Figure 7 Sensitive Receptor Locations 350m from Site Boundary

8 Operational Assessment

Road Traffic Emissions

Any additional vehicle movements associated with the operation of the proposed development will generate exhaust emissions, such as NO_2 and PM_{10}, on the local and regional road networks. Information on anticipated trip generation associated with the development was not available at the time of assessment. However, information provided on the architectural plans, indicated there will be only two disabled parking spaces and the rest of the development will be car free. This will be secured via a S106 Agreement.

Based on the above information, the proposed development is not anticipated to result in a change in AADT flows of more than 1,000, produce over 200 HDV movements per day or significantly affect average speeds on the local road network. Additionally, it is unlikely that the proposed development will generate or increase traffic congestion, give rise to a significant change in AADT or peak traffic flows or in vehicle speed, significantly alter the traffic composition on local roads or include significant new car parking. As such, potential air quality impacts associated with operational phase road vehicle exhaust emissions are predicted to be negligible, in accordance with the DMRB and EPUK screening criteria shown in Section 5.3.

Railway Emissions

The proposed site is located to the west of the Midland Main Line, which connects London's St. Pancras station to Sheffield. Stationary locomotives, both diesel and coal fired, can give rise to high levels of SO_2 close to the point of emission. Recent evidence suggests that moving diesel locomotives, in sufficient numbers, can also give rise to high NO_2 concentrations close to the track. DEFRA guidance LAQM.TG(09) [25] provides a staged assessment methodology for determining potential air quality impacts associated with locomotive emissions. This has been considered separately for stationary and moving trains in the following Sections.

Stationary Locomotives

DEFRA guidance LAQM.TG(09) [26] identifies any receptor within 15m of a location where locomotives are regularly stationary for 15-minute periods or longer as being at risk of exposure to exceedences of the AQLVs for SO_2. Review of the rail track in the vicinity of the development indicted that the London's St. Pancras station is located approximately 900m south of the development site. This is a distance of over 15m and as such, in accordance with the guidance presented within LAQM.TG(09)[27], any stationary locomotives present on the track closest to the site are not considered likely to cause exceedences of the air quality objective at this sensitive location. Potential air quality impacts associated with stationary trains at the development site are therefore predicted to be not significant.

[25] Local Air Quality Management Guidance LAQM.TG(09), DEFRA, 2009.
[26] Local Air Quality Management Guidance LAQM.TG(09), DEFRA, 2009.
[27] Local Air Quality Management Guidance LAQM.TG(09), DEFRA, 2009.

Moving Locomotives

DEFRA have provided a list of rail routes with a heavy traffic of diesel passenger trains which may result in elevated NO_2 concentrations in the vicinity of the line[28]. Review of this information indicated that the Midland Main Line has not been identified as requiring further consideration. As such, potential air quality impacts associated with moving locomotives at the development site are not predicted to be significant.

Energy Centre Emissions

Dispersion modelling was undertaken with the inputs described in Section 5.3. Figure 8 shows a contour plot of predicted annual process contribution of NO_2 throughout the assessment extents.

Nitrogen Dioxide

Predicted annual mean NO_2 concentrations at the identified receptor locations at the minimum and maximum exposure heights are summarised in Table 14.

Table 14 Predicted NO_2 Concentrations

Receptor	Process Contribution		Magnitude of Change
	Annual Mean NO_2	Hourly mean NO_2 (99.8th percentile)	Annual Mean NO_2
1 103 Camley St – south east	0.06	0.42	Imperceptible
2 103 Camley St – east	0.03	0.25	Imperceptible
3 103 Camley St – north east	0.03	0.25	Imperceptible
4 103 Camley St – south west	0.04	0.25	Imperceptible
5 103 Camley St – west	0.03	0.29	Imperceptible
6 103 Camley St – north west	0.02	0.21	Imperceptible
7 103 Camley St – north	0.02	0.19	Imperceptible
8 Camley St – south east	0.01	0.17	Imperceptible
9 Crofters Way - east	0.01	0.14	Imperceptible
10 Crofters Way - centre	0.01	0.18	Imperceptible
11 Crofters Way - north	0.01	0.16	Imperceptible
12 Camley St – north east	0.01	0.15	Imperceptible
13 Camley St - centre	0.01	0.15	Imperceptible
14 Grand Union Tow Path	0.01	0.16	Imperceptible
15 Hospital north	0.01	0.22	Imperceptible
16 Hospital centre	0.01	0.23	Imperceptible
17 Hospital south	0.01	0.13	Imperceptible
18 Development north east	0.06	0.31	Imperceptible
19 Development north	0.13	0.43	Imperceptible
20 Development north west	0.07	0.42	Imperceptible

[28] Local Air Quality Management Guidance LAQM.TG(09), DEFRA, 2009.

21 Development west	0.16	0.48	Imperceptible
22 Development south	0.09	0.33	Imperceptible
23 Development south east	0.06	0.31	Imperceptible

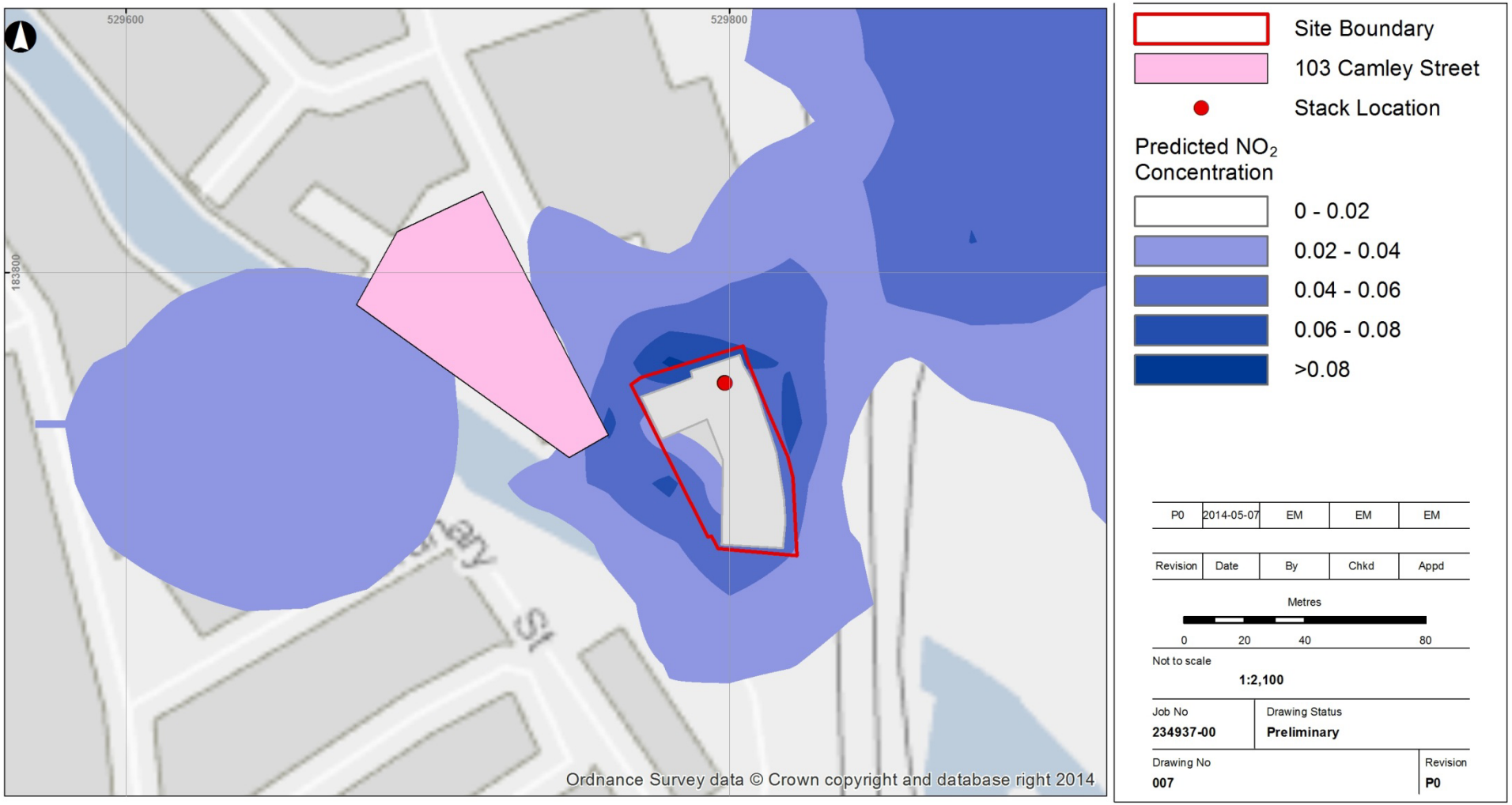
As indicated in Table 14, the largest increase in annual mean NO_2 concentrations is R21 located on the west of the development façade with an increase of 0.16µg/m^3. All other receptors experience lesser increases in annual mean NO_2 concentrations. The predicted magnitude of change of annual mean NO2 concentrations is predicted to be *imperceptible* for all receptors.

The largest increase in hourly mean NO_2 concentrations occurs at the same receptor (R21) with an increase of 0.48µg/m^3. This receptor along with receptors R1, R19 and R20 have a *small* magnitude of change. The magnitude of forecast change is predicted to be *imperceptible* at all remaining receptors.

The hourly mean NO_2 objective is predicted to be met at the site location, therefore total pollutant concentrations are likely to remain below the objective once the process contribution from the energy centre has been added. Therefore, the significance of the energy centre will be negligible for hourly mean NO_2 concentrations at all assessed receptors.

Figure 8 for shows a contour plot of predicted ground level NO_2 concentrations throughout the assessment area.

Figure 8 Predicted Annual Process Contribution NO_2 Concentration ($\mu g/m^3$)



Assessment against air quality neutral

The input data for the air quality neutral assessment of the proposed development are presented in Table 15.

Table 15 Input data to air quality neutral assessment

Land use	GFA (m^2)	Building NOx emissions (g/s)
Class B1	1620	**0.0175**
Class C3	14045	

The building emission benchmarks have been calculated using the gross floor area for each land use type and the relevant benchmarks from the guidance as presented in Table 7. The overall BEB for the development is then the sum of these emissions.

Table 16 Building emission benchmarks for the proposed development

Land-use	NOx (kg/annum)
Class B1	49.9
Class C3	367.9
	417.8

Table 17 Comparison of the TBE and BEB (kg/annum)

Pollutant	TBE	BEB	Difference
NOx	390	414	-24

Table 17 shows the comparison of the TBE and BEB for the development. The NO_x emissions for the proposed development do meet the benchmark for this development.

9 Mitigation

Construction

The dust emitting activities assessed in section 7 can be greatly reduced or eliminated by applying the site specific mitigation measures for *low risk* sites according to the IAQM guidance. The following measures from the guidance are relevant and should be included in the Construction Management Plan for the site.

General

- Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
- Display the head or regional office contact information.
- Develop and implement a Dust Management Plan, which will include measures to control other emissions, approved by the local authority.

Site management

- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner and record the measures taken.
- Make the complaints log available to the local authority when asked.
- Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site and the action taken to resolve the situation in the log book.

Monitoring

- Carry out regular site inspections to monitor compliance with the Dust Management Plan, record inspection results and make an inspection log available to the local authority, when asked.
- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

Site maintenance

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as possible.
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
- Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.
- Avoid site runoff of water or mud.
- Keep site fencing, barriers and scaffolding clean using wet methods.
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site.
- Cover, seed or fence stockpiles to prevent wind whipping.

- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out.

Operating vehicle/machinery and sustainable travel

- Ensure all vehicles switch off engines when stationary – no idling vehicles.
- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
- Impose and signpost a maximum speed limit of 15mph on surfaced and 10mph on un-surfaced haul roads and work areas.
- Implement a Travel Plan than supports and encourages sustainable travel (public transport, cycling, walking and car-sharing).
- Ensure vehicles entering and leaving the site are covered to prevent escape of materials during transport.

Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques, such as water sprays or local extraction.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use the fine water sprays on such equipment wherever appropriate.
- Avoid scabbling (roughening of concrete surfaces) if possible.

Waste management

- Avoid bonfires and burning of waste materials.

Operation

As the proposed development does not result in any significant effects for local air quality no mitigation for the operational phase is required. However, it should be noted that non-openable windows and mechanical vents will be used for noise impact abatement in the development and this will mitigate against poor air quality.

The CHP and boiler used meets the benchmarks from the air quality neutral guidance so no mitigation is required.

10 Summary

This report presents the air quality assessment for a proposed mixed use development at 102 Camley Street, Camden. A review of the current legislation and planning policy has been undertaken, along with a baseline assessment describing the current air quality conditions in the vicinity of the proposed development and an assessment of air quality impacts associated with traffic generated by the scheme.

The site of the proposed development is located within the LBoC AQMA, designated due to exceedences in the relevant air quality standard for annual means NO_2 concentrations and the 24-hour PM_{10} concentrations.

The construction effects have been assessed using the qualitative approach described in the latest IAQM guidance and it was concluded that with appropriate mitigation measures there is likely to be a *negligible effect* from the dust-generating activities on site.

Consideration was provided to potential air quality impacts as a result of locomotive emissions from the Midland Main Line to the east of the development. By considering the relevant factors outlined within LAQM.TG(09) and reviewing local monitoring results, it was identified that emissions from both stationary and moving trains would not be significant at the proposed site location.

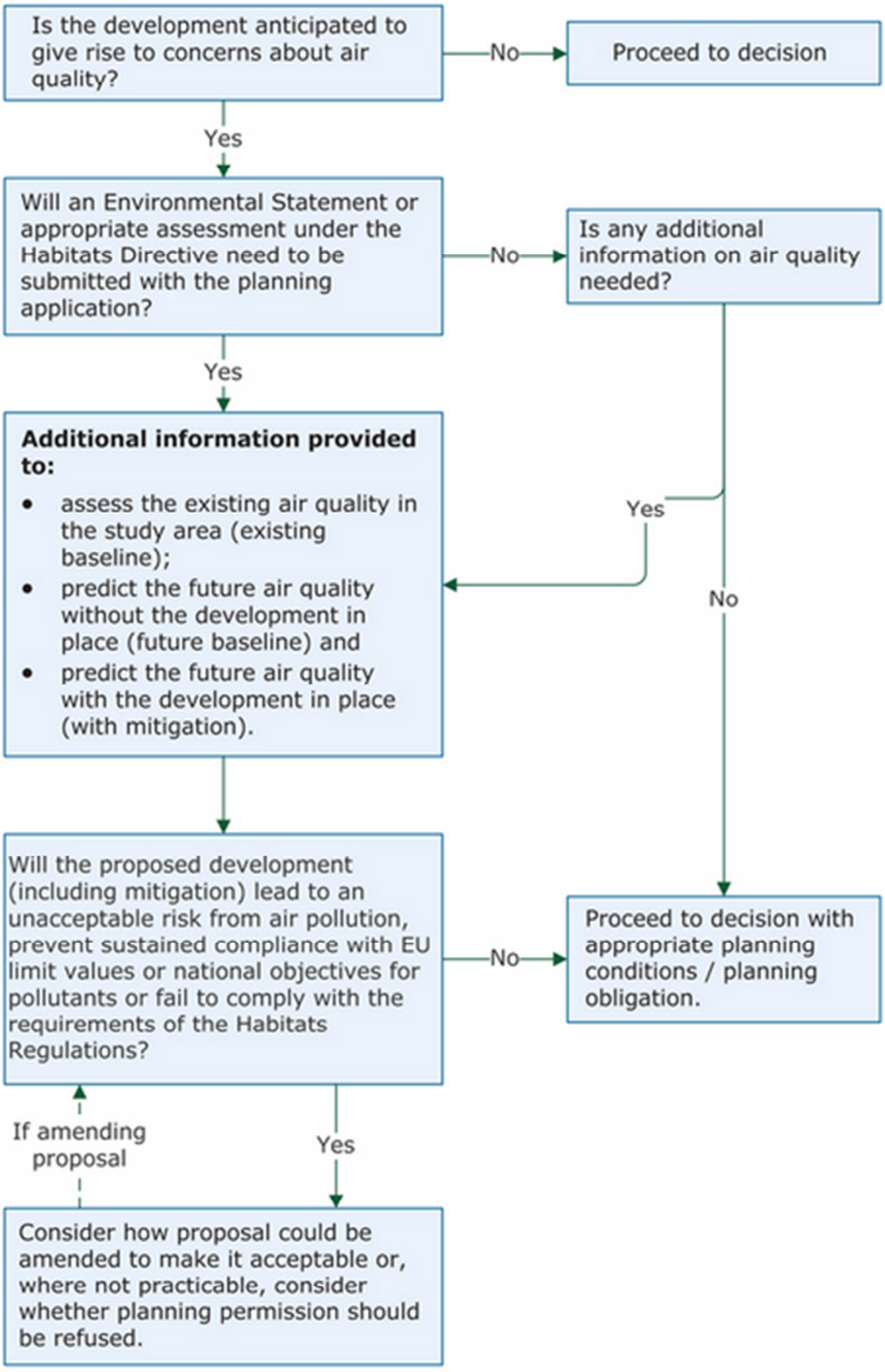
Potential impacts during the operational phase of the proposed development may occur due to road traffic exhaust emissions associated with vehicles travelling to and from the site. An assessment was therefore undertaken using the DMRB and EPUK screening criteria to determine the potential for trips generated by the development to affect local air quality. This indicated that impacts are likely to be *negligible* throughout the operational phase.

The results of the dispersion modelling assessment indicated that emissions associated with the operation of CHP unit and gas boilers for development heating have been assessed using detailed modelling techniques and were shown to be negligible. As such, the operation of the proposed development is expected to have an overall *negligible* impact to the surrounding area and air quality is considered of *minor significance* in the planning process.

Appendix A

Air Quality – PPG Flowchart

A1 PPG Flowchart



Appendix B

Construction Dust Assessment

B1 Construction Dust Assessment

Table A1 Categorisation of dust emission magnitude

Dust Emission Magnitude		
Small	**Medium**	**Large**
Demolition		
• total building volume <20,000m^3 • construction material with low potential for dust release (e.g. metal cladding or timber) • demolition activities <10m above ground • demolition during wetter months	• total building volume 20,000 - 50,000m^3 • potentially dusty construction material • demolition activities 10 - 20m above ground level	• total building volume >50,000m^3 • potentially dusty construction material (e.g. concrete) • on-site crushing and screening • demolition activities >20m above ground level
Earthworks		
• total site area <2,500m^2 • soil type with large grain size (e.g. sand) • <5 heavy earth moving vehicles active at any one time • formation of bunds <4m in height • total material moved <10,000 tonnes • earthworks during wetter months	• total site area 2,500m^2 - 10,000m^2 • moderately dusty soil type (e.g. silt) • 5 – 10 heavy earth moving vehicles active at any one time • formation of bunds 4 - 8m in height • total material moved 20,000 - 100,000 tonnes	• total site area >10,000m^2 • potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size) • >10 heavy earth moving vehicles active at any one time • formation of bunds >8m in height • total material moved >100,000 tonnes
Construction		
• total building volume <25,000 m^3 • construction material with low potential for dust release (e.g. metal cladding or timber)	• total building volume 25,000 - 100,000m^3 • potentially dusty construction material (e.g. concrete) • on-site concrete batching	• total building volume >100,000m^3 • on-site concrete batching • sandblasting
Trackout		
• <10 HDV (>3.5t) outward movements in any one day • surface material with low potential for dust release • unpaved road length <50m	• 10 – 50 HDV (>3.5t) outward movements in any one day • moderately dusty surface material (e.g. high clay content) • unpaved road length 50 – 100m;	• >50 HDV (>3.5t) outward movements in any one day • potentially dusty surface material (e.g. high clay content) • unpaved road length >100m

Table A2 Sensitivity of the area to dust soiling effects on people and property

Receptor sensitivity	Number of receptors	Distance from the source (m)			
		< 20	< 50	< 100	< 350
High	> 100	High	High	Medium	Low
	10 – 100	High	Medium	Low	Low
	< 10	Medium	Low	Low	Low
Medium	> 1	Medium	Low	Low	Low
Low	> 1	Low	Low	Low	Low

Table A3 Sensitivity of the area to human health impacts

Background PM_{10} concentrations (annual mean)	Number of receptors	Distance from the source (m)				
		< 20	< 50	< 100	< 200	< 350
High receptor sensitivity						
> 32µg/m^3	> 100	High	High	High	Medium	Low
	10 – 100			Medium		
	< 10		Medium	Low		
28 – 32µg/m^3	> 100	High	High	Medium	Low	Low
	10 – 100		Medium	Low		
	< 10					
24 – 28µg/m^3	> 100	High	Medium	Low	Low	Low
	10 – 100					
	< 10	Medium	Low			
< 24µg/m^3	> 100	Medium	Low	Low	Low	Low
	10 – 100	Low				
	< 10					
Medium receptor sensitivity						
–	> 10	High	Medium	Low	Low	Low
	< 10	Medium	Low			
Low receptor sensitivity						
–	> 1	Low	Low	Low	Low	Low

Table A4 Sensitivity of the area to ecological impacts

Receptor sensitivity	Distance from the source (m)	
	< 20	< 50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

Appendix C

Air Quality Planning Checklist

Air Quality Planning Checklist

102 Camley Street

This document is to be completed for all developments that are subject to an Air Quality Assessment (AQA).

Travel and Transport

1) If there will be parking in the development, will electric vehicle charging point/s be included?

   Yes, there are 2 disabled spaces. Electric charging points will be provided.

2) Will secure cycle storage be provided for users of the building?

   Yes, secure cycle storage is provided for residential and commercial. 240 spaces in total.

Energy

3) If a CHP is to be included, did you ensure that this technology is suitable for the energy requirements of the building? Please see Camden's Boiler Guidance Manual B for more information.

CHP included in the design and is suitable for year round operation to provide the domestic hot water load.

4) If CHP is to be included, will it adhere to the GLA CHP Emissions Limits outlined in the *GLA's* Sustainable Design and Construction SPG?

   Yes, emissions will be below Band A limits and could be reduced to Band B with additional reduction measures.

5) Has the impact of the CHP been modelled within the air quality assessment?

   Yes

   Please note that if CHP modelling was not included due to the fact that the final CHP specification has not been decided, this will need to be clearly stated in the draft AQA, and the potential impact of the CHP will still need to be considered when assessing the exposure of occupants and/or locations of any ventilation inlets, if applicable. If full details of the CHP have not been

included at Planning Application stage, Camden will impose a stringent Planning Condition for the CHP, which will include a requirement for modelling of the impact at all sensitive receptors, as well as a requirement that it adheres to the requirements of the GLA's Sustainable Design and Construction SPG.

Exposure

6) If located in an area of poor air quality and/or next to a busy road or diesel railway line, does the AQA include details of the way in which the building has been designed to reduce the exposure of occupants (e.g. through orientation, greening, placement of residential properties, or, only for developments in areas of very poor air quality, mechanical ventilation?)

   Yes

   If not, the AQA must be revised to include this information.

Construction Dust

7) Does the project have a Construction Management Plan written in accordance with the recommendations in the Control of Dust and Emissions during Construction and Demolition Supplementary Planning Guidance, including an assessment of the risk? And, if the risk is High, a real time monitoring proposal?

   Yes, a construction management plan has been written to take in these recommendations. A thorough risk assessment will be developed once the design is more progressed.

   If not, this must be provided.

Air Quality Neutral

8) Does the AQA include an assessment against the GLA's Air Quality Neutral Standard?

   Yes

   If not, this must be included, as outlined in the GLA's Sustainable Design and Construction SPG.

Please return this form with your AQA with your Planning Application