

Technical Note

Project title	Selkirk House, 166 High Holborn and 1 Museum Street, 10-12 Museum Street, 35-41 New Oxford Street and 16A-18 West Central Street, London, WC1A 1JR
Job number	271284-11
File reference	
cc	
Prepared by	Marilena Karyampa
Date	4 October 2023
Subject	Responses to issues raised in relation to air quality by the London Borough of Camden and the Greater London Authority

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This note provides responses to issues raised in relation to air quality by the London Borough of Camden (LBC) in their email of 12 September 2023 and by the Greater London Authority (GLA) in their Stage 1 report of 24 August 2023 (ref. GLA/2023/0478/S1/01).

The note is structured as follows:

- Section 1 provides responses to the issues raised by LBC;
- Section 2 provides responses to the issues raised by GLA, where these are different to LBC; and
- Section 3 provides supplementary information for the above responses.

Appendices have also been provided at the end of this note for any further information as needed.

1. Issues raised by LBC

The issues raised by LBC have been summarised into five main topics and detailed below. The topics are: (1) generators; (2) operational phase results; (3) construction impacts risk assessment; (4) air quality positive and (5) other comments.

1.1 Generators

The following comments were raised by LBC:

Issue 1: Particularly given the poor air quality in the area, the applicant should:

- Provide further details on the size and location of the proposed generators including diagrams showing that any flues are at least 1m (and preferably 3m) and is the tallest point in a surrounding 20m radius
- Justify the proposed size of the generators, which should be sized appropriately for life safety functions only, unless clearly justified for other reasons
- Confirm that the cumulative capacity of the generators does not exceed 1MWth
- Evidence that alternative technologies to diesel have been fully considered
- Evidence that options such as Uninterruptable Power Supply (UPS) or a Secondary mains feed have been considered



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• Confirm proposed testing frequency and duration, that testing has been minimised and is less than 50 hours per annum

Generator HSW-255 S3A is proposed for the West Central Street building and Generator DS550 (EDS16000087) is proposed for the 1 Museum Street building. The locations of the proposed generator flue exhausts are shown in Figure 1 and Figure 2 below. Flues are proposed to extent to a minimum of 1m above the roof level.

It is confirmed that the testing frequency for the generators will be less than 50hr/annum.

Each generator can be below 1MWth, however in order to maintain lifesaving functions cumulatively it is likely to be circa 1.5MWth for the entire development. The applicant acknowledges further study/licenses may be required to facilitate the level of emergency power generation.

Alternatives to a generator were investigated as part of the design of the original scheme. An Uninterruptable Power Supply (UPS) and battery solution was deemed not to be appropriate due to the peak power and total energy requirements to run the life safety plant, as well as the characteristics of the load (particularly the motors for the sprinkler and wet riser pumps which have very high transient loads). The local DNO was not able to offer a secondary utility power supply conforming with the requirements of BS 8519 and BS 9999.

Battery storage was considered but discounted as not technically viable with significant space required for batteries. Biofuel could be but the understanding is that this would not meaningfully change the emissions profile.



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Figure 1: Proposed location of flue exhaust for generator at West Central Street building



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Figure 2: Proposed location of flue exhaust for generator at 1 Museum Street building

1.2 Operational phase results

The following comments were raised by LBC:

Issue 2: All of the onsite residential receptor locations which have been modelled are over the NO₂ national air quality objective level of $40\mu g/m^3$ per annum. In addition residential receptors 5,11,17,18,23,24 are all indicating from the modelling that the NO₂ levels are over 5% above the national objective. Non-residential receptors 4,10,16 and 22 are also above the annual objective and therefore worker exposure should be considered. The WHO standard for PM_{2.5} is also exceeded at all locations. The AQA recommends that no operable panels (natural ventilation) are provided for the proposed development and that air inlets for MVHR are located away from busy roads. It is noted that this is inconsistent with the Energy Strategy which only referred to the need to close windows on West Central Street and High Holborn due to night time noise. There is no mention of air pollution or the residential units on Vine Lane.

Arguably the proposals do not comply with the WHO standards or the requirements of London Plan Policy SI B 1) c) to not create an unacceptable risk of high levels of exposure to poor air quality. The proposals have failed to consider design mitigations – such as setting residential development back from busy roads or only at higher levels.

If, despite this, the proposals are recommended for approval then, in line with Policy SI B 2) b), the development proposals should use design solutions to prevent or minimise increased exposure to existing air pollution and make provision to address local problems of air pollution, or mitigation required. Specifically, we would strongly recommend that as a minimum mitigation should be provided. We would not recommend sealed windows except for



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those at lower levels where the NO_2 levels are over 5% above the objective level. We would recommend filtration for any MVHR air inlet at a location over the objective level. Occupiers to be advised of health risks from poor air quality at the site.

Issue 3: There has not been any modelling for the roof level of the residential blocks, for the High Holborn residential receptors or for the commercial receptors at 1 Museum Street. Given the NO₂ levels at 5th floor on the residential buildings are over the NO₂ objective level then it is expected that filtration may be required for air inlets from the roof which is not mentioned in the AQA. The location of air inlets should be modelled to inform the appropriate mitigation. Given both High Holborn and Museum Street buildings have facades on High Holborn which can be seen in the LAEI2019 mapping to experience high levels of pollution the again the pollution levels are expected to be over the objective level. The Energy Strategy mentions mixed mode ventilation for the non-domestic element but modelling of receptors in this location is required to determine if this is suitable. These should all be modelled to inform consideration of suitable design and mitigation measures. The AQA is currently considered inadequate to inform mitigation.

It is noted that the scheme includes residential development in an area of poor air quality. The proposed West Central Street residential incorporates the refurbishment of existing residential (35-37 New Oxford Street and 10-12 Museum Street) and office buildings (39-41 New Oxford Street). Additional new build residential is proposed on West Central Street. The development proposed new build residential on High Holborn and Vine Lane.

A worst-case air quality assessment has been undertaken and is within the submitted air quality assessment report. This uses current (2019) background pollution levels and vehicle emission factors. However, it is expected that by the time the development is fully occupied, air quality in the area will have improved.

Arup have since undertaken additional modelling at locations across the site to better understand the concentration levels on each façade and at a range of elevations to inform the mitigation approach MEP design for the scheme. The modelling scope incorporates receptor points on all buildings in the proposed development including High Holborn and 1 Museum Street (see Figure 3).

The outcome of this analysis will ensure the residential development located in areas of poor area quality will be designed to include suitable mitigation to reduce residents' exposure to poor air quality. This modelling has been undertaken using the first anticipated year of full occupation (2029) projections on background pollutant concentrations and vehicle emissions. It is also worthwhile to note that whilst the baseline AQ modelling has indicated poor air quality in the area, it is expected that the levels of pollution will decrease over time.



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Figure 3: Modelled receptor points in additional air quality modelling

The results from this additional modelling are provided in Section 3 of this note (Supplementary information). In headline, the results indicate that from first full year of occupation:

- all residential windows (from 1st floor) fall within national guidelines for NO₂ and no floors are over 5% above the national objective (40µg/m³); and
- 2nd floor windows on two of the refurbished residential blocks (10-12 Museum St and 35-37 New Oxford Street) fall below the national interim target for PM_{2.5} (12µg/m³).

The headline findings for NO₂ concentrations by building are as follows (see Section 3 Supplementary information for the detail of additional modelling results):

• **Buildings fronting New Oxford Street (35-37 and 39-41)**: NO₂ concentrations just above (and within 5% of) the national air quality standard of 40µg/m³ at ground level (1.5m height) and below the national air quality standard at other floor levels. However, concentrations are above the Camden standard of 38µg/m³ (except at the top floor of 35-37 New Oxford Street building). Air intakes for the dwellings will be located at the rear elevation of the building facing the courtyard with the exception of the listed buildings where this is not possible due to heritage constraints.



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- **10-12 Museum Street buildings**: NO₂ concentrations below the national air quality standard of 40µg/m³ at all levels, However, concentrations are above the Camden standard of 38µg/m³ up to the 2nd floor level (8.7m height). Air intakes for the dwellings will be located at the rear elevation of the building facing the courtyard with the exception of the listed buildings where this is not possible due to heritage constraints.
- **16A and 16B West Central Street buildings**: NO₂ concentrations below both the national and Camden air quality standards at all levels.
- Vine Lane building: NO₂ concentrations below both the national and Camden air quality standards at all levels.
- **High Holborn building**: NO₂ concentrations below the national air quality standard of $40\mu g/m^3$ at all levels. However, concentrations are above the Camden air quality standard of $38\mu g/m^3$ up to the 3rd floor level (11.9m height). Air intakes for the dwellings will be located at the rear of the property facing Vine Lane.
- **1 Museum Street building**: NO2 concentrations below the national and Camden air quality standards along Vine Lane, West Central Street and Museum Street. Concentrations below the national air quality standard of 40µg/m3 at all levels along High Holborn. However, concentrations are above the Camden air quality standard of 38µg/m³ up to the 2nd floor level (11.3m height) along High Holborn. Air intakes for the office areas are located at the roof level of 1 Museum Street and to the rear of the Vine Lane block.

 $PM_{2.5}$ concentrations on all buildings are above the Camden air quality standard of $10\mu g/m^3$ due to the already high background pollutant concentrations. However, concentrations are below the national target of $12\mu g/m^3$ (by 2028) in most buildings, except at the ground and 1^{st} floor levels of buildings fronting New Oxford Street and 10-12 Museum Street and at the ground levels of the buildings along High Holborn.

In terms of addressing the poor air quality through design, as noted, all the residential buildings with elements over the national standards are existing buildings, five of which are listed (10-12 Museum Street and 35-37 New Oxford Street). These buildings (plus 39-41 New Oxford Street) are buildings retained and refurbished. Due to this is it not considered possible to mitigate impacts through design such as setting receptors further back from the road. The impacts will be mitigated through the detailed design and MEP strategy.

Table 1 presents details for each of the buildings in relation to their use, whether they have operable windows, mechanical ventilation, what their overheating strategy is and any constraints. It should be noted that the Energy Strategy submitted with the planning application included overarching principles for the West Central Street block, which the below presents at a more granular level for each building. The following table should be reviewed alongside the updated Air Quality Positive Statement (see section 1.4 and Appendix A of this note) which provides further detail on the approach and action taken to address air quality risks and challenges.



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Table 1: Detailed considerations and constraints for each building

Building	Use	Operable windows	Mechanical ventilation	Overheating strategy	Constraints	Summary
35-37 New Oxford Street	Residential	Yes	No	Active cooling	Existing, listed buildings, noise, air quality	These are existing residential buildings and are listed, therefore constrained in terms of design. These units are double aspect with windows facing the internal courtyard.
						Operable windows are proposed due to heritage constraints of the buildings, however the overheating strategy does not rely on the operable windows due to noise and air quality issues identified.
						It is not possible to include mechanical ventilation, due to being listed buildings, but there is an option to ventilate the residences through the windows facing the courtyard where air quality will be better compared to the windows facing New Oxford Street. This will be included as a recommendation within the occupiers' guide.
39-41 New Oxford Street	Residential	Yes, for purge ventilation only	Yes	Active cooling	Noise, air quality	There are no heritage constraints for these buildings. These units are double aspect with windows facing the internal courtyard.
						Mechanical ventilation with particulate matter filtration and active cooling are proposed due to noise and air quality. NOx filtration is not required due to the location of the intakes away from pollution sources.
						There will be operable windows, but these are not relied upon in the overheating strategy for cooling. They are provided for purge venting to maintain a pleasant living environment. This will be included as a recommendation within the occupiers' guide.



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Building	Use	Operable windows	Mechanical ventilation	Overheating strategy	Constraints	Summary
10-12 Museum Street	Residential	Yes	No	Active cooling	Existing, listed buildings, air quality	These are existing residential buildings and are listed, therefore constrained in terms of design. These units are double aspect with windows facing internal courtyards.
						Operable windows are proposed due to heritage constraints of the buildings. However, the overheating strategy does not rely on the operable windows due to noise and air quality issues identified.
						It is not possible to include mechanical ventilation, due to being listed buildings, but there is an option to ventilate the residences through the windows facing the courtyard where air quality will be better compared to the windows facing Museum Street. This will be included as a recommendation within the occupiers' guide.
16A/16B West Central Street	Residential	Yes, for purge ventilation only	Yes	Natural ventilation	None	There are no constraints associated with these buildings.
Vine Lane	Residential	Yes, for purge ventilation only	Yes	Natural ventilation	None	There are no constraints associated with this building.
High Holborn	Residential	Yes, for purge ventilation only	Yes	Active cooling	Noise, air quality	There are no heritage constraints for this building. Mechanical ventilation with particulate matter and NOx filtration and active cooling are proposed due to noise and air quality. There will be operable windows, but these are not relied upon for cooling or ventilation. They are provided for purge venting to maintain a pleasant living environment. This will be included as a recommendation within the occupiers' guide.



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Building	Use	Operable windows	Mechanical ventilation	Overheating strategy	Constraints	Summary
1 Museum Street	Commercial	Yes	Yes	Mixed mode active cooling and natural ventilation	Noise, air quality	Mechanical ventilation with particulate matter filtration is proposed due to noise and air quality. NOx filtration is not required due to the location of the intakes away from pollution sources. There will be operable windows at all levels as a passive design measure, but it is noted that ground, first and second floors currently exceed the air quality metrics. However, the operable panels are not required to meet overheating criteria. They are provided for future proofing.
						For tenant comfort and energy, it is desirable to have operable windows for when air quality allows and there will be a system in place to identify climate and air quality issues so that operable panels can be closed.



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1.3 Construction impacts risk assessment

The following comments were raised by LBC:

Issue 4: The proposals are a high risk without mitigation and therefore mitigation for high risk sites should be secured through the CMP and a condition requiring at least 4 real time dust monitors is recommend.

Mitigation for high risk sites has been included in the Air Quality Assessment submitted for planning and this will be secured through the Construction Environmental Management Plan.

Points on construction dust monitoring requirements noted. The applicant will be willing to provide at least four real time dust monitors before and during demolition and construction works. The strategy to address the requirements can be secured through the delivery of the Construction Environmental Management Plan.

1.4 Air quality positive

The following comments were raised by LBC:

Issue 5: The Air Quality positive statement is considered weak. In relation to better design there is mention of construction dust management which is incorrect – the guidance refers to optimising site layout and locating sensitive users (i.e. residents) in less polluted parts of the site – which does not seems to have been considered. Most actions are either already policy requirements or are 'encouraged' for tenants with no details in place to enable this to happen.

Updates to the air quality positive statement have been provided as a separate note appended to this note (see Appendix A). These include further clarifications and details on measures, including considerations of operable windows at buildings as detailed in section 1.2 of this note.

It is acknowledged that the construction management measures included in the air quality positive statement under the better design and reducing exposure section are not required. However, these have been included for completeness of all measures relating to the proposed development and consider reducing exposure of existing nearby residents during the construction works.

1.5 Other comments

Table 2 provides information on other comments raised by LBC.

 Table 2: Other comments raised by LBC

LBC comment	Response
Air quality neutral assessment	Noted
Overall the development is considered to be air quality neutral.	

2. Issues raised by GLA

The issues raised by the GLA are provided in Table 3 below, with a reference to the paragraph number in the Stage 1 report. A cross reference has been provided where a topic has already been covered by the responses to LBC above.

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Table 3: Responses to issues raised by GLA

Paragraph	Feedback	Response
116	The development is located within an Air Quality Management Area and part of the site falls within an Air Quality Focus Area (Oxford Street from Marble Arch to Bloomsbury). The development would be Air Quality Neutral for both building and transport emissions, and would not lead to further deterioration of existing poor air quality. However, there is some concern that the proposed development includes new residential units at lower levels which will be exposed to poor air quality.	See response in section 1.2 of this note and updated Air Quality Positive Statement in Appendix A.
117	Recommended mitigation for the operational phase identified in the accompanying Air Quality Technical Note involves having no operable panels provided (i.e. no natural ventilation). The design of a building where passive ventilation is prevented is not preferable in line with the cooling hierarchy in London Plan Policy SI4 and this does align with the recommendations set out within the accompanying acoustic report or energy strategy. Additionally, this inclusion does not deliver the highest quality of housing (London Plan Policy D6). The proposed development will have mechanical ventilation with heat recovery as the ventilation strategy and particulate matter filtration. However, this does not address the high levels of NO ₂ concentrations predicted as NOx filtration has not been proposed.	NOx filtration will be incorporated in the design where appropriate. See response in section 1.2 of this note on the additional air quality modelling results for each building and considerations on operable windows, and updated Air Quality Positive Statement in Appendix A setting out the approach to NOx filtration.
118	As highlighted above, the site falls within an Air Quality Focus Area. GLA officers consider that the suitability of the site for the proposed use, in terms of the air quality exposure of the future occupants of the development has not yet been accounted for sufficiently. At present, the application does not acceptably respond to the requirements of London Plan Policy SI 1.	See response in section 1.2 of this note and updated Air Quality Positive Statement in Appendix A.
119	 The following would also need to be conditioned if this application is approved: On-site plant and machinery must comply with the London Non-Road Mobile Machinery (NRMM) Low Emission Zone standards for Opportunity Areas (London Plan Policy SI 1(D)). 	Agreed. This will be secured through the Construction Environmental Management Plan.



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Paragraph	Feedback	Response
	• Measures to control emissions during the demolition and construction phase relevant to a High risk site should be written into an Air Quality and Dust Management Plan (AQDMP), or form part of a Construction Environmental Management Plan, in line with the requirements of the Control of Dust and Emissions during Construction and Demolition SPG. The AQDMP should be approved by the LPA and the measures and monitoring protocols implemented throughout the construction phase (London Plan Policy SI 1 (D)).	Agreed. Mitigation for high risk sites has been included in the Air Quality Assessment submitted for planning and this will be secured through the Construction Environmental Management Plan.
	• Use of the backup generator(s) is restricted to emergency use and operational testing (less than 50 hours per year).	Agreed. See response in section 1.1 of this note.



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3. Supplementary information

This section presents more details on the additional air quality modelling undertaken to inform the MEP strategy. A table is provided for each building façade on site with predicted NO₂ and PM_{2.5} concentrations per floor, colour coded depending on the level against the national or local (Camden) air quality standards. Table 4 presents the key for the colour coding and Table 5 presents the relevant air quality standards.

It should be noted that the ranking of green/amber/green has been done on concentrations calculated in two decimal places, however concentrations are presented in one decimal place and explanations presented as notes at the bottom of each table where required.

Table 6 to Table 9 present the results for the buildings in the West Central Street block, i.e. 35-37 and 39-41 New Oxford Street, 10-12 Museum Street and 16A/16B West Central Street. Table 10 and Table 11 present the results for the Vine Lane and High Holborn buildings respectively. Table 12 to Table 15 present the results for each façade of the 1 Museum Street building.

Colour/Font	Description	
Green	Below national and local air quality standard	
Amber	Below national and above local air quality standard	
Red	Above or equal to the national and local air quality standard	
Bold font	More than 5% above national air quality standard	

Table 4: Key for detailed modelling results tables

Table 5: Air quality standards

Pollutant	Local	National	National +5%	
Nitrogen dioxide (NO2)	38.0	40.0	42.0	
Fine particulate matter (PM _{2.5})	10.0	12.0 ¹	12.6	

¹ National interim target by 2028.

Table 6: Predicted concentrations at 35-37 New Oxford Street (West Central Street block) – Modelling point B

Floor	Height (m)	NO₂ (µg/m³)	PM _{2.5} (µg/m³)	
		В	В	
3rd	11.7	38.0 ¹	11.9	
2nd	8.7	38.3	11.9	
1st	5.1	39.0	12.1	
Ground	1.5	40.6	12.4	



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¹ Concentration in two decimal places: 37.96µg/m³

Table 7: Predicted concentrations at 39-41 New Oxford Street (West Central Street block) – Modelling point A

Floor	Height (m)	NO₂ (μg/m³)	PM _{2.5} (µg/m³)
		Α	Α
3rd	11.7	38.0 ¹	11.9
2nd	8.7	38.3	12.0 ²
lst	5.1	39.1	12.1
Ground	1.5	40.1	12.3

¹ Concentration in two decimal places: 38.04µg/m³

² Concentration in 2 decimal places: 11.96µg/m³

Table 8: Predicted concentrations at 10-12 Museum Street (West Central Street block) – Modelling points C/D

Floor	Height (m)	NO₂ (μg/m³)		PM _{2.5} (µg/m³)
		C D		С	D
3rd	11.7	37	1.9	11.9	
2nd	8.7	38.1		11.9	
1st	5.1	38.6		12	2.0 1
Ground	1.5	39.2 39.1		12	2.1

¹ Concentration in two decimal places: 12.00µg/m³

Table 9: Predicted concentrations at 16A and 16B West Central Street (West Central Street block) – Modelling points E/F/G

Floor	Height (m)	NO₂ (µg/m³)		PM _{2.5} (μg/m³)			
		E	F	G	E	F	G
5th	17.7	n/a	36.4		n/a 11.6		.6
4th	14.7	36.4			11.6		
3rd	11.7	36.4		11.6			
2nd	8.7	36.4		11.6			
1st	5.1	36.5		11.6			
Ground	1.5	36.6			11.6		



Floor	Height (m)	NO₂ (μg/m³)				PM _{2.5} (µg/m³)	
		н	I	J	н	I	J
5th	18.7	n/a	36.3		36.3 n/a 11.6		.6
4th	15.4	36.4	36.3		11.6		
3rd	12.1	36.4	36.3		11.6		
2nd	8.8	36.5	36.3		36.3 11.6		
1st	5.5	36.5	36.4		11.6		
Ground	1.5	36.5	36	5.4		11.6	

Table 10: Predicted concentrations at Vine Lane building – Modelling points H/I/J

Table 11: Predicted concentrations at High Holborn building – Modelling point K

Floor	Height (m)	NO₂ (µg/m³)	PM _{2.5} (μg/m³)
		к	к
5th	18.3	37.6	11.8
4th	15.1	38.0 ¹	11.9
3rd	11.9	38.1	11.9
2nd	8.7	38.3	11.9
1st	5.5	38.5	12.0 ²
Ground	1.5	38.8	12.0 ³

¹ Concentration in two decimal places: 37.95µg/m³

² Concentration in 2 decimal places: 11.99µg/m³
 ³ Concentration in 2 decimal places: 12.03µg/m³

Table 12: Predicted concentrations at 1 Museum Street building (Vine Lane façade) – Modelling point L

Floor	Height (m)	NO₂ (μg/m³)	PM _{2.5} (μg/m³)
		L	L
18th	68.6	36.1	11.6
17th	64.8	36.1	11.6
16th	61.2	36.2	11.6
15th	57.6	36.2	11.6
14th	54.0	36.2	11.6



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Floor	Height (m)	NO₂ (μg/m³)	PM _{2.5} (μg/m³)
		L	L
13th	50.4	36.2	11.6
12th	46.8	36.2	11.6
11th	43.2	36.2	11.6
10th	39.2	36.2	11.6
9th	35.6	36.2	11.6
8th	32.0	36.2	11.6
7th	28.4	36.3	11.6
6th	24.9	36.3	11.6
5th	21.2	36.3	11.6
4th	17.2	36.3	11.6
3rd	13.6	36.3	11.6
2nd	10.0	36.3	11.6
1st	6.4	36.4	11.6
Ground	1.5	36.4	11.6

 Table 13: Predicted concentrations at 1 Museum Street building (West Central Street façade) – Modelling points M/N

Floor	Height (m)	NO₂ (μg/m³)		NO ₂ (μg/m ³) PM _{2.5} (μg/m ³)	
		М	N	М	N
18th	68.7	n/a	36.1	n/a	11.6
17th	64.9	n/a	36.1	n/a	11.6
16th	61.3	n/a	36.2	n/a	11.6
15th	57.7	n/a	36.2	n/a	11.6
14th	54.1	n/a	36.2	n/a	11.6
13th	50.5	n/a	36.2	n/a	11.6
12th	46.9	n/a	36.2	n/a	11.6
11th	43.3	n/a	36.2	n/a	11.6



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Floor	Height (m)	NO₂ (µg/m³)		PM _{2.5} ((µg/m³)
		М	N	М	N
10th	39.3	30	5.3	11.6	
9th	35.7	30	5.3	11.6	
8th	32.1	30	5.3	11.6	
7th	28.5	30	5.3	11.6	
6th	24.9	30	5.3	11.6	
5th	21.3	30	5.3	11.6	
4th	17.3	36.4	36.3	11.6	
3rd	13.7	30	5.4	11.6	
2nd	10.1	36.4		11.6	
lst	6.5	36.5		11.6	
Ground	1.5	30	5.6	11.6	

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Table 14: Predicted concentrations at 1 Museum Street building (Museum Street façade) – Modelling points O/P

Floor	Height (m)	NO₂ (μg/m³)		PM _{2.5} (µg/m³)
		Μ	N	м	N
18th	68.7	36	i.1	11	.6
17th	64.9	36	.1	11.6	
16th	61.3	36.2		11.6	
15th	57.7	36.2		11	.6
14th	54.1	36.2		11.6	
13th	50.5	36	i.2	11.6	
12th	46.9	36	i.2	11	.6
11th	43.3	36.2		6.2 11.6	
10th	39.3	36.2		11	.6
9th	35.7	36.2		11	.6
8th	32.1	36.2		11	.6



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Floor	Height (m)	NO₂ (μg/m³)		PM _{2.5}	(µg/m³)	
		M N		м	N	
7th	28.5	36.3		11.6		
6th	24.9	36.3		11.6		
5th	21.3	36	i.3	11.6		
4th	17.3	36.3		11.6		
3rd	13.7	36.3		1	1.6	
2nd	10.1	36.3		36.3 11.6		
1st	6.5	36.4		1	1.6	
Ground	1.5	36	.4	1	1.6	

Table 15: Predicted concentrations at 1 Museum Street building (High Holborn façade) – Modelling points Q/R

Floor	Height (m)	NO₂ (μg/m³)		PM _{2.5} (µg/m³)
		Q	R	Q	R
18th	69.9	36.1	n/a	11.6	n/a
17th	66.1	36.1	n/a	11.6	n/a
16th	62.5	36.1	n/a	11.6	n/a
15th	58.9	36.2	n/a	11.6	n/a
14th	55.3	36.2	n/a	11.6	n/a
13th	51.7	36.2	n/a	11.6	n/a
12th	48.1	36.2	n/a	11.6	n/a
11th	44.5	36.2		11	.6
10th	40.5	36.3	36.2	11	.6
9th	36.9	36.3	36.8	11.6	11.7
8th	33.3	36.3	36.9	11.6	11.7
7th	29.7	36.3	36.9	11.6	11.7
6th	26.1	36.3	37.0	11.6	11.7
5th	22.5	36.3	37.2	11.6	11.8



Date

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Floor	Height (m)	NO ₂ (µg/m³)	PM _{2.5} (μg/m³)		
		Q	R	Q	R	
4th	18.5	36.3	37.6	11.6	11.8	
3rd	14.9	36.3	38.0 ¹	11.6	11.9	
2nd	11.3	36.3	38.2	11.6	11.9	
1st	7.7	36.4	38.4	11.6	12.0 ²	
Ground	1.5	36.5	38.8	11.6	12.0 ³	

¹ Concentration in two decimal places: 37.96µg/m³ ² Concentration in 2 decimal places: 11.96µg/m³ ³ Concentration in 2 decimal places: 12.04µg/m³



Job number Date

Appendix A – Updated Air Quality Positive Statement



Job number	271284-11
Date	4 October 2023
Project title	Selkirk House, 166 High Holborn and 1 Museum Street, 10-12 Museum Street, 35- 41 New Oxford Street and 16A-18 West Central Street, London, WC1A 1JR
Prepared by	Marilena Karyampa
Date	27 September 2023
Subject	Updated air quality positive statement

This note provides an update to the Air Quality Positive Statement included in the Air Quality Assessment that was submitted as part of the planning for Selkirk House, 166 High Holborn and 1 Museum Street, 10-12 Museum Street, 35-41 New Oxford Street and 16A-18 West Central Street, London, WC1A 1JR (Proposed Development).

The constraints and opportunities for the Proposed Development remain as reported in the Air Quality Assessment for planning. Further information on the adopted measures, implementation and monitoring have been provided and presented in Table A.1 below. Additions and changes are presented in red font for ease.



Date

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Table A.1: Updated air quality positive measures

Measure Summary of the		Reasons for	Expected benefits	Assessment and reportin	How will this		
	measure			Method	Quantitative	Qualitative	secured
Better design and red	ucing exposure						
Best practice construction mitigation measures relating to dust	Best practice controls will be put in place to mitigate demolition and construction dust	Reducing exposure of demolition and construction phase dust to existing and future residents	Negligible effects from demolition and construction dust	Dust assessment in the air quality assessment	No	Yes	Agreed through the Construction Environmental Management Plan (CEMP)
Best practice construction mitigation measures relating to emissions	The construction logistics will be designed to reduce exposure for existing residents nearby and to reduce exposure for the workforce. NRMM will meet and where possible exceed the GLA requirements. Euro VI HGVs will be used	Reducing emissions from the construction phase	Reduced emissions from the construction phase	Reported via commitment from contractors	No	Yes	Agreed through the CEMP
Exposure reduction	There will be operable windows, but residential buildings in areas of poor air quality are designed not to rely on the windows for cooling. There is also an option for ventilating the residences through windows facing	Reducing exposure during operation	Reduced air pollutant emissions	Design and Access Statement (DAS)	No	Yes	Secured through approved plan



Date

Measure	Summary of the	Reasons for undertaking measure	Expected benefits	Assessment and reporting			How will this	
	measure			Method	Quantitative	Qualitative	secured	
	internal site areas where air quality will be better compared to the front façade.							
	Mechanical ventilation has been included in buildings where appropriate, taking into account relevant constraints (e.g. heritage and design). Air inlets are located away from pollution sources.							
	Outdoor shared amenity at West Central Street and Vine Lane is located away from air pollution sources (in the courtyard for West Central Street and the roof for Vine Lane).							
	Private amenity at High Holborn is located away from air pollution sources, at the roof.							



Date

			F (1) (1)				
Measure	Summary of the measure	Reasons for undertaking measure	Expected benefits	Assessment and reporting			measure be
				Method	Quantitative	Qualitative	secured
Building emissions					•		
Electrically driven heat pumps	No onsite combustion. The building will be fully electric, except for a life safety diesel generator	Reduces emissions to air from boilers or CHP units	Reduced emissions of NOx to the local area	Air quality assessment	N	Y	Secured through approved plans
Mechanical Ventilation and Heat Recovery (MVHR) and particulate filtration	All inlets are situated away from sources of pollution as far as is practicable. This includes elevating the intakes above street level and locating them on sheltered frontages away from the neighbouring roads.	Reduce emissions and exposure	Reduced emissions from ambient sources in the indoor air	DAS	No	Yes	Secured through approved plans
	Particulate filters will be provided on all mechanical system intakes, with the filtration specified to meet the stringent requirements of the WELL Building standard where relevant.						
	NOx filtration will also be provided where appropriate.						



Date

Measure	Summary of the measure	Reasons for undertaking measure	Expected benefits	Assessment and reporting			How will this	
				Method	Quantitative	Qualitative	secured	
Encourage the use of green energy suppliers	Future tenants will be encouraged to use green energy suppliers wherever possible.	Reducing emissions from the operational phase	Reducing emissions from the operational phase	As part of occupier engagement and marketing	No	Yes	Through occupier engagement and marketing	
	The office and Landlord areas of 1 Museum Street will come from a common Landlord supply, committing to buying REGO backed energy.							
Transport emissions								
Creation of a new public pedestrian route	Creation of a new public pedestrian route through the site known as Vine Lane, to improve access and connectivity through the site	To improve access and connectivity through the site, via non-vehicular modes of transport	Reduced emissions from the operational phase	DAS	No	Yes	Secured through agreed plans	
Visitor, office and resident cycle parking spaces	Provision of 465 cycle parking spaces, including short stay and long stay for office use, visitors and residents	Reducing emissions from the operational phase	Reduced emissions from the operational phase	DAS	Yes	No	Secured through agreed plans	



Date

Measure	Summary of the measure	Reasons for undertaking measure	Expected benefits	Assessment and reporting			How will this
				Method	Quantitative	Qualitative	secured
Short stay cycle contribution	To address the shortfall of short stay cycle parking in the public realm, a financial contribution will be made to the local authority to provide off- site facilities	Reducing emissions	Reducing emissions	DAS	Yes	No	Secured through appropriate planning obligations
Travel Plan	The travel plan for the proposed development will encourage active travel (walking and cycling) for access to the site	Reducing emissions from the operational phase	Reduced emissions from the operational phase	Travel Plan	Yes	No	Secured through agreed plans
Car free development	Car free development (with the exception of servicing trips) and removal of existing operational car park	Reducing emissions from the operational phase	Reduced emissions from the operational phase	Design and Access Statement	Yes	No	Secured through agreed plans
Timed deliveries	Deliveries will be timed to site to flatten the profile and avoid a distinct time period with peak vehicle movements for servicing. This will also avoid delivery vehicles queuing and idling	Reducing emissions from the operational phase	Reducing emissions from the operational phase	Delivery and Servicing Management Plan	Yes	Yes	Ongoing monitoring of the plan



Date

Measure	Summary of the measure	Reasons for undertaking measure	Expected benefits	Assessment and reporting			How will this	
				Method	Quantitative	Qualitative	measure be secured	
No-idling	The facilities management team would be on hand to ensure any delivery vehicles do not idle whilst unloading	Reducing emissions from the operational phase	Reducing emissions from the operational phase	Delivery and Servicing Management Plan	No	Yes	Ongoing monitoring of the plan	
Innovation and future-proofing								
Air pollution alerts	Future tenants will be encouraged to sign up to LondonAir air quality alerts to identify air pollution episodes	Managing exposure	Allow residents and employees to manage their own exposure and bring awareness to air quality	As part of occupier engagement and marketing	No	Yes	Through occupier engagement and marketing	
Air quality and climate alert system for operable windows	An air quality and climate alert system will be in place for the control of the operable windows at the 1 Museum Street building	Managing exposure	Allow residents and employees to manage their own exposure to outdoor air pollution and control the use of operable windows	As part of occupier engagement and marketing	No	Yes	Through occupier engagement and marketing	
Indoor air quality	Building occupier to raise awareness for indoor air quality and encourage the use of low emission materials / products.	Managing exposure and reducing emissions from the operational phase	Bring awareness to indoor air quality. Reducing emissions from the operational phase.	As part of occupier engagement and marketing	No	Yes	Through occupier engagement and marketing	
	The indoor air quality of 1 Museum Street will meet the stringent							



Date

Measure Summary of measure	Summary of the	Reasons for undertaking measure	Expected benefits	Assessment and reporting			How will this
	incusure			Method	Quantitative	Qualitative	secured
	requirements of the WELL Building standard.						
Raise awareness of the Camden Climate Change Alliance	The Camden Climate Change Alliance is a network of hundreds of businesses in Camden working together to tackle air pollution and the climate crisis. Awareness will be raised about this opportunity for future tenants.	Reducing emissions from the operational phase	Reducing emissions from the operational phase	As part of occupier engagement and marketing	No	Yes	Through occupier engagement and marketing



Job number Date