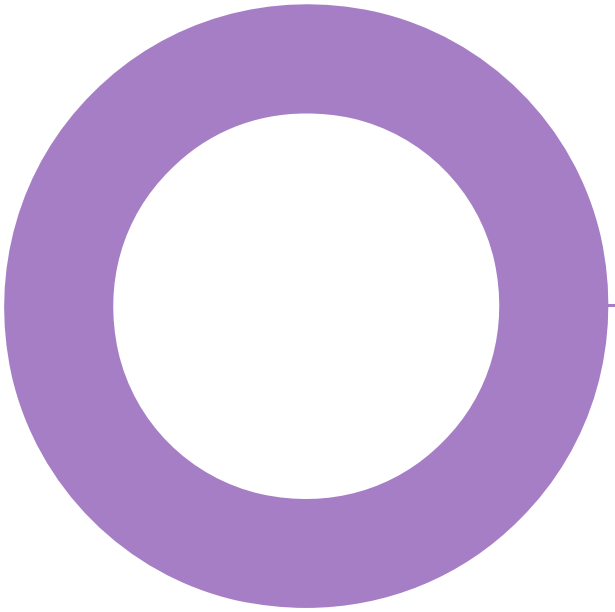
HOARE LEA

UCLH GMP Facility.
University College Hospital.
UCLH NHS Trust.

ACOUSTICS
NOISE IMPACT ASSESSMENT FOR PLANNING

REVISION 01 – 30 MARCH 2023



Audit sheet.

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Executive summary.

This report provides an assessment of the proposed external plant equipment associated with the internal upgrades to the existing offices and R&D space at 250 Euston Road, Camden, London. The nearest noise sensitive receptors have been identified and include dwellings at Tolmers Square (directly adjacent to the north and east) and along Hampstead Road (approximately 35 metres to the west).

Plant noise limits at these receptors have been proposed based on the results of an acoustic survey undertaken by Hoare Lea in February 2023. These limits are in-line with requirements of the London Borough of Camden local planning policy and follow standard guidance documents.

Plant selections and layouts have been assessed. This has allowed for the calculation of sound power level limits which, if applied to the relevant equipment, are predicted to result in sound levels at the nearby noise sensitive receptors that are within the required limits.

Sound power limits and associated mitigation recommendations are defined in this report for each piece of plant equipment proposed for installation on the roof.

These limits do not account for the inclusion of an acoustic screen surrounding the plant area. If a solid (i.e. not mesh or louvred) barrier screen can be installed, this may allow for a relaxation in sound power level limits for some plant equipment. This can be investigated further once the feasibility of installing acoustic screening has been assessed.

The plant noise assessment has been completed based on current plant selections. Outline mitigation advice is given. This includes the need for primary attenuators on the AHU intakes and discharges. Space allocation should be made for these items. Specific attenuator/insertion loss requirements will be calculated once detailed equipment selections have been finalised.

With this advice followed, it is predicted that the plant noise emissions are not anticipated to have an adverse impact on the nearest noise sensitive receptors.

1. Introduction.

This report provides an assessment of the predicted plant noise emissions associated with the new proposed rooftop plant at 250 Euston Road, Camden, London. Proposals include external ventilation and cooling equipment, including an air handling units (AHUs), four VRF (condenser) units, and two isolate extract fans (with associated flues). The new plant equipment is a potential new source of noise. Given the proposed use of the new development, this is considered the only source of noise for this assessment.

This report provides an acoustic assessment of the proposed external roof plant equipment. External plant noise emission limits are proposed based on the London Borough of Camden requirements, based on the results of an environmental noise survey of the prevailing acoustic climate at site. Mitigation advice is provided to ensure that the plant noise emission limits are not exceeded at the nearest noise sensitive receptors.

This report is suitable for submission alongside the planning application for the development.

2. Site context.

The proposed plant is to be located at two roof levels – 6th storey and 7th storey. The nearest noise sensitive receptors to the development site are residential dwellings directly adjacent at Tolmers Square, and on the opposite side of Hampstead Road. These lie approximately one metre to the north, and 35 metres to the west (respectively) from the site. Further receptors surround these.

Whilst on site, it was noted that the dominant noise sources include frequent road traffic (along Euston Road and Hampstead Road), and fixed plant noise from surrounding buildings and the development building itself.

Figure 1 below displays the application site in relation to neighbouring noise sensitive receptors.

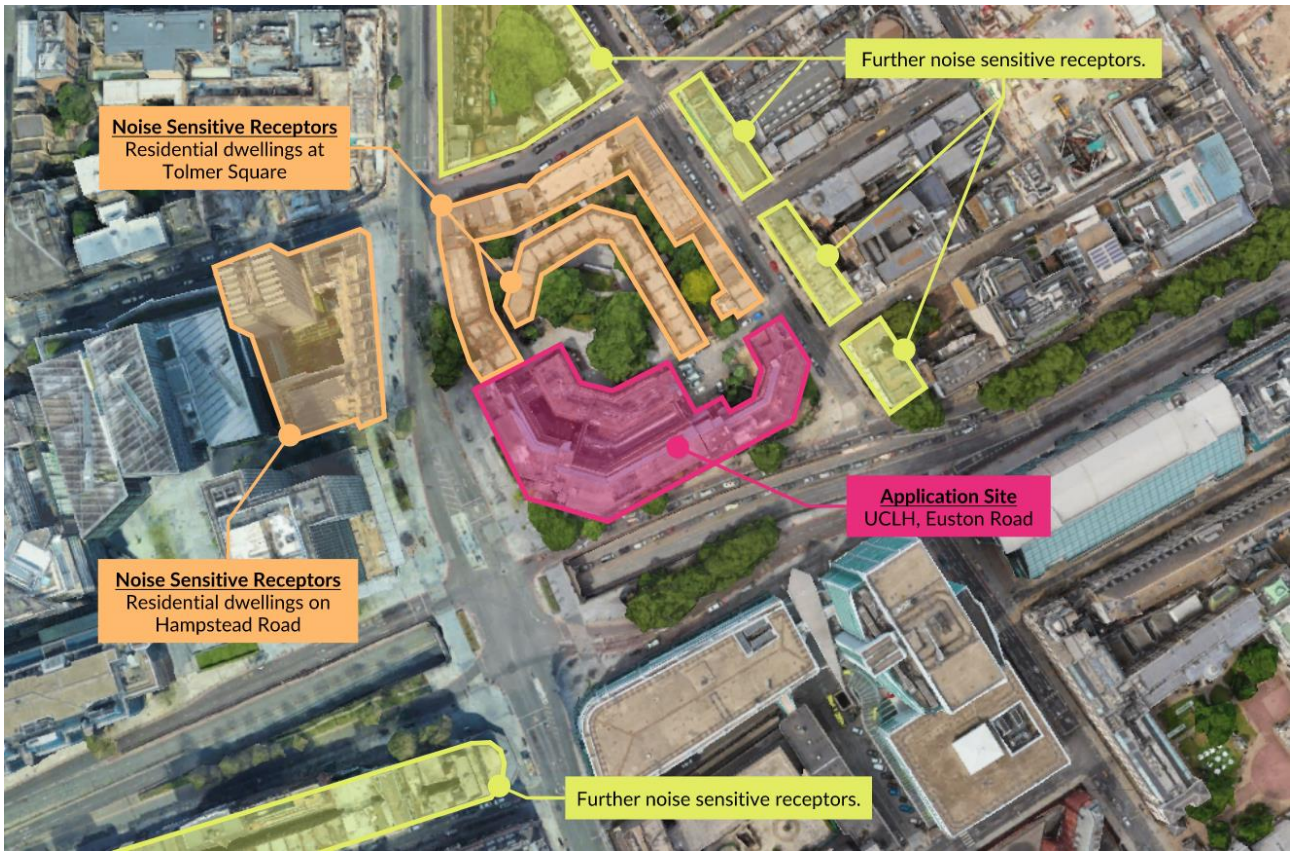

Figure 1: Site context, including the nearest identified noise sensitive receptors to the development site.

3. National and local planning policy.

3.1 National policy.

3.1.1 Noise Policy Statement for England.

Noise Policy Statement for England (NPSE) advises that noise impacts should be assessed on the basis of adverse and significant adverse effect but does not provide any specific guidance on assessment methods or numerical noise limits.

Paragraphs 2.20 and 2.22 of NPSE introduce the concepts summarised in Table 1, which can be applied when considering the significance of noise impacts, as defined by the World Health Organization.

Paragraph 2.15 of the document advises that it is not possible to have *'a single objective noise-based measure that is... applicable to all sources of noise in all situations*'. NPSE further advises in paragraph 2.22 that the sound level at which an adverse effect occurs is likely to be '*different for different noise sources, for different receptors at different times*'.

Effect Level	Description
No Observed Effect Level (NOEL)	This is the noise level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.
Lowest Observed Adverse Effect Level (LOAEL)	This is the level above which adverse effects on health and quality of life can be detected.
Significant Observed Adverse Effect Level (SOAEL)	This is the level above which significant adverse effects on health and quality of life occur.

Table 1: NPSE observed effect levels.

3.1.2 National Planning Policy Framework.

National Planning Policy Framework (NPPF) (Ministry of Housing, Communities & Local Governement, 2021) sets out the Government's planning policies and how these are expected to be applied. In relation to noise and vibration, NPPF section 15 paragraphs 174, 185 and 187 are presented below:

'174. Planning policies and decisions should contribute to and enhance the natural and local environment by:

...

a. *preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution...'.*

'185. Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

a. *mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*

b. *identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason;*

and

c. *limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.*

'187. Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.'

3.1.3 Planning Practice Guidance.

Online Planning Practice Guidance (PPG) has been published to provide greater details in relation to the relevance of noise to the planning process following the introduction of NPPF and NPSE.

This guidance states, under the heading *'How can noise impacts be determined'*, that the following should be considered by local authorities:

- *'whether or not a significant adverse effect is occurring or likely to occur;*
- *whether or not an adverse effect is occurring or likely to occur; and*
- *whether or not a good standard of amenity can be achieved.'*

In line with NPSE, this includes identifying where noise exposure is above or below the significant observed adverse effect level and the lowest observed adverse effect level for a given situation during the operation of the Proposed Development.

Further guidance on each of the various observed effect levels set out in NPSE is provided in the table contained within the section headed *'How can it be established whether noise is likely to be a concern?'* which is reproduced below in Table 2.

It is important to note that no specific noise parameters or target noise levels are defined in the text.

Under the heading *'What factors influence whether noise could be a concern?'*, the subjective nature of noise is discussed. It is stated that the relationship between noise levels and the impact on those affected is not simple, as this depends on how various factors combine in particular situations.

Perception	Example of outcomes	Increasing effect level	Action
Not present	No effect	No Observed Effect	No specific measures required
No Observed Adverse Effect Level			
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level			
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Present and disruptive	The noise causes a material change in behaviour, attitude, or other physiological response, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect Level	Avoid
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

Table 2: PPG Observed Effects.

3.2 Local policy.

The local authority for the development is the London Borough of Camden. Planning policies for this borough are set out in the Local Plan 2017. The policy relevant to noise is Policy A4:

"Policy A4 Noise and Vibration

Noise-Generating Development

The Council will seek to ensure that noise and vibration is controlled and managed.

Development should have regard to Camden's Noise and Vibration Thresholds (Appendix 3). We will not grant permission for:

a. *development likely to generate unacceptable noise and vibration; or*
b. *development sensitive to noise in locations which experience high levels of noise, unless appropriate attenuation measures can be provided and will not harm the continued operation of existing uses.*

We will only grant permission for noise generating development, including any plant and machinery, if it can be operated without causing harm to amenity. We will also seek to minimise the impact on local amenity from deliveries and from the demolition and construction phases of development."

Appendix 3 includes Noise Thresholds that should be applied to ensure that new industrial and commercial noise sources can be rated as LOAEL (Green), as per PPG. At existing noise sensitive receptors, new industrial noise sources should have a rating level of no greater than 10 dB below the existing background noise level during both daytime (07:00 – 23:00) and night-time (23:00 – 07:00) hours separately. This limit should be applied in external amenity areas (gardens, balconies etc.), and outside living/dining/bedroom windows (façade). In addition, no events exceeding 57 dB L_{Amax} should occur outside bedrooms windows during night-time hours.

Where tonality components are present in the new noise sources, the limits may be extended to rating levels that are 15 dB below the existing background noise levels.

This assessment methodology is in line with that described in the British Standard 4142:2014 'Methods for rating and assessing industrial and commercial sound' (BS 4142), which is described in the following section.

3.3 Recognised standard guidance.

British Standard 4142:2014+A1:2019 (BS 4142) (British Standards Institute, 2014) provides guidance for assessing commercial operations and fixed building services plant noise. The British Standard provides an objective method for rating the significance of impact from industrial and commercial operations. It describes a means of determining sound levels from fixed plant installations and determining the background sound levels that prevail on a site.

The assessment of the impacts is based on the subtraction of the pre-existing background sound level ($L_{A90,Tr}$) from the rating level ($L_{Ar,Tr}$).

The standard does not give a definitive method for determining the background sound level but instead, as a commentary, states that:

> *"the objective is not simply to ascertain a lowest measured background sound level, but rather to quantify what is typical during particular time periods".*

Clause 8.1.4, which discusses the monitoring duration, states *"there is no "single" background sound level as this is a fluctuating parameter. However, the background sound level used for the assessment should be representative of the period being assessed."* As a note to this clause the following commentary is given on obtaining a representative backgrounds sound level:

> *"To obtain a representative background sound level a series of either sequential or disaggregated measurements ought to be carried out for the period(s) of interest, possibly on more than one occasion. A representative level ought to account for the range of background sound levels and ought not automatically to be assumed to be either the minimum or modal value."*

The rating level is defined objectively as the specific source noise level in question (either measured or predicted) with graduated corrections for tonality (up to +6 dB(A)), impulsivity (up to +9 dB(A)), intermittency (+3 dB(A)) and other sound characteristics (+3 dB(A)) which may be determined either subjectively or objectively, if necessary.

The background sound level is subtracted from the rating level. The following is considered when evaluating the potential impact:

- A difference of around +10 dB is likely to be an indication of a significant adverse impact, depending on context;
- A difference of around +5 dB is likely to be an indication of an adverse impact, depending on context; and
- A difference of +0 dB or less is an indication of the specific sound source having a low impact, depending on the context, and the lower the rating is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact.

The importance of context is highlighted in BS 4142, which states that the following factors should be taken into consideration when the initial estimate of the impact needs to be modified due to the context:

"1) The absolute level of sound. For a given difference between the rating level and the background sound level, the magnitude of the overall impact might be greater for an acoustic environment where the residual sound level is high than for an acoustic environment where the residual sound level is low.

Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night.

Where residual sound levels are very high, the residual sound might itself result in adverse impacts or significant adverse impacts, and the margin by which the rating level exceeds the background might simply be an indication of the extent to which the specific sound source is likely to make those impacts worse.

2) The character and level of the residual sound compared to the character and level of the specific sound. Consider whether it would be beneficial to compare the frequency spectrum and temporal variation of the specific sound with that of the ambient or residual sound, to assess the degree to which the specific sound source is likely to be distinguishable and will represent an incongruous sound by comparison to the acoustic environment that would occur in the absence of the specific sound. Any sound parameters, sampling periods and averaging time periods used to undertake character comparisons should reflect the way in which sound of an industrial and/or commercial nature is likely to be perceived and how people react to it.

NOTE 3 Consideration should be given to evidence on human response to sound and, in particular, industrial and/or commercial sound where it is available. A number of studies are listed in the "Effects on humans of industrial and commercial sound" portion of the "Further reading" list in the Bibliography.

3) The sensitivity of the receptor and whether dwellings or other premises used for residential purposes will already incorporate design measures that secure good internal and/or outdoor acoustic conditions, such as:

i) facade insulation treatment;

ii) ventilation and/or cooling that will reduce the need to have windows open so as to provide rapid or purge ventilation; and

iii) acoustic screening."

4. Basis of assessment.

Hoare Lea are proposing that new plant installations are assessed following the BS 4142 methodology, with rating levels designed to be 10 dB below the typical background sound levels. This is stated within the London Borough of Camden's Local Plan, and therefore the limit aligns with the Council's requirements.

Rating Level = Background Sound Level – 10 dB

$L_{Ar,Tr} = L_{A90,Tr} - 10$ dB

This limit is to be applied at the façade of the nearest noise sensitive receptors, as identified in Figure 1. Typical background sound levels for daytime and night-time periods will be attained through an environmental acoustic survey undertaken at a position deemed representative of the nearest noise sensitive receptor.

With this assessment approach followed, it is predicted that new noise sources will have a low impact at nearby receptors, corresponding to a LOAEL categorisation as stated in the local planning policy. This will ensure that new industrial noise sources are within national and local planning policy.

5. Environmental acoustic survey.

An acoustic survey has been undertaken to quantify the prevailing noise conditions at locations representative of the closest noise sensitive receptors.

Subjectively, the dominant sources of noise were nearby road traffic, with nearby main roads (Euston Road and Hampstead Road) surrounding the development.

5.1 Methodology.

Acoustic survey measurements were undertaken at a position deemed representative of the nearest noise sensitive receptors on Hampstead Road and Tolmers Square. This was on the north-west roof section of the application site. The measurement position and surrounding context is shown in Figure 2 and Figure 3.

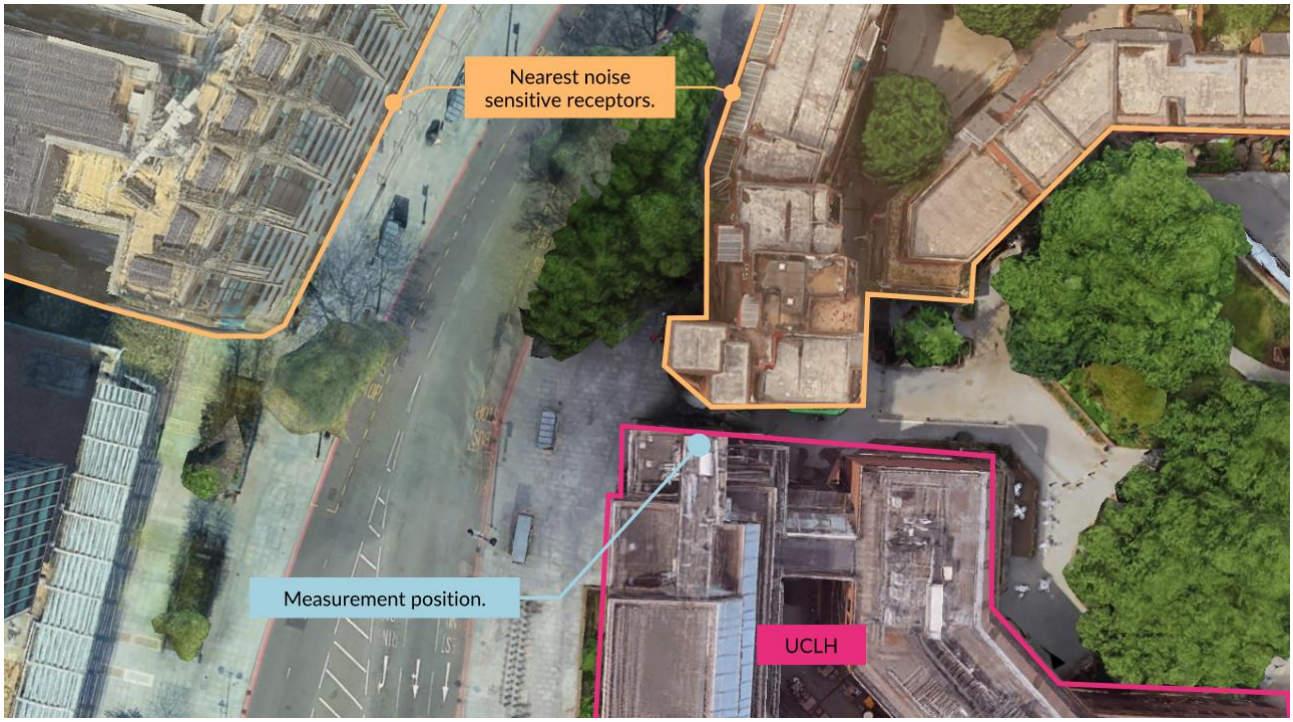

Figure 2: Measurement position within site context.

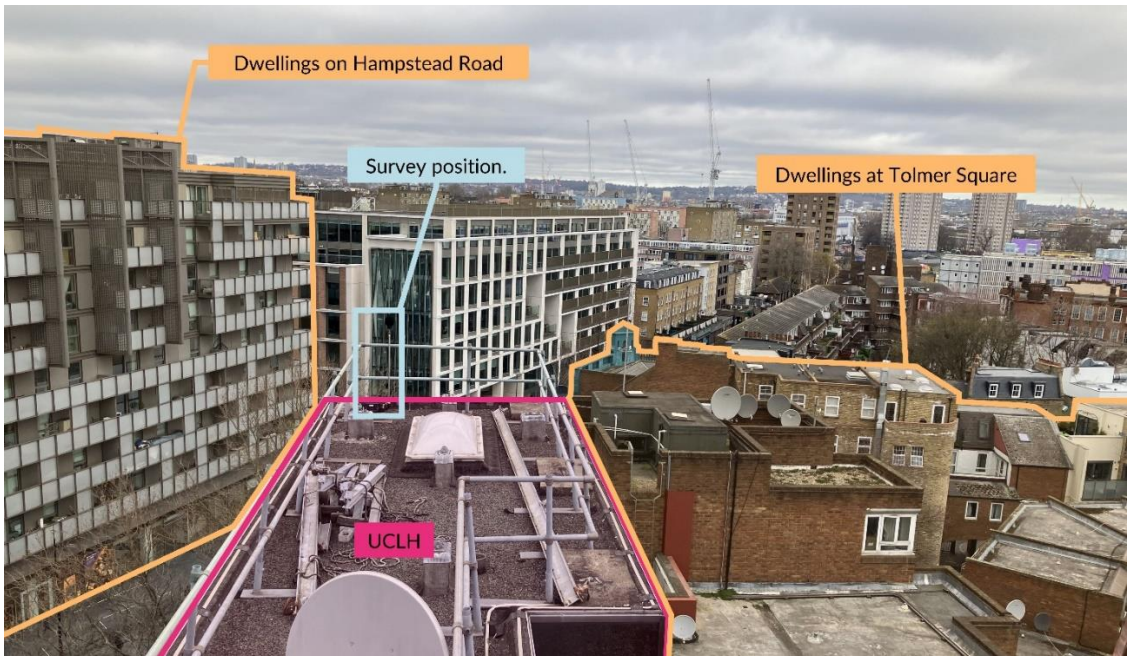

Figure 3: Photograph of measurement position taken on site.

The microphone of the sound level meter was positioned under free-field conditions at a height of approximately 1.5 metres above roof level. Details of the survey equipment are listed in Appendix A.

Survey measurements consisted of fifteen-minute duration samples of residual sound levels ($L_{Aeq,15\ min}$) and background sound levels ($L_{A90,15\ min}$). Measurements were undertaken from Monday 20th to Monday 27th February 2023. During this period, it was noted that weather conditions were generally suitable for noise survey measurement.

5.2 Results.

5.2.1 Residual sound levels.

Residual sound level is the ambient sound level (usually expressed as $L_{Aeq,T}$) in the absence of the specific sound sources (new plant items, in this case). The measured residual sound levels for daytime (07:00 – 23:00) and night-time (23:00 – 07:00) periods are summarised below.

Date.	Daytime residual sound level.	Night-time residual sound level.
Monday 20th February 2023.	64 dB $L_{Aeq,12\ h}$	60 dB $L_{Aeq,8\ h}$
Tuesday 21st February 2023.	63 dB $L_{Aeq,16\ h}$	61 dB $L_{Aeq,8\ h}$
Wednesday 22nd February 2023.	64 dB $L_{Aeq,16\ h}$	61 dB $L_{Aeq,8\ h}$
Thursday 23rd February 2023.	63 dB $L_{Aeq,16\ h}$	61 dB $L_{Aeq,8\ h}$
Friday 24th February 2023.	63 dB $L_{Aeq,16\ h}$	61 dB $L_{Aeq,8\ h}$
Saturday 25th February 2023.	62 dB $L_{Aeq,16\ h}$	61 dB $L_{Aeq,8\ h}$
Sunday 26th February 2023.	62 dB $L_{Aeq,16\ h}$	60 dB $L_{Aeq,8\ h}$
Monday 27th February 2023.	64 dB $L_{Aeq,4\ h}$	-

Table 3: Summary of daytime and night-time residual sound levels measured during the survey period.

Residual sound levels are typically 64 dB $L_{Aeq,16\ h}$ during the day and 61 dB $L_{Aeq,8\ h}$ during the night.

5.2.2 Background sound levels.

In line with the guidance given in BS 4142, in order to *"quantify what is typical during particular time periods"*, a statistical analysis of the measured background sound levels has been undertaken.

The periods of interest for this development are daytime and night-time. Daytime is taken as between the hours of 07:00 and 23:00. Night-time is taken as between the hours of 23:00 and 07:00.

The 15-minute duration background sound levels measured during the day will never be higher than the $L_{A90,1\,h}$ for that period so represent a worst-case. The measured 15-minute values will therefore be used in place of the daytime 1-hour reference time interval required by BS 4142.

The following chart provides an analysis of the daytime and night-time background sound levels.

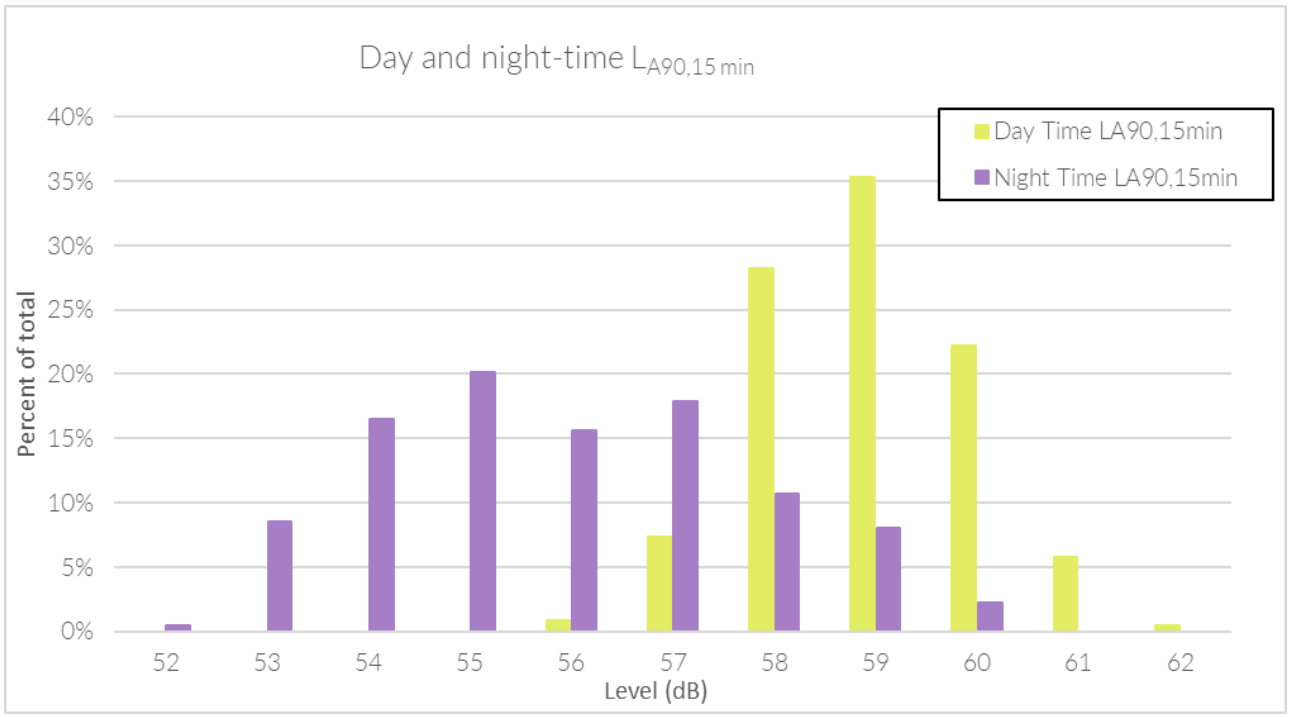

Figure 4: Statistical analysis of the background sound levels.

From the above statistical analysis chart, given the context of the site, the following typical lower background sound levels have been determined representative for the periods of interest:

- Daytime: 58 dB $L_{A90,1\,h}$
- Night-time: 53 dB $L_{A90,15\,min}$

6. Proposed noise limits.

The proposed limit is for the rating level ($L_{Ar,Tr}$) of the development to be 10 dB below the background sound level ($L_{A90,Tr}$) at the closest noise sensitive receptor. This would provide indication of the specific sound source having a low impact, given the context, when assessed following the BS 4142 methodology as described within the London Borough of Camden's Local Plan.

The closest identified noise sensitive receptors are directly adjacent to the development on Tolmers Square, and across the road along Hampstead Road, as discussed in Section 2.

The measured background sound levels at the survey location can be considered representative of the identified noise sensitive receptors.

A statistical analysis of the background sound levels measured during the survey period has been undertaken and used to determine the typical background sound levels for the periods of interest, as detailed in Section 5.2.2. Based on the determined typical background sound levels, the plant noise limits in Table 4 proposed:

Period of interest.	Background sound level.	Proposed plant noise limit.
Daytime (07:00 – 23:00)	58 dB $L_{A90,1\ h}$	48 dB $L_{Ar,1\ h}$
Night-time (23:00 – 07:00)	53 dB $L_{A90,15\ min}$	43 dB $L_{Ar,15\ min}$

Table 4: Proposed plant noise limits.

The residential dwellings will be sensitive to noise during both daytime and night-time hours.

The above noise limits are given as *rating levels*. Corrections appropriate to the character of the sound should be applied when calculating this from the *specific sound level*, as defined in BS 4142. The above rating level noise limits are subject to agreement with the London Borough of Camden local authority.

7. Plant noise assessment.

7.1 Plant proposals.

Roof plant layouts for the UCLH GMP Facility have been provided by the Mechanical Engineer. Layouts of the upper and lower roof areas are provided in Appendix B. Proposed plant items include:

- 1 x supply and exhaust air handling unit (AHU).
- 4 x VRF (condenser) units.
- 2 x isolate extract fans and associated flue.

7.2 Mitigation advice.

An initial assessment of the current plant proposals has been undertaken to set sound power level limits for plant equipment such that the resultant noise level at the nearby noise sensitive receptors is within the proposed limits. Results from this assessment and additional design advice is presented below in Table 5.

Plant item.	Quantity.	Sound power level limits (L_{wA} dB, each).	Comments.
AHU casing breakout.	1	58	Current selections are predicted to achieve this sound power level limit without needing further mitigation. However, space provisions should be made for enhanced casework if required.
Supply AHU - intake.	1	73	22 dB(A) attenuation will be required based on current selections. This can be achieved through installation of a primary attenuator to the supply AHU fresh air intake. The length of the attenuator will depend on the requirements of the system. It is recommended at this stage to allow minimum 1500 mm length.
Exhaust AHU - discharge.	1	73	22 dB(A) attenuation will be required based on current selections. This can be achieved through installation of a primary attenuator to the exhaust AHU air discharge. The length of the attenuator will depend on the requirements of the system. It is recommended at this stage to allow minimum 1500 mm length.

Plant item.	Quantity.	Sound power level limits (L_{wA} dB, each).	Comments.
VRF (condenser) units.	4	70	Current selections are predicted to achieve this sound power level limit without needing further mitigation. However, space provisions should be made for acoustic packaging or oversized units that can run at lower fan speeds if required.
Isolator extract fans.	2	76	Current selections are predicted to achieve this sound power level limit without needing further mitigation. However, space provisions should be made for in-line attenuators and an enclosure to the fan and motor themselves if required.

Table 5: Sound power level limits and recommended mitigation allowances for each proposed plant item.

Sound power level limits should be used to guide changes in equipment selections. The mitigation advice provided is based on current plant selections.

The calculations undertaken to determine these sound power level limits have not included any barrier screening. At the time of this assessment, it is not clear whether an acoustic screen could be installed around the plant areas, and so this was dismissed to consider a worst case for plant noise emissions. If a solid barrier screen (i.e. not mesh or louvred) can be installed around the plant areas, this may allow for some relaxation to the recommended equipment sound limits mitigation. This can be investigated further at a later stage once the feasibility of solid barrier screening has been assessed accordingly.

8. Conclusion.

This report provides an assessment of the proposed roof plant equipment at 250 Euston Road, Camden, London. Plant noise limits have been proposed based on the results of an acoustic survey undertake by Hoare Lea in February 2023, in-line with the requirements of the London Borough of Camden local planning policy.

Resultant sound levels at the nearby receptors have been calculated based on available plant layouts and selections. Mitigation advice has been provided to ensure noise emissions do not exceed the proposed noise limits. With this advice followed, it is predicted that the proposed plant noise emissions will satisfy London Borough of Camden planning policy requirements by not having an adverse impact on the nearest noise sensitive receptors.

This report is suitable for submission alongside the planning application for the development.

Appendix A – Survey equipment.

Equipment.	Manufacture and model.	Serial number.	Calibration due.	Calibration certificate number.
Sound level meter.	Rion NL-52	01010834	13/04/2024	UCRT22/1524
Pre-amplifier.	Rion NH-25	11482	13/04/2024	UCRT22/1524
Microphone.	Rion UC-59	20471	13/04/2024	UCRT22/1524
Calibrator.	Rion NC-75	34324028	13/04/2023	UCRT22/1524

Table 6: Details of survey equipment.

Appendix B – Roof plant layouts.

E02 Elevation

E02 Elevation

E01 Elevation

E03 Elevation

Proposed Level 6 Roof Plant Space

4No condenser units to feed AHU

Plant Area 4m²

R&D Space

R&D Space

R&D Space

R&D Space

R&D Space

Corridor
A: 48.301 m²

Approximate Line of Roof Slope

Office Space

R&D Space

Office Space

E01 Elevation

E03 Elevation

SCALE:
0 1M 5M 10M

Rev	Description	Drn	Chk	Apr	Date
P01	Planning Submission	SM	DL	NB	28/03/2023

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Client
UCLH

Project

Office & R&D Space

Document Title
09 Planning General Arrangement Plans
Sixth Floor Proposed Plan

Scale(s) @A2 1:100 BMJ Project Ref: [3985]

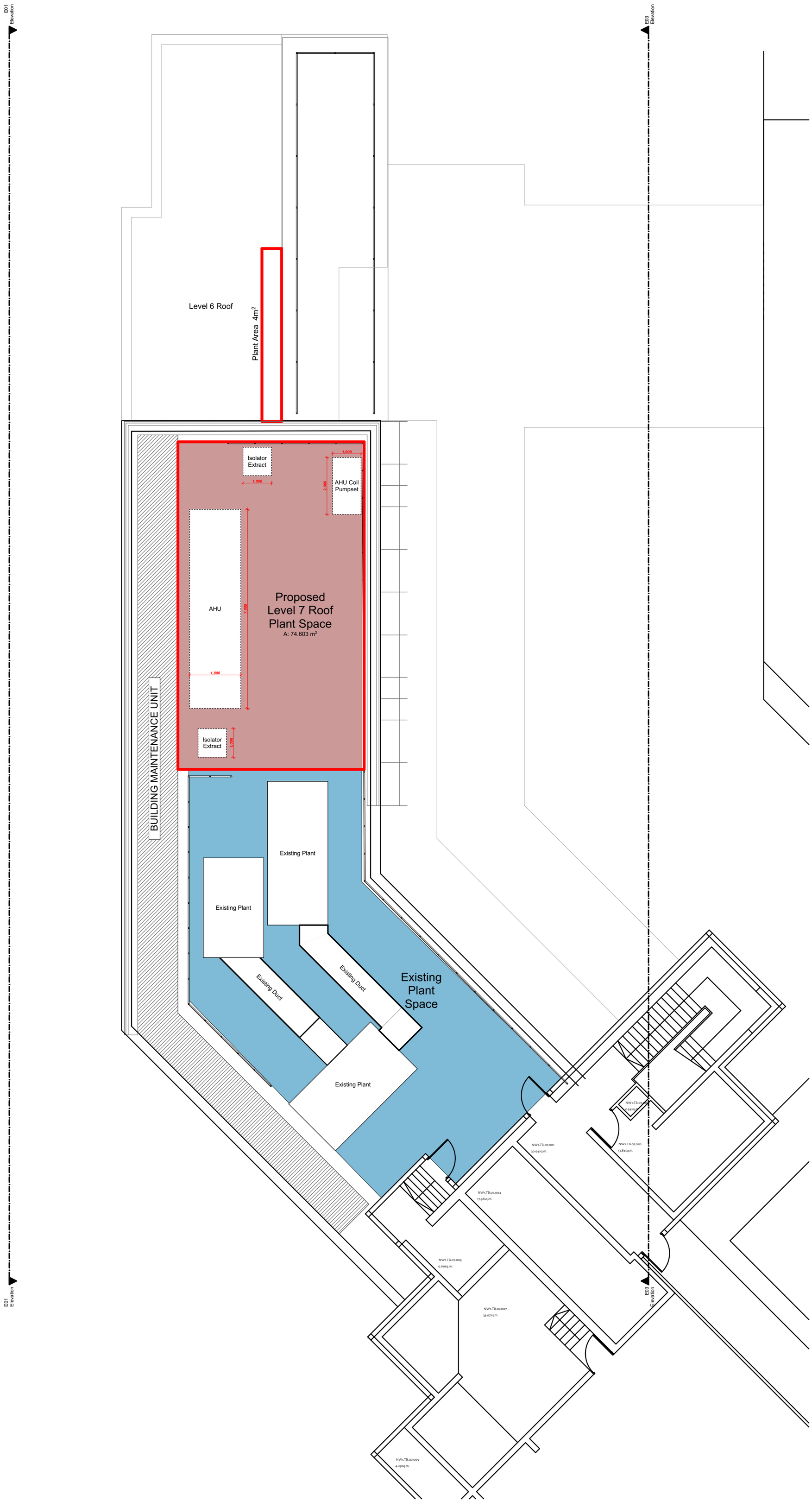
File Name
Project Originator Volume Level Type Role Number
3985 - BMJ - ZZ - 06 - DR - A - 0901

Status Code
S2

Suitable for
Planning

Revision Code
P01

Issued for
Planning



SCALE:
0 1M 5M 10M

Rev	Description	Drn	Chk	Apr	Date
P01	Planning Submission	SM	DL	NB	28/03/2023

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Client
UCLH

Project
Office & R&D Space

Document Title
09 Planning General Arrangement Plans
Proposed Roof Plan

Scale(s) @A2 1:100 BMJ Project Ref: [3985]

File Name
Project Originator Volume Level Type Role Number
3985 - BMJ - ZZ - 07 - DR - A - 0902

Status Code
S2
Suitable for
Planning

Revision Code
P01
Issued for
Planning

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