

UTOPIA OFFICE – NEW PLANT EQUIPMENT NOISE ASSESSMENT

INITIAL REVIEW AND COMMENTS – REV A

7TH AUGUST 2020

1 Scope

These comments relate to the planning documents available here:

<http://camdocs.camden.gov.uk/HPRMWebDrawer/PlanRec?q=recContainer:%222020/2674/P%22>

Name	Date modified	Type	Size
1 x Response - Objection (Redacted)	03/08/2020 16:14	PDF Document	309 KB
1520-M-RF-01_P2 - Roof Plant Acoustic Enclosure Layout	03/08/2020 16:13	PDF Document	593 KB
2020.2674.P Response 27.07.20	03/08/2020 16:15	PDF Document	86 KB
19094_L0002_LOCATION PLAN	03/08/2020 16:11	PDF Document	955 KB
19094_PE2051_D_ELEVATION AS PROPOSED (REF-11)	03/08/2020 16:13	PDF Document	114 KB
19094_PE2052_D_ELEVATION AS PROPOSED (REF-810)	03/08/2020 16:13	PDF Document	119 KB
19094_PP2033_D_PROPOSED ROOF PLAN	03/08/2020 16:12	PDF Document	325 KB
19094_PV2060_A_PHOTOMONTAGE - EXISTING SERVICES	03/08/2020 16:07	PDF Document	893 KB
19094_SU2033_SURVEY - ROOF	03/08/2020 16:07	PDF Document	83 KB
19094_SU2050_SURVEY - ELEVATION (REF-9)	03/08/2020 16:09	PDF Document	108 KB
19094_SU2051_SURVEY - ELEVATION (REF-11)	03/08/2020 16:09	PDF Document	91 KB
19094_SU2052_SURVEY - ELEVATIONS (REF- 8 10)	03/08/2020 16:09	PDF Document	99 KB
Acoustic enclosure 72003022 Drg102A Sections	03/08/2020 16:12	PDF Document	238 KB
Application Form Redacted	03/08/2020 16:09	PDF Document	1,469 KB
Noise Impact Assessment	03/08/2020 16:14	PDF Document	1,380 KB
Proposed plans elevations and section of acoustic enclosure 72003022 Drg...	03/08/2020 16:12	PDF Document	131 KB
PURY-P200YNW-A - Specification	03/08/2020 16:09	PDF Document	66 KB
PUZ-ZM100VKA - Specification	03/08/2020 16:10	PDF Document	3,391 KB
Roof Hoods - Specification	03/08/2020 16:10	PDF Document	606 KB
Technical Specification of Existing Units	03/08/2020 16:11	PDF Document	6,410 KB
Utopia project - Acoustic enclosure design statement	03/08/2020 16:13	PDF Document	181 KB
Utopia Village Cover Letter FINAL	03/08/2020 16:11	PDF Document	160 KB
Wall Terminal Extracts - Specification	03/08/2020 16:11	PDF Document	233 KB

2 Summary

The noise survey and impact assessment have generally been done to the standard good practice procedure (specifically BS 4142) and Camden Council policy.

However, the survey location could have been chosen to be closer to the sensitive receiver and it is likely that the existing noise level at the lower rear windows of houses on Gloucester Avenue will be lower than that measured as they are more shielded from surrounding noise sources. It might be considered to do a repeat of the survey at a location that is more representative.

Another area that might be reviewed are the assumptions used in the plant noise assessment calculation. It could be argued that, based on less favourable assumptions, the calculated level at the assessment location will be above the target value. It should be considered to challenge these assumptions and the resultant conclusion about noise impact.

In terms of additional information, it is suggested that further evidence is provided that the installed enclosure will provide the sound reduction performance that is used in the calculation. It is also suggested that the hours of plant operation are clearly conditioned and restricted to match the basis of the assessment. Also, to confirm that the installation operates as predicted by the calculations, it is recommended that appropriate commissioning measurements are made a condition to be discharged prior to occupation/operation of the building.

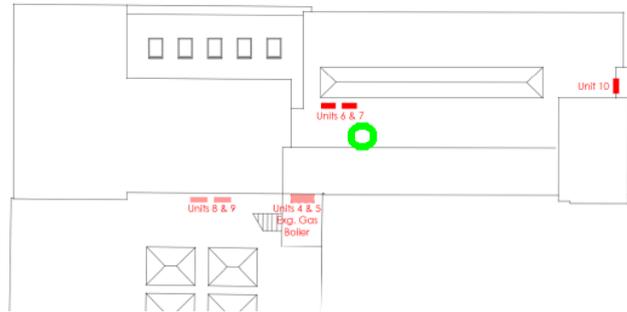
3 Noise Survey

The noise survey location was not as close to the noise sensitive receptors as it could have been.

The noise survey location was very close to existing plant equipment (Units 6 & 7). It must be confirmed that these units (and any others that are closer to the measurement position than to the assessment position) were not operational during the survey.

Possible action: Request a new survey at a position closer to the sensitive window or, alternatively, undertake an independent survey close to the sensitive window.

As a general comment, the levels reported do not seem unreasonable, although the night-time value is perhaps 3-5dB higher than we would have expected for this type of location.



4 Hours of Plant Operation

Clause 7.2 of the Plant Noise Assessment Report (Noico 72003022/1) specifically states that plant will only operate during the daytime period (7am-11pm) and no assessment of impact has been made outside of this period. There are clearly risks associated with this and it is quite significant because night-time background levels are 3dB lower than daytime. It is not uncommon for office plant to start up at 6am (or earlier) to pre-condition the building prior to the start of the working day. This is particularly relevant for morning warm-up if the plant is used for space heating. The other risk is that, should there be subsequent conversion to residential, the plant would have 24-hour operation.

Possible action: Ask for night-time assessment to be included. Alternatively, planners could be asked to make it a specific condition that plant cannot operate outside daytime hours.

5 Allowance for Plant Tonality

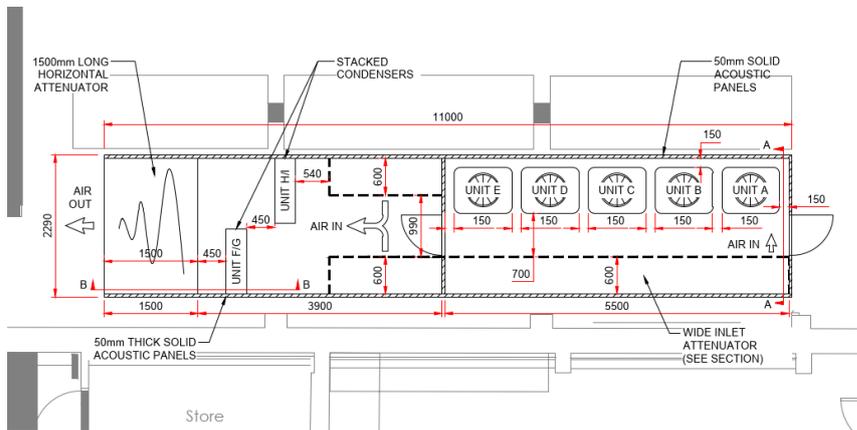
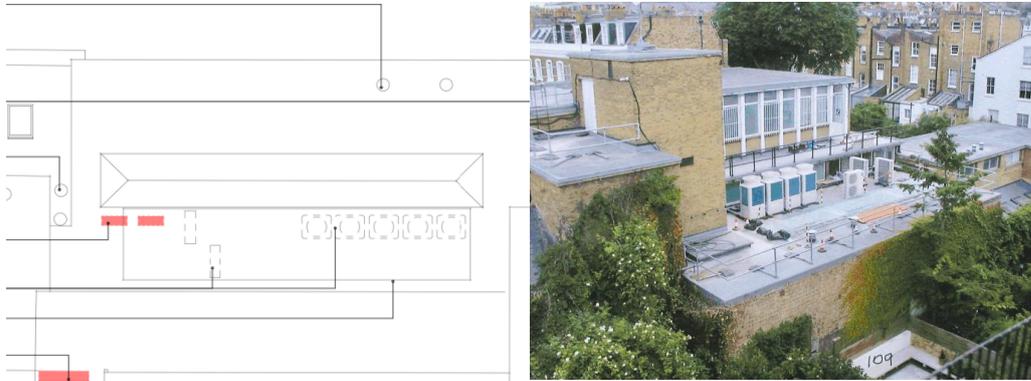
The assessment procedure follows that standard approach (as described in BS 4142). This standard recommends that a correction is made to noise levels to account for tonality. i.e. a penalty is applied to account for the fact that tonal noise has more potential to disturb than broadband noise. The assessment does not apply any correction for tonality, arguing (clause 7.3) that is “no evidence of any tonal content” for the proposed plant equipment. This is reasonable for the plant in isolation. However, the acoustic enclosure does not have a constant performance across the frequency spectrum. In effect, it applies a low-pass filter to the noise from the equipment and the resulting noise at the receiver position will be dominated by low-frequency sound. The figures given in Appendix 3 of the Plant Noise Assessment Report (Noico 72003022/1) suggest that the noise level at 63Hz will be 16dB higher than that at 125Hz. We would suggest that this runs contrary to the statement that there is “no evidence of any tonal content” and should be reviewed.

Possible action: Request that the correction for tonality is applied to the noise after the inclusion of the effect of the enclosure.

6 Details of Plant Equipment

The details of the proposed plant equipment does not appear to match what has been installed. In particular, the 5th PURY unit seems to have been substituted for something else.

Possible action: Request that the noise assessment is repeated for the actual installed units.



7 Consideration of All Noise Sensitive Locations

Clause 7.4 of the Plant Noise Assessment Report (Noico 72003022/1) states that “There are numerous residential properties in the immediate vicinity, each with direct line of sight to the proposed plant installation location. The nearest residential location is estimated to be at 15m from the proposed plant location and we have labelled this position as Assessment Location A”. It is not clear in the report where the assessment location has been labelled, the label does not appear in Figure 2. The nearest residential window does appear to be approximately 15m away. However, there are other windows that should also be assess because they may be more affected, even though they are slightly further away. For example the rear windows to the top floor of the houses on Gloucester Avenue are around 22m away from the plant location but may be more affected because they overlook the noise source.

Possible action: Request that the assessment is undertaken at more sensitive locations, particularly the top floor windows of houses on Gloucester Avenue.



8 Calculation of Sound Propagation

There are a number of aspects to the calculation methodology presented in Appendix 3 of the Plant Noise Assessment Report (Noico 72003022/1) that should be reviewed. These are:

- the plant noise sources have been modelled as independent point sources. Once inside the enclosure, the sources will effectively be combined and the ventilation grilles to the enclosure will act as line sources. Accounting for this will increase the resulting level at the receptor.
- free-field propagation is assumed. That is to say that it is assumed that the plant noise sources are in free space with no reflections from surrounding surfaces. In reality, there will be reflections from the roof and the Utopia facades that surround the plant. Accounting for these reflections will increase the resulting level at the receptor.
- the plant noise data that has been used as a basis for the calculation is that measure in a free-field at a location 1m to the side of the unit, 1m above the ground. This means that these levels are only relevant when the receptor being assessed has the same directional relationship to the noise source. For example, the noise level measure 1m above a PURY unit would be expected to be higher than that measured to the side. Accounting for the directionality of the plant noise source will increase the resulting level at the receptor where receptors overlook the plant.

Possible action: Request that the assessment is repeated to correctly account for these factors.

As a general comment, the changes to the propagation calculation described above may increase the predicted level by several decibels. Given that the assessment currently indicates a level 1dB within the required value, this may make a significant difference.

9 Performance of Enclosure

The calculation in Appendix 3 of the Plant Noise Assessment Report (Noico 72003022/1) indicates that the insertion loss of the enclosure is equated to the insertion loss of the attenuators that allow ventilation to the enclosure. The value given for a 1500mm long 40% attenuator are reasonable. However, there are a number of reasons that the installed insertion loss of the enclosure may not meet this predicted value. This represents a risk given that the performance of the enclosure is such a critical aspect of achieving the target level. It is recommended that evidence of the in-situ performance of a similar enclosure is provided to give reassurance.

Possible action: Request in-situ measurements of performance of a similar enclosure to provide confidence that the predicted values will be achieved.

10 Commissioning Measurements

There are a number of factors that can affect the in-situ noise levels. For example, the operating duty of plant equipment and the actual performance of the installed enclosure. It is therefore strongly recommended that commissioning measurements are made a planning condition prior to occupation/operation of the building. It is suggested that these commissioning measurements would be made at a location as close as possible to the edge of the roof where the plant is located, in line with the centre point of the enclosure (along its length) at the same height as the top of the enclosure.

Possible action: Request in-situ commissioning measurements are made a condition to be discharged prior to occupation/operation of the building.

It should be possible to measure at a distance of around 5m from the centre point of the enclosure roof (in the direction towards the noise sensitive windows). An appropriate target value would need to be agreed at this point based on more detailed calculations of noise propagation. For example it might be agreed that, if a level of 35dB can be measured at the commissioning location then this gives confidence that a value of 30dB will be achieved at the most affected sensitive window. The reason for not measuring at the noise sensitive window is that it becomes increasingly difficult to measure the plant noise above the existing background noise environment.

