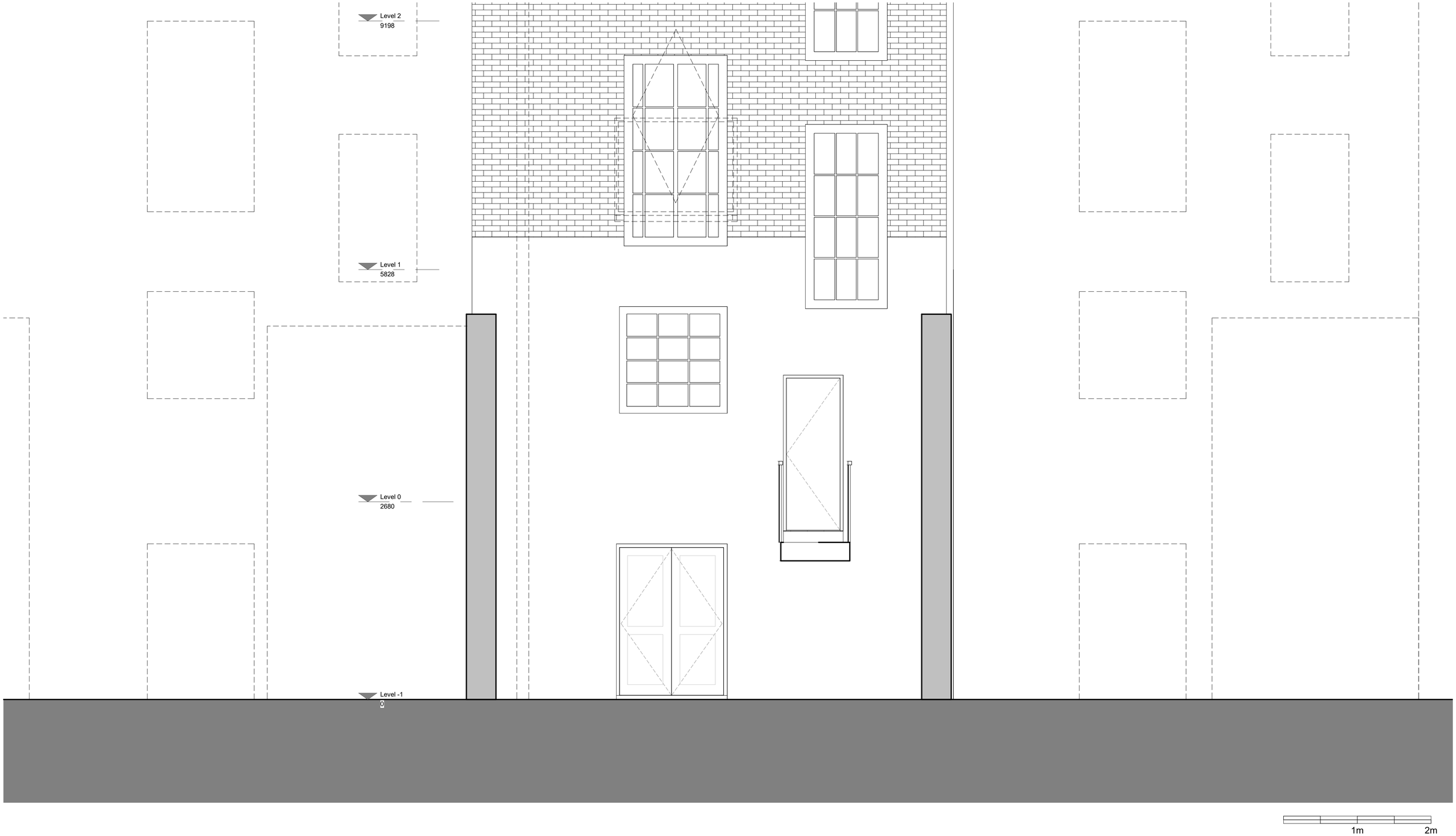
KAS Architects Ltd.
8 Kidderpore Avenue
London NW3 7SU
telephone 07791420636
email info@kasarchitects.com

KAS JOB NO: 101

21 Mornington Crescent
Existing Section AA
101-EX-AA-DR-006

Client: Xuelin Bates
SCALE @ A1: 1 : 25

P2



1 Section BB

1 : 25

Do not scale from the drawing. All dimensions to be verified on site by contractor prior to commencement of any shop drawings and any works on site. Report all discrepancies to the Architect immediately.

This drawing is to read in conjunction with all related consultant/engineers drawings and all other relevant information.

REV	DATE	DESCRIPTION	CKD
			KAS

REV	DATE	DESCRIPTION	CKD

KAS Architects Ltd.
8 Kidderpore Avenue
London NW3 7SU
telephone 07791420636
email info@kasarchitects.com

KAS JOB NO: 101

21 Mornington Crescent
Existing Section BB
101-EX-BB-DR-010

Client: Xuelin Bates

SCALE @ A1: 1 : 25

P2

1 East
1 : 25

Do not scale from the drawing. All dimensions to be verified on site by contractor prior to commencement of any shop drawings and any works on site. Report all discrepancies to the Architect immediately.

This drawing is to read in conjunction with all related consultant/engineers drawings and all other relevant information.

REV	DATE	DESCRIPTION	CKD
			KAS

REV	DATE	DESCRIPTION	CKD

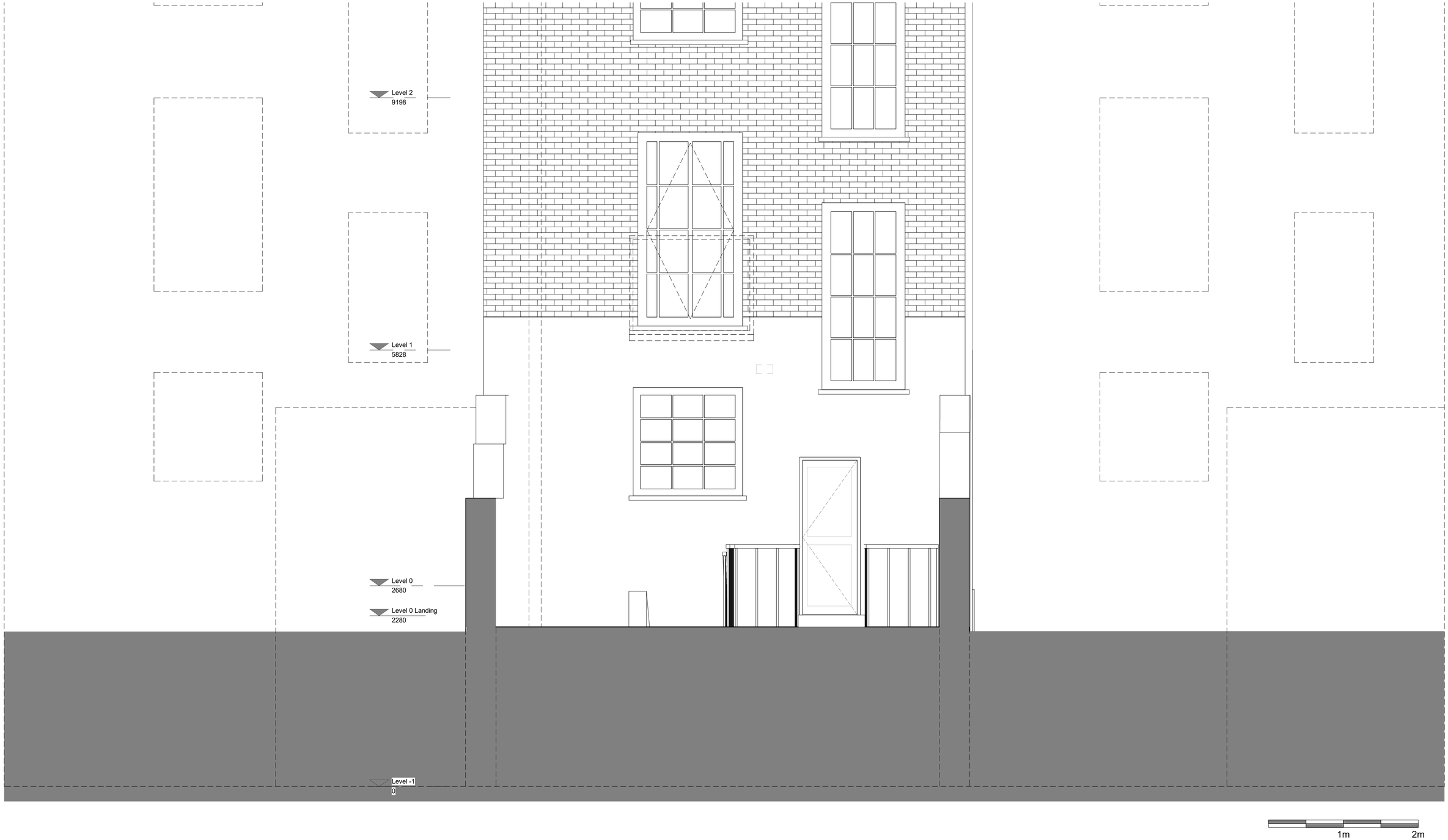
KAS Architects Ltd.
8 Kidderpore Avenue
London NW3 7SU
telephone 07791420636
email info@kasarchitects.com

KAS JOB NO: 101

21 Mornington Crescent
Existing Front Elevation
101-EX-EAST-ELE-DR-007

Client: Xuelin Bates
SCALE @ A1: 1 : 25

P2



Do not scale from the drawing. All dimensions to be verified on site by contractor prior to commencement of any shop drawings and any works on site. Report all discrepancies to the Architect immediately.

This drawing is to read in conjunction with all related consultant/engineers drawings and all other relevant information.

REV	DATE	DESCRIPTION	CKD
			KAS

REV	DATE	DESCRIPTION	CKD

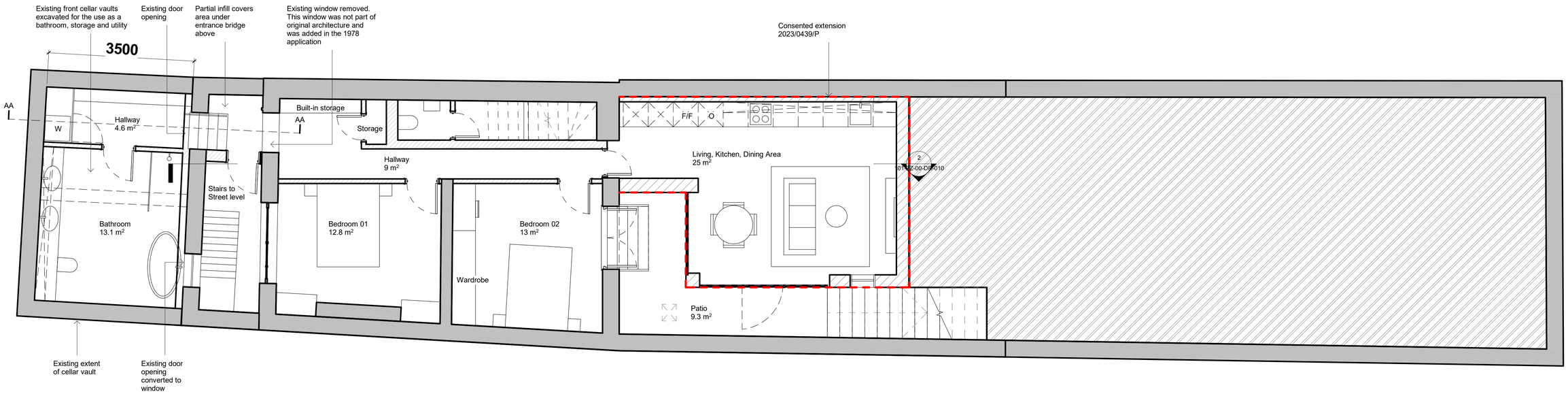
KAS Architects Ltd.
8 Kidderpore Avenue
London NW3 7SU
telephone 07791420636
email info@kasarchitects.com

KAS JOB NO: 101

21 Mornington Crescent
Existing Rear Elevation
101-EX-WEST-ELE-DR-008

Client: Xuelin Bates
SCALE @ A1: 1 : 25

P2



1 Proposed Lower Ground Floor

1:50

1m 5m

Do not scale from the drawing. All dimensions to be verified on site by contractor prior to commencement of any shop drawings and any works on site. Report all discrepancies to the Architect immediately.

This drawing is to read in conjunction with all related consultant/engineers drawings and all other relevant information.

REV	DATE	DESCRIPTION	CKD
P1	07/06/2024	Planning Issue	KAS

REV	DATE	DESCRIPTION	CKD

KAS Architects Ltd.
8 Kidderpore Avenue
London NW3 7SU
telephone 020 8057 4567
email info@kasarchitects.com

KAS JOB NO: 101

21 Mornington Crescent, NW1 7RG

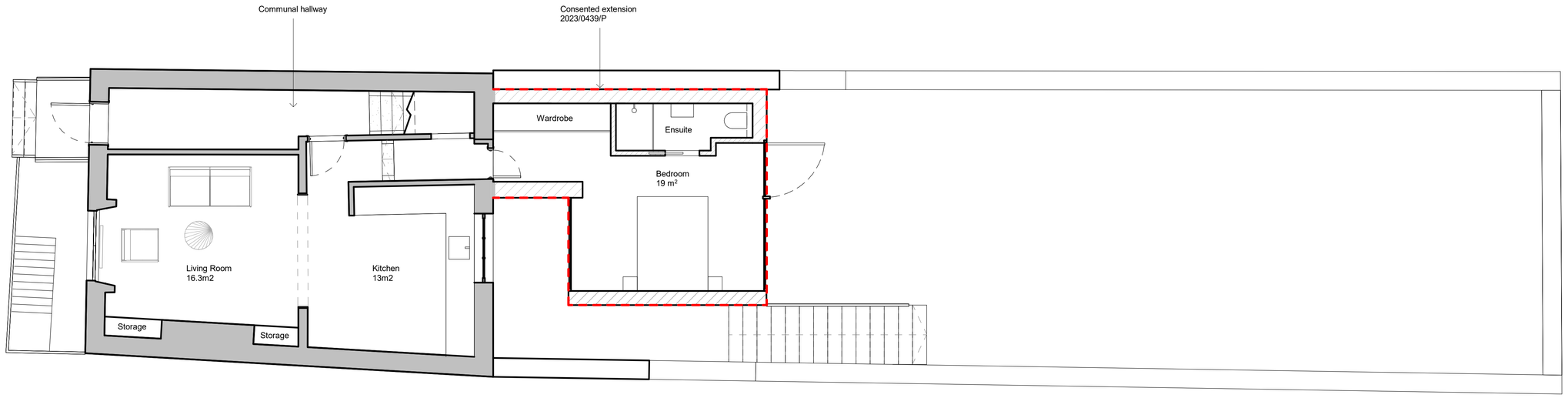
Proposed Lower Ground Floor

101-LG-DR-001

Client: Xuelin Bates

SCALE @ A1: 1 : 50

P1



Existing Wall
Proposed Wall
Consented extension

1 Proposed Ground Floor

1:50

1m 5m

Do not scale from the drawing. All dimensions to be verified on site by contractor prior to commencement of any shop drawings and any works on site. Report all discrepancies to the Architect immediately.

This drawing is to read in conjunction with all related consultant/engineers drawings and all other relevant information.

REV	DATE	DESCRIPTION	CKD
P1	07/05/2024	Planning Issue	KAS

REV	DATE	DESCRIPTION	CKD

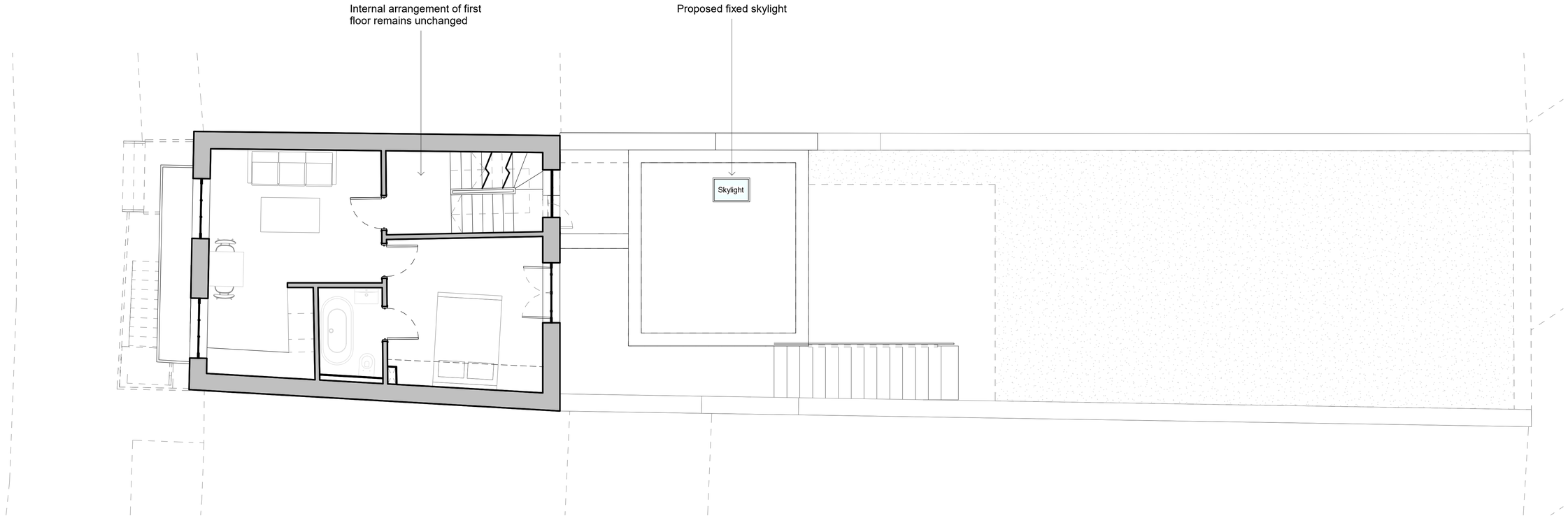
KAS Architects Ltd.
8 Kidderpore Avenue
London NW3 7SU
telephone 020 8057 4567
email info@kasarchitects.com

KAS JOB NO: 101

21 Mornington Crescent, NW1 7RG
Proposed Ground Floor
101-GF-DR-002

Client: Xuelin Bates
SCALE @ A1: 1 : 50

P1



1 Proposed First Floor
1:50

1m 5m

Do not scale from the drawing. All dimensions to be verified on site by contractor prior to commencement of any shop drawings and any works on site. Report all discrepancies to the Architect immediately.

This drawing is to read in conjunction with all related consultant/engineers drawings and all other relevant information.

REV	DATE	DESCRIPTION	CKD
P1	07/06/2024	Planning Issue	KAS

REV	DATE	DESCRIPTION	CKD

KAS Architects Ltd.
8 Kidderpore Avenue
London NW3 7SU
telephone 020 8057 4567
email info@kasarchitects.com

KAS JOB NO: 101

21 Mornington Crescent, NW1 7RG

Proposed First Floor Plan

101-01-DR-003

Client: Xuelin Bates

SCALE @ A1: 1 : 50

P1

1 Existing Front Elevation

1:50

1m 5m

Do not scale from the drawing. All dimensions to be verified on site by contractor prior to commencement of any shop drawings and any works on site. Report all discrepancies to the Architect immediately.

This drawing is to read in conjunction with all related consultant/engineers drawings and all other relevant information.

REV	DATE	DESCRIPTION	CKD
P1	07/06/2024	Planning Issue	KAS

REV	DATE	DESCRIPTION	CKD

KAS Architects Ltd.
8 Kidderpore Avenue
London NW3 7SU
telephone 020 8057 4567
email info@kasarchitects.com

KAS JOB NO: 101

21 Mornington Crescent

Existing Front Elevation

101-EX-EAST-ELE-DR-007

Client: Xuelin Bates

SCALE @ A1: 1 : 50

P2

1 Proposed Front Elevation

1:50

1m 5m

Do not scale from the drawing. All dimensions to be verified on site by contractor prior to commencement of any shop drawings and any works on site. Report all discrepancies to the Architect immediately.

This drawing is to read in conjunction with all related consultant/engineers drawings and all other relevant information.

REV	DATE	DESCRIPTION	CKD
P1	07/06/2024	Planning Issue	KAS

REV	DATE	DESCRIPTION	CKD

KAS Architects Ltd.
8 Kidderpore Avenue
London NW3 7SU
telephone 020 8057 4567
email info@kasarchitects.com

KAS JOB NO: 101

21 Mornington Crescent

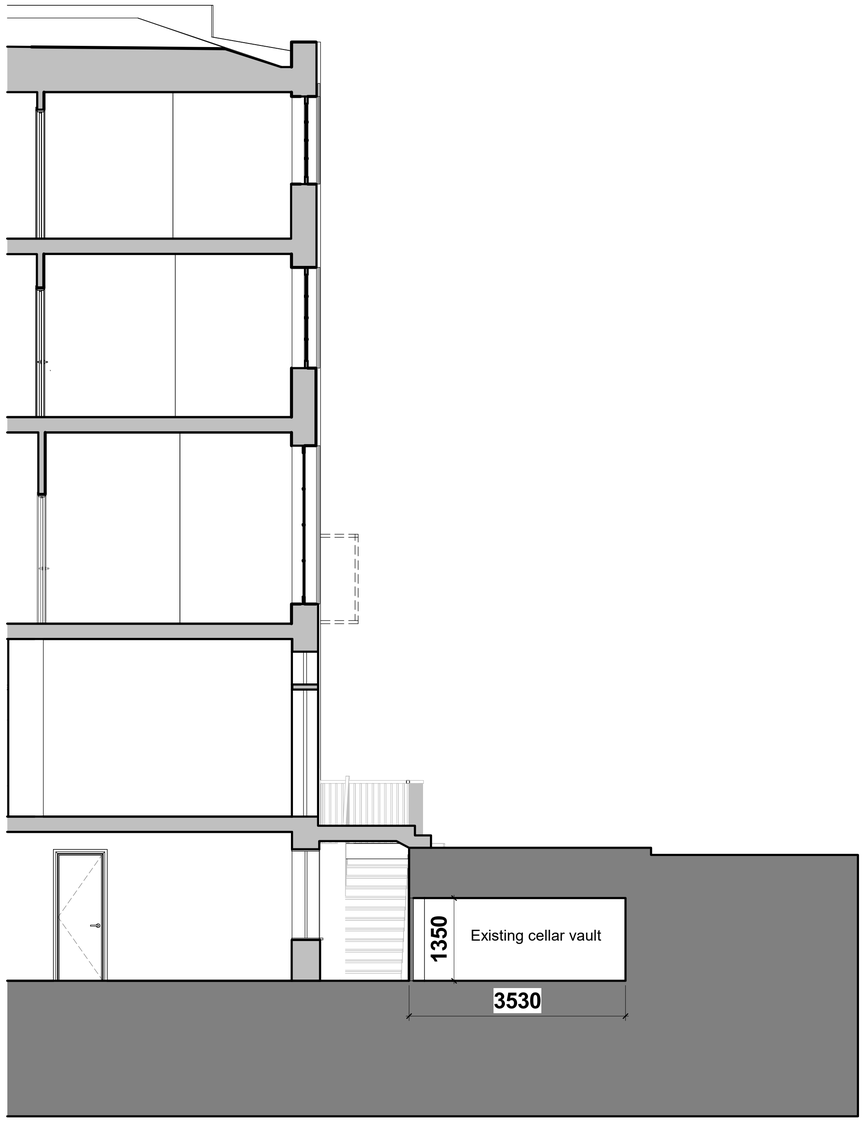
Proposed Front Elevation

101-EAST-ELE-DR-008

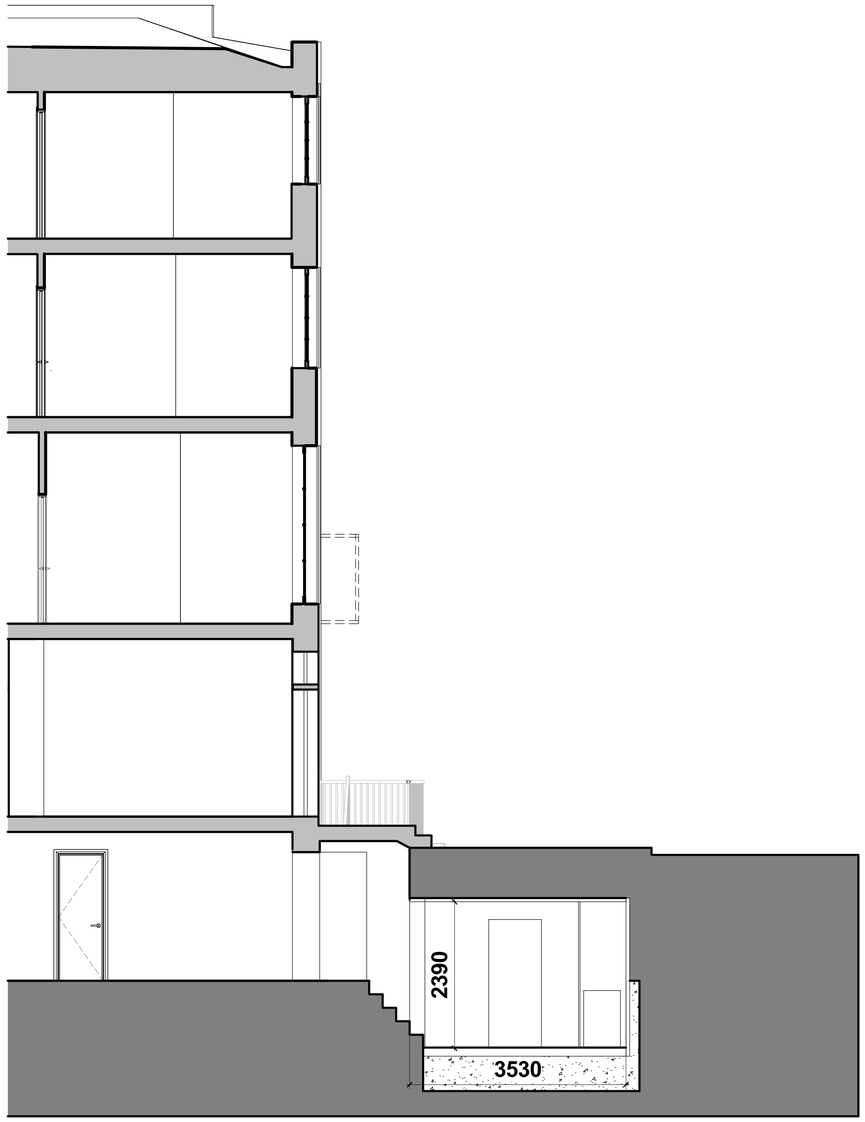
Client: Xuelin Bates

SCALE @ A1: 1 : 50

P2



1 Existing Section AA
1:50



2 Proposed Section AA
1:50

1m 5m

Do not scale from the drawing. All dimensions to be verified on site by contractor prior to commencement of any shop drawings and any works on site. Report all discrepancies to the Architect immediately.

This drawing is to read in conjunction with all related consultant/engineers drawings and all other relevant information.

REV	DATE	DESCRIPTION	CKD
P1	07/06/2024	Planning Issue	KAS

REV	DATE	DESCRIPTION	CKD

KAS Architects Ltd.
8 Kidderpore Avenue
London NW3 7SU
telephone 020 8057 4567
email info@kasarchitects.com

KAS JOB NO: 101

21 Mornington Crescent, NW1 7RG
Existing and Proposed Section AA
101-ZZ-00-DR-010

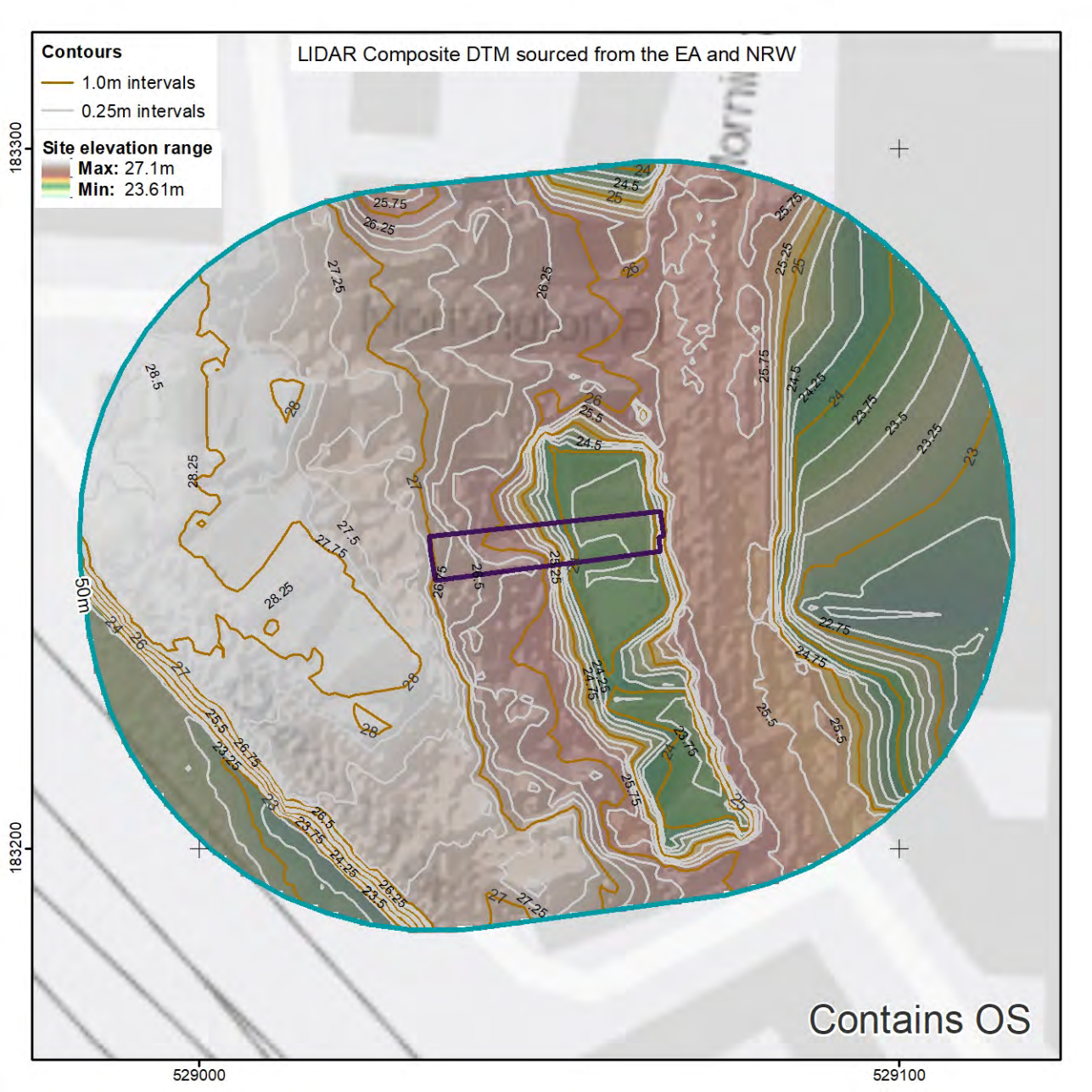
Client: Xuelin Bates
SCALE @ A1: 1 : 50

P1

GeoSmart Information

Appendix B

Environment Agency LiDAR map


Contours
1.0m intervals
0.25m intervals
Site elevation range
Max: 27.1m
Min: 23.61m
LIDAR Composite DTM sourced from the EA and NRW
183300
183200
529000
529100
50m
Contains OS

GeoSmart Information

Appendix C

Thames Water sewer flooding report

Sewer Flooding
History Enquiry

Property Searches

GeoSmart Information Ltd

Bellstone

Search address supplied	21 Mornington Crescent London NW1 7RG
Your reference	83434
Our reference	SFH/SFH Standard/2024_5058633
Received date	**2 October 2024**
Search date	**2 October 2024**

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

searches@thameswater.co.uk
www.thameswater-propertysearches.co.uk

0800 009 4540

Sewer Flooding
History Enquiry

Property Searches

Search address supplied: 21,Mornington Crescent,London,NW1 7RG

This search is recommended to check for any sewer flooding in a specific address or area

TWUL, trading as Property Searches, are responsible in respect of the following:-

(i) any negligent or incorrect entry in the records searched;

(ii) any negligent or incorrect interpretation of the records searched;

(iii) and any negligent or incorrect recording of that interpretation in the search report

(iv) compensation payments

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

searches@thameswater.co.uk
www.thameswater-propertysearches.co.uk

0800 009 4540

Sewer Flooding
History Enquiry

Property Searches

History of Sewer Flooding

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

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

For your guidance:

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

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

searches@thameswater.co.uk
www.thameswater-propertysearches.co.uk

0800 009 4540

Disclaimer

This report has been prepared by GeoSmart in its professional capacity as soil, groundwater, flood risk and drainage specialists, with reasonable skill, care and diligence within the agreed scope and terms of contract and taking account of the manpower and resources devoted to it by agreement with its client and is provided by GeoSmart solely for the internal use of its client.

The advice and opinions in this report should be read and relied on only in the context of the report as a whole, taking account of the terms of reference agreed with the client. The findings are based on the information made available to GeoSmart at the date of the report (and will have been assumed to be correct) and on current UK standards, codes, technology and practices as at that time. They do not purport to include any manner of legal advice or opinion. New information or changes in conditions and regulatory requirements may occur in future, which will change the conclusions presented here.

This report is confidential to the client. The client may submit the report to regulatory bodies, where appropriate. Should the client wish to release this report to any other third party for that party's reliance, GeoSmart may, by prior written agreement, agree to such release, provided that it is acknowledged that GeoSmart accepts no responsibility of any nature to any third party to whom this report or any part thereof is made known. GeoSmart accepts no responsibility for any loss or damage incurred as a result, and the third party does not acquire any rights whatsoever, contractual or otherwise, against GeoSmart except as expressly agreed with GeoSmart in writing.

For full T&Cs see http://geosmartinfo.co.uk/terms-conditions

Important consumer protection information

This search has been produced by GeoSmart Information Limited, Suite 9-11, 1st Floor, Old Bank Buildings, Bellstone, Shrewsbury, SY1 1HU.

Tel: 01743 298 100

Email: info@geosmartinfo.co.uk

GeoSmart Information Limited is registered with the Property Codes Compliance Board (PCCB) as a subscriber to the Search Code. The PCCB independently monitors how registered search firms maintain compliance with the Code.

The Search Code:

- provides protection for homebuyers, sellers, estate agents, conveyancers and mortgage lenders who rely on the information included in property search reports undertaken by subscribers on residential and commercial property within the United Kingdom.
- sets out minimum standards which firms compiling and selling search reports have to meet.
- promotes the best practice and quality standards within the industry for the benefit of consumers and property professionals.
- enables consumers and property professionals to have confidence in firms which subscribe to the code, their products and services.
- By giving you this information, the search firm is confirming that they keep to the principles of the Code. This provides important protection for you.

The Code's core principles

Firms which subscribe to the Search Code will:

- display the Search Code logo prominently on their search reports.
- act with integrity and carry out work with due skill, care and diligence.
- at all times maintain adequate and appropriate insurance to protect consumers.
- conduct business in an honest, fair and professional manner.
- handle complaints speedily and fairly.
- ensure that products and services comply with industry registration rules and standards and relevant laws.
- monitor their compliance with the Code.

GeoSmart Information

Complaints

If you have a query or complaint about your search, you should raise it directly with the search firm, and if appropriate ask for any complaint to be considered under their formal internal complaints procedure. If you remain dissatisfied with the firm's final response, after your complaint has been formally considered, or if the firm has exceeded the response timescales, you may refer your complaint for consideration under The Property Ombudsman scheme (TPOs). The Ombudsman can award up to £5,000 to you if the Ombudsman finds that you have suffered actual financial loss and/or aggravation, distress or inconvenience as a result of your search provider failing to keep to the Code.

Please note that all queries or complaints regarding your search should be directed to your search provider in the first instance, not to TPOs or to the PCCB.

TPOs contact details:

The Property Ombudsman scheme

Milford House

43-55 Milford Street

Salisbury

Wiltshire SP1 2BP

Tel: 01722 333306

Fax: 01722 332296

Email: admin@tpos.co.uk

You can get more information about the PCCB from www.propertycodes.org.uk.

Please ask your search provider if you would like a copy of the search code

Complaints procedure

GeoSmart Information Limited is registered with the Property Codes Compliance Board as a subscriber to the Search Code. A key commitment under the Code is that firms will handle any complaints both speedily and fairly. If you want to make a complaint, we will:

- Acknowledge it within 5 working days of receipt.
- Normally deal with it fully and provide a final response, in writing, within 20 working days of receipt.
- Keep you informed by letter, telephone or e-mail, as you prefer, if we need more time.
- Provide a final response, in writing, at the latest within 40 working days of receipt.
- Liaise, at your request, with anyone acting formally on your behalf.

If you are not satisfied with our final response, or if we exceed the response timescales, you may refer the complaint to The Property Ombudsman scheme (TPOs): Tel: 01722 333306, E-mail: admin@tpos.co.uk.

We will co-operate fully with the Ombudsman during an investigation and comply with his final decision. Complaints should be sent to:

Martin Lucass

Commercial Director

GeoSmart Information Limited

Suite 9-11, 1st Floor,

Old Bank Buildings,

Bellstone, Shrewsbury, SY1 1HU

Tel: 01743 298 100

martinlucass@geosmartinfo.co.uk

10. Terms and conditions, CDM regulations and data limitations

Terms and conditions can be found on our website:

http://geosmartinfo.co.uk/terms-conditions/

CDM regulations can be found on our website:

http://geosmartinfo.co.uk/knowledge-hub/cdm-2015/

Data use and limitations can be found on our website:

http://geosmartinfo.co.uk/data-limitations/