

## 5.0 Air Quality

5.1.1 This chapter considers the details of Plot 1 submitted for approval in the RMA to determine the extent to which the air quality effects of the Proposed Development remain in conformity with the 2019 ESA.

## 5.2 Scope of the Assessment

5.2.1 This Chapter provides an update to the 2019 ESA to reflect the details being submitted as part of the RMA and changes proposed to the construction programme described in Chapter 1 of this Environmental Compliance Report.

5.2.2 This chapter of the ES assesses the likely significant effects of the Proposed Development in terms of air quality and is supported by **(Appendix E)**. It should be read in conjunction with the standalone Air Quality Positive Statement.

5.2.3 The chapter describes the changes to the assessment methodology; the updated baseline conditions currently existing at the Site and in the surrounding area; the likely significant environmental effects; the mitigation measures required to prevent, reduce or offset any significant adverse effects; the likely residual effects after these measures have been employed; and the 'Type 2' (Inter-project) cumulative effects associated with the Proposed Development in combination with other developments within 1 km of the Site.

5.2.4 The chapter has also been prepared to comply with planning Condition 34 of the LB Hackney hybrid consent and Condition 36 of the LBTH hybrid consent insofar as it relates to the development phases covered by RMA01, which requires that:

*"Each Reserved Matters submission shall be accompanied by an updated air quality assessment which sets out a detailed assessment of air quality impacts of the relevant phase / building. Any updated assessment shall be informed by a programme of air quality monitoring, shall demonstrate how each relevant phase / building will be air quality neutral and shall set out any necessary mitigation measures. The updated air quality assessment shall be implemented as approved."*

## 5.3 Changes to Legislation, Policy and Guidance

5.3.1 This air quality assessment has been undertaken within the context of relevant planning policies, guidance documents and legislative instruments. Those which are not described below have not been updated since the 2019 ESA.

5.3.2 The following changes in legislation, policy and guidance have not affected the conclusions of the 2019 ESA:

- Revocation of the London Air Quality Strategy (2010)<sup>1</sup>, LBH Air Quality Action Plan (2015)<sup>2</sup>, Sustainable Design and Construction Supplementary Planning Guidance<sup>3</sup> and Pollution Control Air Quality Planning Guidance<sup>4</sup>; and,
- Changes in the National Planning Policy Framework.<sup>5</sup>

5.3.3 The Clean Air Act 1993<sup>6</sup> is no longer relevant to the Site, as the Proposed Development has designed out combustion plant.

5.3.4 A new indicative Limit Value (20µg/m<sup>3</sup> annual mean fine particulate matter with a diameter of less than 2.5 micrometres (PM<sub>2.5</sub>)) was adopted within the Ambient Air Quality Directive (2008/50/EC)<sup>7</sup>, which has been transposed into English law<sup>8</sup> as an Air Quality Standard (AQS). This is referenced in the 'Air quality strategy: framework for local authority delivery'<sup>9</sup> (2023), which supersedes the 2007 Air Quality Strategy<sup>10</sup> in England as was referenced in the 2019 ESA.

5.3.5 The Environment Act 2021<sup>11</sup> amends part of the Environment Act 1995 and sets legally binding targets in priority areas including air quality, which must be met in England over a 25-year period. The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 set the following legally binding targets (LBTs) to be met by 2040:

- Annual mean concentration target (AMCT) of 10µg/m<sup>3</sup>; and,
- Population exposure reduction target (PERT) of 35 % compared to 2018 exposure.

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<sup>1</sup> Greater London Authority (2010) *Cleaning the Air – The Mayor’s Air Quality Strategy*, Greater London Authority, London.

<sup>2</sup> London Borough of Hackney (2015) *Hackney Council Air Quality Action Plan 2015-2019*, London Borough of Hackney, London.

<sup>3</sup> Greater London Authority (2014) *Sustainable Design and Construction, The London Plan Supplementary Planning Guidance*, Greater London Authority, London.

<sup>4</sup> London Borough of Hackney (2013) *Pollution Control Air Quality Planning Guidance*, London Borough of Hackney, London.

<sup>5</sup> Department for Levelling Up, Housing and Communities, 2023. *National Planning Policy Framework*.

<sup>6</sup> Clean Air Act 1993, Chapter 11.

<sup>7</sup> The European Parliament and the Council of the European Union, 2008. *Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air and cleaner air for Europe*. Official Journal of the European Union L152/2 11.6.2008.

<sup>8</sup> *Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020*.

<sup>9</sup> Department for Environment, Food and Rural Affairs, 2023. *Air quality strategy: framework for local authority delivery*.

<sup>10</sup> The Air Quality Strategy for England, Scotland, Wales and Northern Ireland. Volume 1 s.l, s.n.g/m<sup>3</sup> (2007), Department of the Environment, Food and Rural Affairs, et al.

<sup>11</sup> Mayor of London, 2019.

5.3.6 The Environmental Improvement Plan 2023 set interim targets (ITs) to be met by end of January 2028:

- AMCT of 12µg/m<sup>3</sup>; and,
- PERT of 22 % (compared to 2018 exposure).

5.3.7 Planning applications are not yet required to meet these LBTs or ITs (although updates to national planning guidance are being considered); however, local authorities are expected to work towards these targets through the planning system.

5.3.8 The AQOs and AQSs shown in **Table 5.1** below have been considered within this assessment and are herein collectively referred to as AQOs. The World Health Organisation Guideline Values (WHO GVs) for annual mean PM<sub>10</sub> and PM<sub>2.5</sub>, the target towards which London Local Authorities should work according to the London Environment Strategy and the London Local Air Quality Management Policy Guidance<sup>12</sup>, are also presented.

**Table 5.1: Air quality thresholds relevant to the assessment**

Pollutant	Threshold level	Type of threshold	Measured as	Receptors to which threshold level applies
NO <sub>2</sub>	200µg/m <sup>3</sup> , not to be exceeded more than 18 times per year	AQO	One-hour mean	Anywhere where a member of the public may spend one hour or longer
NO <sub>2</sub>	40µg/m <sup>3</sup>	AQO	Annual mean	Human residences, schools and hospitals
PM <sub>10</sub>	50µg/m <sup>3</sup> , not to be exceeded more than 35 times per year	AQO	24-hour mean	Human residences, schools and hospitals and private gardens
PM <sub>10</sub>	40µg/m <sup>3</sup>	AQO	Annual mean	Human residences, schools and hospitals
PM <sub>10</sub>	20µg/m <sup>3</sup>	WHO GV	Annual mean	Human residences, schools and hospitals

<sup>12</sup> Mayor of London, 2019. London Local Air Quality Management (LLAQM) Technical Guidance 2019 (LLAQM.TG (19)).

Pollutant	Threshold level	Type of threshold	Measured as	Receptors to which threshold level applies
PM <sub>2.5</sub>	20µg/m <sup>3</sup>	AQS	Annual mean	Human residences, schools and hospitals
PM <sub>2.5</sub>	10µg/m <sup>3</sup>	LBT; WHO GV	Annual mean	Human residences, schools and hospitals

## The London Plan 2021

5.3.9 Since the 2019 ESA, the London Plan 2021<sup>13</sup> has been adopted. Policy SI1, relating to air quality, states that:

1. *“Development proposals should not:*
  - a. *lead to further deterioration of existing poor air quality*
  - b. *create any new areas that exceed air quality limits, or delay the date at which compliance will be achieved in areas that are currently in exceedance of legal limits*
  - c. *create unacceptable risk of high levels of exposure to poor air quality.*
2. *In order to meet the requirements in Part 1, as a minimum:*
  - d. *Development proposals should be at least Air Quality Neutral*
  - e. *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 quality in preference to post-design or retro-fitted mitigation measures*
  - f. *Major development proposals must be submitted with an air quality assessment. Air quality assessments should show how the development will meet the requirements of B1*
  - g. *Development proposals in Air Quality Focus Areas or that are likely to be used by large numbers of people particularly vulnerable to poor air*

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<sup>13</sup> Mayor of London, 2021a. *The London Plan*.

*quality, such as children or older people should demonstrate that design measures have been used to minimise exposure.*

3. *Masterplans and development briefs for large-scale development proposals subject to an Environmental Impact Assessment should consider how local air quality can be improved across the area of the proposal as part of an air quality positive approach. To achieve this a statement should be submitted demonstrating:
  - 1) *how proposals have considered ways to maximise benefits to local air quality, and*
  - 2) *what measures or design features will be put in place to reduce exposure to pollution, and how they will achieve this.**
4. *In order to reduce the impact on air quality during the construction and demolition phase development proposals must demonstrate how they plan to comply with the Non-Road Mobile Machinery Low Emission Zone and reduce emissions from the demolition and construction of buildings following best practice guidance.*
5. *Development proposals should ensure that where emissions need to be reduced to meet the requirements of Air Quality Neutral or to make the impact of development on local air quality acceptable, this is done on-site. Where it can be demonstrated that emissions cannot be further reduced by on-site measures, off-site measures to improve local air quality may be acceptable, provided that equivalent air quality benefits can be demonstrated within the area affected by the development."*

5.3.10 The Supporting Text accompanying Policy S11 indicates that *"The aim of this policy is to ensure that new developments are designed and built, as far as is possible, to improve local air quality and reduce the extent to which the public are exposed to poor air quality. New developments, as a minimum, must not cause new exceedances of legal air quality standards, or delay the date at which compliance will be achieved in areas that are currently in exceedance of legal limits. Where limit values are already met or are predicted to be met at the time of completion, new developments must endeavour to maintain the best ambient air quality compatible with sustainable development principles."*

5.3.11 It also states that *"Where this policy refers to 'existing poor air quality' this should be taken to include areas where legal limits for any pollutant, or World Health Organisation targets for Particulate Matter, are already exceeded and areas where current pollution levels are within 5 per cent of these limits."* This refers to the WHO GVs outlined in **Table 7.1**.

5.3.12 The key changes arising from this updated planning policy are that:

- An air quality positive assessment is now required; and

- Consideration should be given against the WHO GVs.

5.3.13 The guidance explaining the requirements relating to Air Quality Neutral and Air Quality Positive is summarised in the Technical Standards and Guidance.

### Hackney A Place for Everyone: Hackney Local Plan 2033 (LBH, 2020)

5.3.14 Policy LP58 (“Improving the Environment – Pollution”) of the LBH Local Plan<sup>14</sup>, adopted during 2020 and superseding previous versions, states that:

- A. *“All new development must as a minimum not exceed air quality neutral standards or contribute to a worsening of air quality at the construction or operation stage, over the lifetime of the development.”*
- B. *“New development, especially those catering for vulnerable people and users such as elderly and children should be sited and designed to minimise exposure to air pollution.”*
- C. *“An air quality assessment (AQA) will be required for the following types of development:*
  - *All major developments, or*
  - *New build developments in areas of sub-standard air quality; or*
  - *Developments in close proximity to sensitive uses; or*
  - *Development of sensitive uses; or*
  - *Developments which involve significant demolition and construction.*
- D. *“Development proposals which are identified as likely to cause harm to air quality or could expose occupiers and users of the building to poor air quality will be resisted unless appropriate mitigation measures are proposed to reduce the impact to acceptable levels.”*
- E. *“Measures to improve air quality should be implemented on-site however where it can be demonstrated that on-site provision is impractical or inappropriate, off-site measures to improve local air quality may be acceptable, provided that equivalent air quality benefits can be demonstrated.”*

5.3.15 Policy LP58 within the latest version of the Hackney Local Plan does not have any new implications on the approach to the assessment methodology since the 2019 ESA.

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<sup>14</sup> LBH, 2020. *Hackney A Place for Everyone: Hackney Local Plan 2033.*

## Tower Hamlets Local Plan 2031: Managing Growth and Sharing Benefits

5.3.16 Policy D.ES2 ("Air quality") of the Tower Hamlets Local Plan<sup>15</sup>, adopted in January 2020 and superseding previous versions, states that:

1. *Development is required to meet or exceed the 'air quality neutral' standard, including promoting the use of low or zero emission transport and reducing the reliance on private motor vehicles. 2.*
2. *An air quality impact assessment, based on current best practice, is required as part of the planning application for:*
  - a. *Major developments*
  - b. *Developments which will require substantial earthworks or demolition*
  - c. *Developments which include education and health facilities or open space (including child play space), and*
  - d. *New build developments in areas of sub-standard air quality (as designated and shown on the Policies Map).*
3. *Where an air quality assessment indicates that a development will cause harm to air quality or where end users could be exposed to poor air quality, development will be resisted unless mitigation measures are adopted to reduce the impact to acceptable levels.*
4. *New build developments which propose to provide any private, communal, publicly accessible open space or child play space in areas of sub-standard air quality are required to demonstrate that they have considered the positioning and design of the open space to reduce exposure of future users to air pollution."*

5.3.17 Policy D.ES2 within the latest version of the Tower Hamlets Local Plan does not have any new implications on the approach to the assessment methodology since the 2019 ESA.

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<sup>15</sup> London Borough of Tower Hamlets (2020) Tower Hamlets Local Plan 2031: Managing Growth and Sharing Benefits.

## London Borough of Tower Hamlets Air Quality Action Plan 2022 – 2027

5.3.18 The London Borough of Tower Hamlets Air Quality Action Plan (AQAP)<sup>16</sup> outlines the actions Tower Hamlets will take to improve air quality in the borough between 2022 – 2027. These can be considered under seven broad topics:

- ***“Monitoring and other core statutory duties:*** *maintaining monitoring networks is critical for understanding where pollution is most acute, and what measures are effective to reduce pollution. There are also several other very important statutory duties undertaken by Boroughs, which form the basis of action to improve pollution.*
- ***Emissions from developments and buildings:*** *emissions from construction accounts for approximately 35% of PM10 and 15% of PM2.5 across the borough. Therefore, our focus will be to tackle this through the planning process by recommending appropriate conditions and monitoring of these pollutants by developers.*
- ***Public health and awareness raising:*** *increasing awareness can drive behavioural change to lower emissions as well as to reduce exposure to air pollution.*
- ***Delivery servicing and freight:*** *vehicles delivering goods and services are usually light and heavy-duty diesel-fuelled vehicles with high primary NO2 emissions.*
- ***Borough fleet actions:*** *our fleet includes light and heavy-duty diesel-fuelled vehicles such as minibuses and refuse collection vehicles with high primary NO2 emissions. Tackling our own fleet means we will be leading by example.*
- ***Localised solutions:*** *such as expanding and improving green infrastructure, Low Emission Neighbourhoods (LENs) subject to securing funding, replacing boilers and implementing insulation schemes in schools and Council properties, etc.*
- ***Cleaner transport:*** *road transport accounts for 47% of NOx emissions, 24% of PM10 and 26% of PM2.5 in the Borough. We want to improve cleaner transport within the Borough through transport and air quality policies, idling enforcement, car free days, pedestrianisation schemes project, installation of electric vehicle charging points, and supporting walking and cycling.”*

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<sup>16</sup> London Borough of Tower Hamlets (2022) Tower Hamlets Air Quality Action Plan (2022-2027).



## Technical Standards and Guidance

### *Guidance on the Assessment of Dust from Demolition and Construction (Institute of Air Quality Management, 2016) ('the IAQM 2014 guidance')*

- 5.3.19 The 2019 ESA was informed by the guidance<sup>17</sup>, which was published in 2014 and underwent minor updates in 2016. It has undergone minor changes and provides a framework for assessing the risk which fugitive dust and PM could have on air quality and suggests appropriate dust and air emissions mitigation measures for sites according to the level of risk.
- 5.3.20 It should be noted that the 2014 IAQM 'Guidance on the assessment of dust from demolition and construction' was updated in August 2023<sup>18</sup> ('the IAQM 2023 guidance'), with minor amendments to the assessment methodology.

### *Local Air Quality Management Technical Guidance ('TG22') and London Local Air Quality Management Technical Guidance (Mayor of London, 2019) ('TG19')*

- 5.3.21 TG22<sup>19</sup> and TG19<sup>20</sup>, which previous versions of the guidance as was cited in the 2019 ESA, contain information for local authorities to assess and, where required, deliver improvements in air quality within their jurisdiction. TG22 also recommends where the AQOs should be applied, as outlined in **Table 5.2**. These are broadly similar to the locations where the EU Limit Values should be applied.

**Table 5.1: Examples of where the air quality objectives should apply, as per TG22**

Averaging Period Objectives	Objectives should apply at	Objectives should generally not apply at
Annual mean	All locations where members of the public might be regularly exposed. Building facades of residential	Building facades of offices or other places of work where members of the

<sup>17</sup> Institute of Air Quality Management, 2014. *Guidance of the Assessment of dust from demolition and construction*.

<sup>18</sup> Institute of Air Quality Management, 2023. *Guidance of the Assessment of dust from demolition and construction*.

<sup>19</sup> Department for Environment, Food and Rural Affairs, 2022. Part IV of the Environment Act 1995: Local Air Quality Management: Technical Guidance (TG22), London: Crown.

<sup>20</sup> Mayor of London, 2019. *London Local Air Quality Management (LLAQM) Technical Guidance 2019 (LLAQM.TG (19))*.

Averaging Period Objectives	Objectives should apply at	Objectives should generally not apply at
	<p>properties, schools, hospitals, care homes etc.</p>	<p>public do not have regular access.</p> <p>Hotels, unless people live there as their permanent residence.</p> <p>Gardens of residential properties.</p> <p>Kerbside sites (as opposed to locations at the building facade), or any other location where public exposure is expected to be short term.</p>
<p>24-hour mean and 8 hour mean</p>	<p>All locations where the annual mean objective would apply, together with hotels.</p> <p>Gardens of residential properties (not at peripheries or front gardens unless exposure is likely there).</p>	<p>Kerbside sites (as opposed to locations at the building facade), or any other location where public exposure is expected to be short term.</p>
<p>1-hour mean</p>	<p>All locations where the annual mean and: 24 and 8-hour mean objectives apply.</p> <p>Kerbside sites (for example, pavements of busy shopping streets). Those parts of car parks, bus stations and railway stations etc. which</p>	<p>Kerbside sites where the public would not be expected to have regular access.</p>

Averaging Period Objectives	Objectives should apply at	Objectives should generally not apply at
	are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more. Any outdoor locations where members of the public might reasonably expect to spend one hour or longer.	
15-minute mean	All locations where members of the public might reasonably be exposed for a period of 15 minutes or longer.	

*London Plan Guidance: Air Quality Neutral ('the GLA AQN guidance')*

5.3.22 The GLA AQN guidance<sup>21</sup>, published in February 2023, sets out the method which should be used to undertake an air quality neutral assessment according with the London Plan. This guidance has been followed in order to complete the assessment.

*London Plan Guidance: Air Quality Positive ('the GLA AQP guidance')*

5.3.23 The GLA AQP guidance<sup>22</sup>, published in February 2023, sets out the method which should be used to undertake an air quality positive assessment according with the London Plan. The principles embedded within the guidance are to minimise exposure to air pollution and maximise improvements in air quality. A separate air quality

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<sup>21</sup> Mayor of London, 2023. *London Plan Guidance: Air Quality Neutral*. Greater London Authority.

<sup>22</sup> Mayor of London, 2023. *London Plan Guidance: Air Quality Positive*. Greater London Authority.

positive statement has been produced to accompany this assessment; however, as the Proposed Development was predominantly designed before the current London Plan and AQP guidance were adopted, embedded measures to maximise improvements to maximise air quality were not explicitly considered within the scheme design.

## 5.4 Changes to Baseline Conditions

### Site Environs and presence of AQMAs

- 5.4.1 The Site is located on the boundary between the London Borough of Tower Hamlets (LBTH) and the London Borough of Hackney (LBH). The Site falls within the borough-wide AQMAs<sup>23</sup> and is partly within the Old Street City Road/Old Street/Great Eastern Street/Shoreditch High Street Focus Area<sup>24</sup>. The Site is bounded by the A1209 and B135 to the north, the A1202 to the west and south, Quaker Street to the south and Brick Lane to the east.
- 5.4.2 LBTH declared a borough-wide AQMA in 2000 for exceedances of the annual mean NO<sub>2</sub> and 24-hour PM<sub>10</sub> objectives, while the LBH declared a borough-wide AQMA in 2006 for exceedances of the annual mean and one-hour mean NO<sub>2</sub> objectives and the 24-hour mean PM<sub>10</sub> objective. These AQOs are derived from the Air Quality (England) Regulations 2000, as amended, and are the objectives against which conclusions are proposed to be made for the purposes of our assessment. The LBTH and LBH subsequently adopted their most recent AQAPs in October 2017<sup>25</sup> and February 2021<sup>26</sup> respectively.

### Local Authority air quality monitoring

- 5.4.3 According to the most recent representative Air Quality Annual Status Reports issued by LBTH<sup>27</sup> and the adjacent LBH<sup>28</sup> available at the time of writing, the national annual mean air quality objective (AQO) for NO<sub>2</sub> is currently not met in the Boroughs. However, monitoring data suggest that the annual mean objective and short-term objectives for PM<sub>10</sub> and PM<sub>2.5</sub> are being met.

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<sup>23</sup> Department for Environment, Food and Rural Affairs, n.d. *UK AIR: Air Information Resource: AQMAs Interactive Map*.

<sup>24</sup> The Greater London Authorities have identified areas where NO<sub>2</sub> limit value exceedances coincide with high human exposure. These 'focus areas' include the area Old Street City Road/Old Street/Great Eastern Street/Shoreditch High Street.

<sup>25</sup> London Borough of Tower Hamlets (2017) London Borough of Tower Hamlets Air Quality Action Plan 2017-2022, London Borough of Tower Hamlets, London

<sup>26</sup> London Borough of Hackney (2021) Hackney Council Air Quality Action Plan 2021-2025, London Borough of Hackney, London

<sup>27</sup> Vianello, N., 2021. London Borough of Tower Hamlets Air Quality Annual Status Report for 2020.

<sup>28</sup> Trew, D., 2023. London Borough of Hackney Air Quality Annual Status Report for 2022.

- 5.4.4 The monitoring data for the years 2015 – 2022 are presented in **Table 5.3** and **Table 5.4**, where available. It should be noted that at the time of writing, 2022 monitoring data has only been published by LBH. While LBTH and LBH have published their data from 2020 and 2021, it is anticipated that the Covid-19 pandemic will have impacted on traffic volumes using local roads, and hence pollutant concentrations predicted at adjacent air quality monitoring stations; hence, these are not presented.
- 5.4.5 Continuous monitoring is undertaken at ten sites across the LBTH and the LBH. One of these sites, HK 006, at the junction between Great Eastern Street and Old Street, is located approximately 650 m to the northwest of the Site. As such, the concentrations recorded at this site provide an indication of the air quality in the local area.
- 5.4.6 **Table 5.3** shows NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> monitoring results from the HK 006 roadside monitoring site. The NO<sub>2</sub> annual mean objective has been exceeded at this monitoring site between 2015 and 2019, however the objective has been met during 2022, the latest year of available monitoring data. The one-hour mean NO<sub>2</sub> objective, however, was not exceeded and was therefore met during this period. Concentrations of PM<sub>10</sub> at this monitoring location did not exceed the annual or 24-hour mean objectives between 2015 and 2022 and therefore met the objectives. Annual mean PM<sub>2.5</sub> concentrations were also below the annual mean objective and was therefore met during this period.

**Table 5.2: Monitoring results for the Automatic HK 006 Old Street monitoring station from 2015-2022**

Year	Annual Mean NO <sub>2</sub> (µg/m <sup>3</sup> )	No. of 1-hour exceedances NO <sub>2</sub>	Annual mean PM <sub>10</sub> (µg/m <sup>3</sup> )	No. of 24-hour exceedances PM <sub>10</sub>	Annual mean PM <sub>2.5</sub> (µg/m <sup>3</sup> )
2015	<b>60</b>	0	26	5	12
2016	<b>57</b>	0	20	2	12
2017	<b>57</b>	0	19	1	12
2018	<b>50</b>	0	24	2	10
2019	<b>47</b>	0	22	6	9
2022	31	0	20	3	9
AQO	<b>40</b>	18	<b>40</b>	35	<b>20</b>

\* Note: Exceedances are in bold.

- 5.4.7 LBTH and LBH carry out monitoring surveys using diffusion tubes to measure NO<sub>2</sub> concentrations at kerbside, urban centre and urban background locations. There are 18 monitoring locations relatively close to the site within LBTH and the LBH.

**Table 5.3: Annual mean NO<sub>2</sub> concentrations at diffusion tube sites (µg/m<sup>3</sup>) during 2015-2022**

Site Name	Location	Site Type	2015	2016	2017	2018	2019	2022
1 (LBTH)	Colombia Rd/Gossett St	Kerbside	38	37	39	34	33	-

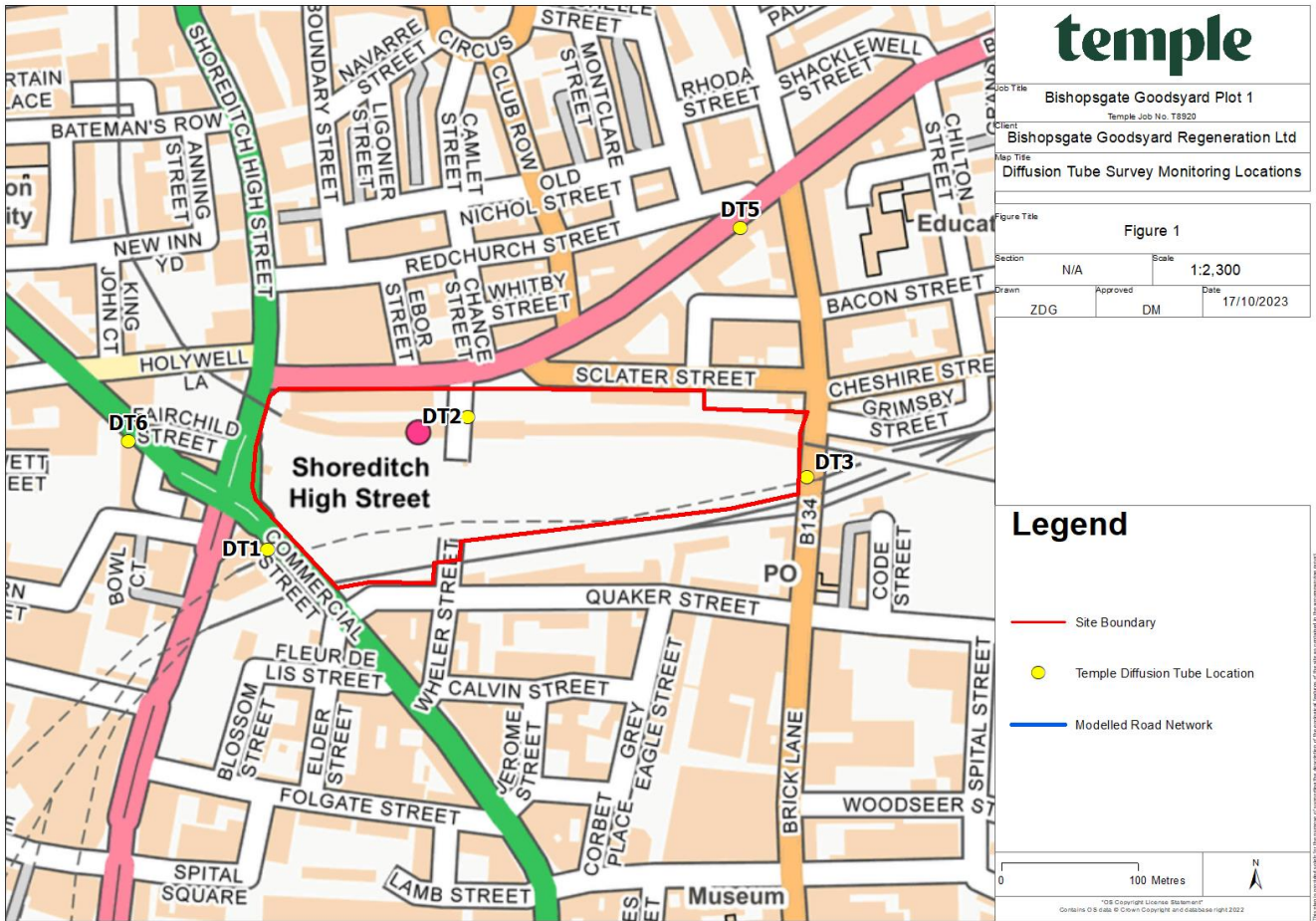
Site Name	Location	Site Type	2015	2016	2017	2018	2019	2022
2 (LBTH)	Calvert Ave/Boundary Street	Kerbside	42	41	40	37	35	-
3 (LBTH)	Bethnal Grn Rd/Brick Lane	Kerbside	47	46	45	36	37	-
4 (LBTH)	Commercial St/Calvin St	Kerbside	66	60	60	53	48	-
11 (LBTH)	Brick Lane/Princelet Street	Kerbside	42	44	40	35	32	-
12 (LBTH)	Buckfast St/Bethnal Green Rd	Kerbside	42	42	39	35	32	-
71 (LBTH)	Toynbee St/Commercial St	Roadside	-	-	-	54	45	-
1 (LBH)	Old Street	Roadside	68	61	61	55	48	32
6 (LBH)	44 Great Eastern St	Roadside	64	62	66	63	50	33
7 (LBH)	84 Great Eastern St	Roadside	61	62	67	52	57	-
15 (LBH)	Rivington Street 4	Roadside	44	42	39	35	31	22
16 (LBH)	Charlotte Road 1	Roadside	52	51	46	42	43	25
17 (LBH)	Charlotte Road 2	Roadside	55	52	46	46	48	35
26 (LBH)	Curtain Road 1	Kerbside	58	56	59	53	48	37
27 (LBH)	Holywell Lane 1	Roadside	60	56	55	57	47	30
117 (LBH)	Leonard St	Roadside	41	43	42	38	42	28
120 (LBH)	Pitfield St 3	Kerbside	44	39	42	39	35	21
141 (LBH)	Lyceum Preparatory	Kerbside	-	-	-	38	35	25

5.4.8 The results of NO<sub>2</sub> diffusion tube monitoring at locations nearest to the Site are shown in **Table 5.4**. These results indicate that the annual mean NO<sub>2</sub> objective was consistently not met at the majority of sites considered prior to 2022. However, during 2022, all of the LBH diffusion tubes in proximity to the Site met the annual mean NO<sub>2</sub> AQO. In addition, concentrations at LBTH location 4 and LBH locations 1, 6, 7 and 27 were greater than 60 µg/m<sup>3</sup> in between 2015 - 2017, indicating that the NO<sub>2</sub> hourly mean objective may not have been met at these locations during this period. None of the locations monitored annual mean NO<sub>2</sub> concentrations above 60 µg/m<sup>3</sup> during 2019 or 2022, the latest available years of representative monitoring for LBTH and LBH respectively.

## Temple Group Air Quality Monitoring

5.4.9 In addition to the local authority monitoring in proximity to the Site, a three-month NO<sub>2</sub> air quality monitoring study was undertaken at and around the Proposed Development site between September and December 2022. The method used to undertake the monitoring and the sampling locations are outlined in **Appendix D**. The monitoring results are shown in **Table 5.5** below.

Figure 1. Temple diffusion tube monitoring locations



5.4.10 Average mean pollutant concentrations were obtained from the five monitoring locations located at roadside locations adjacent roads in the vicinity the Site. The average mean NO<sub>2</sub> concentration monitored exceeded the 40 µg/m<sup>3</sup> annual mean AQO at two monitoring locations near the A1202 but was well below the AQO at the other monitoring locations. The diffusion tube located within the site boundary, along Braithwaite Street, monitored an average concentration of 25.63 µg/m<sup>3</sup>. It should be noted that diffusion tube 4 was missing from the monitoring location upon arrival following the first monitoring period. It was therefore subsequently excluded from the monitoring survey.

Table 5.4: Annual mean NO<sub>2</sub> concentrations monitored by Temple at locations in proximity to the Proposed Development site (Sep – Dec 2022)

Site ID	Location	Annualised mean	Final mean (annualised and bias adjusted)
1	Commercial Street (533488,182153)	47.7	40.08
2	Braithwaite Street (533634,182250)	30.5	25.63
3	Brick Lane (533882,182206)	26.4	22.15

5	Benthal Green Road (533833,182388)	31.2	26.17
6	Great Eastern Street (533386, 182232)	52.0	43.65
<b>Objective</b>			<b>40</b>

## Estimated Background Data

- 5.4.11 Estimated background data are available from the United Kingdom Air Information Resource (UK-AIR) website<sup>29</sup> operated by Defra. The website provides estimated annual average background concentrations of NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> on a 1 km<sup>2</sup> grid basis.
- 5.4.12 **Table 5.6** presents estimated annual average background NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> concentrations for the grid square containing the Site (533500, 182500) for the years 2019, 2027 (the year construction works is expected to begin) and 2030 (the year of completion for Plot 1).
- 5.4.13 The estimated background concentrations are below the relevant AQOs for NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub>. As background concentrations are predicted to fall with time, background concentrations in future years would not be expected to exceed their respective AQOs.

**Table 5.5: Estimated Background Annual Average NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> Concentrations at the Site**

Year	Estimated Annual Average Pollutant Concentrations Derived from the LAQM Support Website		
	Annual Average NO <sub>2</sub> (µg/m <sup>3</sup> )	Annual Average PM <sub>10</sub> (µg/m <sup>3</sup> )	Annual Average PM <sub>2.5</sub> (µg/m <sup>3</sup> )
2019	37.16	20.26	12.90
2027	30.47	18.54	11.76
2030	29.54	18.54	11.78
<b>Air Quality Objective</b>	<b>40</b>	<b>40</b>	<b>20</b>

- 5.4.14 In addition to local air quality monitoring data, estimated background concentrations are available from the London Atmospheric Emissions Inventory (LAEI)<sup>30</sup>, maintained by Kings College London on behalf of the Mayor of London. The 2019 LAEI pollutant maps also show that annual mean PM<sub>2.5</sub> concentrations at the Site were estimated to be below the 20 µg/m<sup>3</sup> annual mean AQO, although annual mean NO<sub>2</sub> and PM<sub>10</sub> concentrations exceeded the 40 µg/m<sup>3</sup> AQOs in areas closest to the main roads,

<sup>29</sup> Department for Environment, Food and Rural Affairs, 2020. *Background Mapping data for local authorities – 2018*.

<sup>30</sup> Greater London Authority and Transport for London, 2022. *London Atmospheric Emissions Inventory (LAEI) 2019*.



Shoreditch High Street and Commercial Street. However, the annual mean NO<sub>2</sub> concentrations are anticipated to have decreased since 2019 such that the breaches of the AQO near the road may not occur in future.

## Summary of current and future baseline

- 5.4.15 According to the EPUK-IAQM guidance, the 24-hour mean PM<sub>10</sub> AQO will not be exceeded unless the annual mean PM<sub>10</sub> AQO exceeds ~32µg/m<sup>3</sup>. TG22 indicates that exceedances of the hourly mean NO<sub>2</sub> AQO should not be exceeded if annual mean NO<sub>2</sub> concentrations are below 60 µg/m<sup>3</sup>. None of the monitoring locations in proximity to the Site monitored an annual mean NO<sub>2</sub> concentrations above 60 µg/m<sup>3</sup> during 2019, and none of the LBH monitoring locations monitored an exceedance of annual mean NO<sub>2</sub> AQO during the 2022, the latest year of representative data.
- 5.4.16 Annual mean PM<sub>10</sub> concentrations did not exceed 31µg/m<sup>3</sup> at or around the Site, as shown in the UK-AIR background maps and as monitored at Hackney 006. Annual mean PM<sub>2.5</sub> concentrations did not exceed the AQO. Annual mean NO<sub>2</sub> concentrations did not exceed 60 µg/m<sup>3</sup> at Site or in the surrounding area for the most recent year of representative monitoring, however the 2019 LAEI pollutant maps indicated that annual mean NO<sub>2</sub> and PM<sub>10</sub> concentrations may exceed the 40 µg/m<sup>3</sup> AQOs in areas closest to the main roads, Shoreditch High Street and Commercial Street.
- 5.4.17 The NO<sub>2</sub> diffusion tube monitoring study undertaken by Temple found that the average mean NO<sub>2</sub> concentration monitored exceeded the 40 µg/m<sup>3</sup> annual mean AQO at two monitoring locations near the A1202 but was well below the AQO at the other monitoring locations. The diffusion tube located within the site boundary monitored an average concentration well below the AQO. As such, air quality at the Site and surrounding environs is generally good regarding annual mean PM<sub>10</sub> and PM<sub>2.5</sub>, 24-hour mean PM<sub>10</sub> and 1-hour mean NO<sub>2</sub> concentrations.
- 5.4.18 Emissions of NO<sub>x</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> from vehicles are expected to decrease with time, as newer, less polluting vehicles replace older ones using local roads (although PM<sub>10</sub> and PM<sub>2.5</sub> concentrations will eventually level off). As such, air quality by the Proposed Development opening year is generally expected to comply with all five AQOs at and around the Site.

## 5.5 Assessment of Effects of the Proposed Development

### Anticipated Effects – Construction Dust Screening Assessment

- 5.5.1 A construction dust risk assessment presented in the 2019 ESA, undertaken in accordance with the IAQM 2014 guidance. It should be noted that whilst the guidance was updated in 2023, the amendments do not materially affect the conclusions of the assessment, therefore the construction dust assessment has not been updated.

- 5.5.2 Within the Scoping Note (**Appendix A**), it was explained that *"The construction dust assessment presented in the 2019 ESA will be summarised but not revised as the findings of the 2019 ESA were that the Site was a high risk for both human health and dust soiling. As the maximum level of risk was determined no further mitigation measures would be required with the increase in simultaneous working beyond those already identified"*.
- 5.5.3 The construction dust risk assessment presented in the 2019 ESA is therefore summarised in **Table 5.7** below, the dust impact risks having been assigned based on the dust emission magnitude associated with each on-site activity and the sensitivity of the surrounding area.

**Table 5.6: Summary of the Dust Risk from site Activities**

Potential Impact	Risk of Dust Impacts			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Medium Risk	High Risk	High Risk	High Risk
Human Health	Medium Risk	High Risk	High Risk	High Risk

- 5.5.4 The overall dust risk from the Site was predicted to be high for dust soiling and human health effects in relation to earthworks, construction and track-out and medium in relation to demolition. This is due to the scale of operations and the high density of sensitive receptors in the surrounding area, combined with the high ambient concentration of PM<sub>10</sub>.
- 5.5.5 The risk of disamenity dust and health effects is highest for earthworks, construction and track-out. Common disamenity dust effects may include the soiling of neighbouring windows, cars and street furniture.

### Anticipated Effects – Construction Phase Traffic Emissions

- 5.5.6 The construction programme has changed as set out in **Environmental Compliance Report: Chapter 1**. Therefore, the effects of construction phase traffic have been reassessed below.
- 5.5.7 **Table 5.8** presents the predicted annual mean NO<sub>2</sub> concentrations at each of the existing receptor locations to which the annual and hourly mean AQOs should be applied in S2 and S3:
- S2 comprises of the peak construction baseline (without the Proposed Development) 2027, including traffic from committed and consented schemes, using 2027 emission factors and 2022 background pollutant concentrations;
  - S3 comprises of the peak Construction baseline with the Proposed Development 2027, including traffic from committed and consented schemes, using 2027 emission factors and 2022 background pollutant concentrations.

- 5.5.8 **Table 8.12** shows that the annual mean NO<sub>2</sub> concentrations are not predicted to exceed the annual mean NO<sub>2</sub> AQO at all modelled existing receptors in either scenario.
- 5.5.9 The largest change in annual mean NO<sub>2</sub> concentrations at annual mean sensitive receptors was <0.5% increase relative to the AQO. As per the EPUK-IAQM guidance assessment method, the impact of the Proposed Development on air quality was assessed as negligible at each of the relevant modelled receptors.
- 5.5.10 None of the existing receptors modelled are exposed to annual mean NO<sub>2</sub> concentrations exceeding 60 µg/m<sup>3</sup> with the Proposed Development in place, where they did not already exceed 60 µg/m<sup>3</sup> without the Proposed Development in place. Therefore, in accordance with TG22, the one-hour mean objective is unlikely to be exceeded as a direct result of traffic generated by the Proposed Development.

**Table 5.7: Predicted annual mean NO<sub>2</sub> at modelled existing receptors (construction phase) and assessment of impact magnitude in accordance with the EPUK-IAQM guidance method**

Receptor ID	S2 Without Development	S3 With Development	Percentage change in concentration relative to AQAL	% of AQAL	EPUK-IAQM Impact descriptor
E1	21.94	21.94	0%	54.85	Negligible
E2	25.17	25.22	0%	63.05	Negligible
E3	24.50	24.54	0%	61.35	Negligible
E4	24.55	24.58	0%	61.45	Negligible
E5	25.00	25.04	0%	62.60	Negligible
E6	25.22	25.26	0%	63.15	Negligible
E7	22.66	22.66	0%	56.65	Negligible
E8	22.54	22.55	0%	56.38	Negligible
E9	21.81	21.81	0%	54.53	Negligible
E10	22.83	22.83	0%	57.08	Negligible
E11	23.58	23.58	0%	58.95	Negligible
E12	23.04	23.04	0%	57.60	Negligible
E13	21.71	21.72	0%	54.30	Negligible
E14	29.27	29.29	0%	73.23	Negligible
E15	31.02	31.02	0%	77.55	Negligible
E16	25.72	25.75	0%	64.38	Negligible
E17	25.06	25.08	0%	62.70	Negligible
E18	22.67	22.67	0%	56.68	Negligible
E19	23.48	23.49	0%	58.73	Negligible
E20	27.17	27.17	0%	67.93	Negligible
E21	25.68	25.68	0%	64.20	Negligible
E22	29.34	29.36	0%	73.40	Negligible

- 5.5.11 **Table 5.9** presents the predicted annual mean PM<sub>10</sub> concentrations at each of the existing receptor locations to which the annual mean AQOs should be applied in S2 and S3. It also shows the percentage change in pollutant concentrations (with the Proposed Development) relative to the AQAL (i.e. the annual mean PM<sub>10</sub> AQO), the S3 pollutant concentration as a percentage of the AQAL, and the assigned EPUK-IAQM guidance impact descriptor.
- 5.5.12 **Table 5.9** shows that the annual mean PM<sub>10</sub> concentrations are not predicted to exceed the annual mean PM<sub>10</sub> AQO at any of the modelled receptors in both S2 and S3.
- 5.5.13 The largest change in annual mean concentrations was a <0.5 % increase relative to the AQO. As per the EPUK-IAQM guidance assessment method, the impact of the Proposed Development on air quality was assessed as negligible at the modelled receptors sensitive to changes in annual mean PM<sub>10</sub> concentrations.
- 5.5.14 As the largest concentration was below the ~31µg/m<sup>3</sup> annual mean PM<sub>10</sub> concentration which can be expected prior to the 50µg/m<sup>3</sup> 24-hour mean AQO threshold being exceeded on more than the 35 occasions permissible per annum, the Proposed Development is not expected to affect 24-hour mean PM<sub>10</sub> concentrations.

**Table 5.8: Predicted annual mean PM<sub>10</sub> at modelled existing receptors (construction phase) and assessment of impact magnitude in accordance with the EPUK-IAQM guidance method**

Receptor ID	S2 Without Development	S3 With Development	Percentage change in concentration relative to AQAL	% of AQAL	EPUK-IAQM Impact descriptor
E1	19.38	19.38	0%	48.45	Negligible
E2	19.96	19.97	0%	49.93	Negligible
E3	19.84	19.85	0%	49.63	Negligible
E4	19.90	19.91	0%	49.78	Negligible
E5	19.93	19.94	0%	49.85	Negligible
E6	19.97	19.98	0%	49.95	Negligible
E7	19.51	19.51	0%	48.78	Negligible
E8	19.49	19.49	0%	48.73	Negligible
E9	19.35	19.35	0%	48.38	Negligible
E10	19.54	19.54	0%	48.85	Negligible
E11	19.68	19.68	0%	49.20	Negligible
E12	19.58	19.58	0%	48.95	Negligible
E13	19.34	19.34	0%	48.35	Negligible
E14	20.74	20.75	0%	51.88	Negligible
E15	21.08	21.08	0%	52.70	Negligible
E16	20.05	20.05	0%	50.13	Negligible
E17	19.92	19.93	0%	49.83	Negligible
E18	19.50	19.50	0%	48.75	Negligible
E19	19.65	19.65	0%	49.13	Negligible

Receptor ID	S2 Without Development	S3 With Development	Percentage change in concentration relative to AQAL	% of AQAL	EPUK-IAQM Impact descriptor
E20	20.32	20.32	0%	50.80	Negligible
E21	20.05	20.05	0%	50.13	Negligible
E22	21.12	21.13	0%	52.83	Negligible

- 5.5.15 Error! Reference source not found. 5.10 presents the predicted annual mean PM<sub>2.5</sub> concentrations at each of the existing receptor locations to which the annual mean AQOs should be applied in S2 and S3. It also shows the percentage change in pollutant concentrations (with the scheme) relative to the AQAL (i.e. the annual mean PM<sub>2.5</sub> AQO), the S3 pollutant concentration as a percentage of the AQAL, and the assigned EPUK-IAQM guidance impact descriptor.
- 5.5.16 It shows that the annual mean PM<sub>2.5</sub> concentrations are not predicted to exceed the annual mean PM<sub>2.5</sub> AQO at any of the relevant modelled receptors in both S2 and S3
- 5.5.17 The largest change in annual mean concentrations was <0.5% increase relative to the AQO. As per the EPUK-IAQM guidance assessment method, the impact of the Proposed Development on air quality was assessed as negligible at the relevant modelled receptors.

**Table 5.9: Predicted annual mean PM<sub>2.5</sub> at modelled existing receptors (construction phase) and assessment of impact magnitude in accordance with the EPUK-IAQM guidance method**

Receptor ID	S2 Without Development	S3 With Development	Percentage change in concentration relative to AQAL	% of AQAL	EPUK-IAQM Impact descriptor
E1	12.53	12.53	0%	62.65	Negligible
E2	13.58	13.59	0%	67.95	Negligible
E3	13.36	13.37	0%	66.85	Negligible
E4	13.47	13.49	0%	67.45	Negligible
E5	13.52	13.53	0%	67.65	Negligible
E6	13.59	13.60	0%	68.00	Negligible
E7	12.78	12.78	0%	63.90	Negligible
E8	12.74	12.74	0%	63.70	Negligible
E9	12.49	12.49	0%	62.45	Negligible
E10	12.83	12.83	0%	64.15	Negligible
E11	13.08	13.08	0%	65.40	Negligible
E12	12.89	12.89	0%	64.45	Negligible
E13	12.47	12.47	0%	62.35	Negligible
E14	14.98	14.98	0%	74.90	Negligible
E15	15.55	15.55	0%	77.75	Negligible
E16	13.74	13.75	0%	68.75	Negligible
E17	13.52	13.53	0%	67.65	Negligible

Receptor ID	S2 Without Development	S3 With Development	Percentage change in concentration relative to AQAL	% of AQAL	EPUK-IAQM Impact descriptor
E18	12.75	12.76	0%	63.80	Negligible
E19	13.03	13.03	0%	65.15	Negligible
E20	14.24	14.24	0%	71.20	Negligible
E21	13.73	13.73	0%	68.65	Negligible
E22	15.70	15.70	0%	78.50	Negligible

5.5.18 Based on the EPUK-IAQM guidance, the change in annual mean NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> concentrations associated with construction of the Proposed Development results in the air quality impact being classified as negligible for all modelled receptors. Moreover, mitigation measures have been recommended to control impacts from NRMM, making significant effects unlikely. For these reasons, the effect of vehicle emissions connected with construction related activities on local air quality is therefore considered to have direct, local and short-term effects which are considered likely to be negligible and not significant.

### Anticipated Effects – Operational Phase Traffic Emissions

5.5.19 Air quality effects were assessed for emissions from additional road traffic associated with the Proposed Development.

5.5.20 **Table 5.11** presents the predicted annual mean NO<sub>2</sub> concentrations at each of the existing receptor locations to which the annual and hourly mean AQOs should be applied in S4 and S5. It also shows the percentage change in pollutant concentrations (with the Proposed Development in place) relative to the AQAL (i.e., the annual mean NO<sub>2</sub> AQO), the S5 pollutant concentration as a percentage of the AQAL, and the assigned EPUK-IAQM guidance impact descriptor.

5.5.21 **Table 5.11** shows that the annual mean NO<sub>2</sub> concentrations are not predicted to exceed the annual mean NO<sub>2</sub> AQO at all modelled existing receptors in either S4 or S5:

- S4 comprises of traffic flows anticipated during 2030, without the Proposed Development in place but inclusive of committed / consented development, using 2030 emission factors and 2022 background concentrations;
- S5 comprises of traffic flows anticipated during 2030, with the Proposed Development in place and inclusive of committed / consented development traffic, using 2030 emission factors and 2022 background pollutant concentrations.

5.5.22 The largest change in annual mean NO<sub>2</sub> concentrations at annual mean sensitive receptors was <0.5 % increase relative to the AQO. As per the EPUK-IAQM guidance

assessment method, the impact of the Proposed Development on air quality was assessed as negligible at each of the relevant modelled receptors.

5.5.23 None of the existing receptors modelled are exposed to annual mean NO<sub>2</sub> concentrations exceeding 60 µg/m<sup>3</sup> with the Proposed Development in place, where they did not already exceed 60 µg/m<sup>3</sup> without the Proposed Development in place. Therefore, in accordance with TG22, the one-hour mean objective is unlikely to be exceeded as a direct result of the Proposed Development.

**Table 5.10: Predicted annual mean NO<sub>2</sub> at modelled existing receptors (operational phase) and assessment of impact magnitude in accordance with the EPUK-IAQM guidance method**

Receptor ID	S4 Without Development	S5 With Development	Percentage change in concentration relative to AQAL	% of AQAL	EPUK-IAQM Impact descriptor
E1	21.76	21.79	0%	54.48	Negligible
E2	24.36	24.42	0%	61.05	Negligible
E3	23.81	23.87	0%	59.68	Negligible
E4	23.83	23.88	0%	59.70	Negligible
E5	24.21	24.26	0%	60.65	Negligible
E6	24.39	24.44	0%	61.10	Negligible
E7	22.34	22.50	0%	56.25	Negligible
E8	22.25	22.41	0%	56.03	Negligible
E9	21.66	21.73	0%	54.33	Negligible
E10	22.50	22.58	0%	56.45	Negligible
E11	23.12	23.23	0%	58.08	Negligible
E12	22.67	22.76	0%	56.90	Negligible
E13	21.58	21.60	0%	54.00	Negligible
E14	27.73	27.86	0%	69.65	Negligible
E15	29.13	29.24	0%	73.10	Negligible
E16	24.96	25.00	0%	62.50	Negligible
E17	24.40	24.43	0%	61.08	Negligible
E18	22.35	22.53	0%	56.33	Negligible
E19	23.03	23.06	0%	57.65	Negligible
E20	26.17	26.25	0%	65.63	Negligible
E21	24.77	24.82	0%	62.05	Negligible
E22	27.66	27.79	0%	69.48	Negligible

5.5.24 **Table 5.12** presents the predicted annual mean PM<sub>10</sub> concentrations at each of the existing receptor locations to which the annual mean AQOs should be applied in S4 and S5. It also shows the percentage change in pollutant concentrations (with the Proposed Development) relative to the AQAL (i.e. the annual mean PM<sub>10</sub> AQO), the S5 pollutant concentration as a percentage of the AQAL, and the assigned EPUK-IAQM guidance impact descriptor.

5.5.25 **Table 5.12** shows that the annual mean PM<sub>10</sub> concentrations are not predicted to exceed the annual mean PM<sub>10</sub> AQO at any of the modelled receptors in both S4 and S5.

5.5.26 The largest change in annual mean concentrations was a <0.5 % increase relative to the AQO. As per the EPUK-IAQM guidance assessment method, the impact of the Proposed Development on air quality was assessed as negligible at the modelled receptors sensitive to changes in annual mean PM<sub>10</sub> concentrations.

5.5.27 As the largest concentration was below the ~31µg/m<sup>3</sup> annual mean PM<sub>10</sub> concentration which can be expected prior to the 50 µg/m<sup>3</sup> 24-hour mean AQO threshold being exceeded on more than the 35 occasions permissible per annum, the Proposed Development is not expected to affect 24-hour mean PM<sub>10</sub> concentrations.

**Table 5.11: Predicted annual mean PM<sub>10</sub> at modelled existing receptors (operational phase) and assessment of impact magnitude in accordance with the EPUK-IAQM guidance method**

Receptor ID	S4 Without Development	S5 With Development	Percentage change in concentration relative to AQAL	% of AQAL	EPUK-IAQM Impact descriptor
E1	19.38	19.39	0%	48.48	Negligible
E2	19.99	20.00	0%	50.00	Negligible
E3	19.86	19.87	0%	49.68	Negligible
E4	19.93	19.93	0%	49.83	Negligible
E5	19.95	19.96	0%	49.90	Negligible
E6	19.99	20.01	0%	50.03	Negligible
E7	19.52	19.56	0%	48.90	Negligible
E8	19.50	19.54	0%	48.85	Negligible
E9	19.36	19.38	0%	48.45	Negligible
E10	19.55	19.57	0%	48.93	Negligible
E11	19.69	19.72	0%	49.30	Negligible
E12	19.59	19.61	0%	49.03	Negligible
E13	19.35	19.35	0%	48.38	Negligible
E14	20.79	20.82	0%	52.05	Negligible
E15	21.14	21.16	0%	52.90	Negligible
E16	20.07	20.08	0%	50.20	Negligible
E17	19.95	19.95	0%	49.88	Negligible
E18	19.51	19.55	0%	48.88	Negligible
E19	19.67	19.67	0%	49.18	Negligible
E20	20.36	20.38	0%	50.95	Negligible
E21	20.08	20.09	0%	50.23	Negligible
E22	21.19	21.23	0%	53.08	Negligible

5.5.28 Error! Reference source not found. **5.13** presents the predicted annual mean PM<sub>2.5</sub> concentrations at each of the existing receptor locations to which the annual mean AQOs should be applied in S4 and S5. It also shows the percentage change in



pollutant concentrations (with the scheme) relative to the AQAL (i.e. the annual mean PM<sub>2.5</sub> AQO), the S5 pollutant concentration as a percentage of the AQAL, and the assigned EPUK-IAQM guidance impact descriptor.

- 5.5.29 It shows that the annual mean PM<sub>2.5</sub> concentrations are not predicted to exceed the annual mean PM<sub>2.5</sub> AQO at any of the relevant modelled receptors in both S4 and S5
- 5.5.30 The largest change in annual mean concentrations was <0.5 % increase relative to the AQO. As per the EPUK-IAQM guidance assessment method, the impact of the Proposed Development on air quality was assessed as negligible at the relevant modelled receptors.

**Table 5.12: Predicted annual mean PM<sub>2.5</sub> at modelled existing receptors (operational phase) and assessment of impact magnitude in accordance with the EPUK-IAQM guidance method**

Receptor ID	S4 Without Development	S5 With Development	Percentage change in concentration relative to AQAL	% of AQAL	EPUK-IAQM Impact descriptor
E1	12.54	12.56	0%	62.80	Negligible
E2	13.63	13.65	0%	68.25	Negligible
E3	13.40	13.42	0%	67.10	Negligible
E4	13.52	13.54	0%	67.70	Negligible
E5	13.56	13.58	0%	67.90	Negligible
E6	13.64	13.66	0%	68.30	Negligible
E7	12.80	12.87	0%	64.35	Negligible
E8	12.76	12.83	0%	64.15	Negligible
E9	12.51	12.53	0%	62.65	Negligible
E10	12.85	12.88	0%	64.40	Negligible
E11	13.11	13.16	0%	65.80	Negligible
E12	12.92	12.96	0%	64.80	Negligible
E13	12.48	12.49	0%	62.45	Negligible
E14	15.07	15.14	0%	75.70	Negligible
E15	15.70	15.75	0%	78.75	Negligible
E16	13.80	13.82	0%	69.10	Negligible
E17	13.57	13.59	0%	67.95	Negligible
E18	12.78	12.85	0%	64.25	Negligible
E19	13.06	13.07	0%	65.35	Negligible
E20	14.32	14.36	0%	71.80	Negligible
E21	13.80	13.82	0%	69.10	Negligible
E22	15.81	15.89	0%	79.45	Negligible

### Air Quality Neutral Assessment

- 5.5.31 Given that the Proposed Development is 'car-free', it will not generate significant additional road traffic and can be considered air quality neutral for transport emissions. Similarly, it is proposed that the Proposed Development meets its energy

demand using air source heat pumps (ASHP), which do not generate emissions. The Proposed Development is thus considered air quality neutral in terms of building emissions.

- 5.5.32 The Proposed Development is therefore considered air quality neutral for both transport emissions and building emissions and an air quality neutral assessment is not required.

### Overall significance of operational phase effects from the Proposed Development on local air quality

- 5.5.33 Based on the EPUK-IAQM guidance, the change in annual mean NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> concentrations associated with operation of the Proposed Development results in the air quality impact being classified as negligible for all modelled receptors. None of the existing receptors are expected to exceed the hourly mean NO<sub>2</sub> or 24-hour mean PM<sub>10</sub> AQOs. Moreover, the Proposed Development does not expose any existing receptors to concentrations of the annual, 24-hour or hourly mean NO<sub>2</sub>, PM<sub>10</sub> or PM<sub>2.5</sub> AQOs.
- 5.5.34 The Proposed Development is considered air quality neutral for both transport emissions and building emissions.
- 5.5.35 Consequently, the effect of operating the Proposed Development on local air quality is therefore considered to have direct, local, permanent, adverse effects which are considered to be negligible and not significant.

### Overall significance of effects on Proposed Receptors

- 5.5.36 Plot 1 of the Proposed Development will provide commercial space, comprising of office and retail uses. The 2019 LAEI pollutant maps indicated that annual mean NO<sub>2</sub> concentrations were below 60 µg/m<sup>3</sup> at the worst-case facades of the Plot 1 Development. Therefore, it is considered that Plot 1 is not at risk of breaching the hourly mean AQO for NO<sub>2</sub> and the Proposed Site is suitable for this receptor type.

## 5.6 Requirement for Additional Mitigation

### Mitigation Measures for Construction Dust

- 5.6.1 As described in **Section 5.4**, the Proposed Development will constitute a maximum of high risk for construction dust, with potentially significant effects in the absence of mitigation. The use of appropriate mitigation measures throughout the construction period will ensure that impacts to sensitive receptors are minimised. These measures are recommended to be included within the Construction Environmental Management Plan (CEMP), which has been secured by condition for both LBH (condition 28) and LBTH (condition 27). Measures would include a Dust Management Plan or similar.

- 5.6.2 The set of best-practice measures from the MOL SPG mitigation measures recommended following the construction dust assessment previously undertaken remain unchanged from the 2019 ESA.
- 5.6.3 With the proposed construction activities mitigation measures as described in place, the likely residual impact of works undertaken during the construction phase on local air quality can be considered as 'negligible' (i.e. 'not significant'), with occasional minor adverse impacts during particularly dry, hot periods.

### Mitigation Measures for Construction Plant and Traffic

- 5.6.4 Construction plant and generators (NRMM) used on-site should comply with the NO<sub>x</sub>, PM and carbon monoxide emissions standards specified in the MOL SPG. The plant will be registered at [www.nrmm.london](http://www.nrmm.london), which also details the applicable emissions standards, currently Stage IIIB but will be stage IV from January 2025. Guidance is available online to indicate how the emissions requirements can be complied with.
- 5.6.5 Additional mitigation (beyond embedded measures) are not considered to be required, owing to the insignificant effects which emissions from construction vehicles are expected to have on local air quality.

### Mitigation Measures for Operational Phase Effects on Local Air Quality

- 5.6.6 The Proposed Development is not expected to have significant adverse effects on air quality. Therefore, no additional mitigation is specifically required to account for impacts on local air quality; although mitigation measures have been specified in the Air Quality Positive statement.

## 5.7 Consideration of any new Cumulative Schemes

- 5.7.1 Cumulative effects are the combined effects of several development schemes (in conjunction with the Proposed Development) which may, on an individual basis be insignificant but, cumulatively, have a significant effect.
- 5.7.2 The IAQM 2023 guidance suggests cumulative dust impacts from construction activities taking place on multiple construction sites are only likely where sites are within 500 m of each other. For cumulative effects to arise, work would also have to be undertaken in areas of both sites that are close to a specific receptor.
- 5.7.3 It is anticipated that all construction sites will adopt appropriate mitigation measures to limit emissions of dust and emissions and will hold the liaison meetings recommended above to coordinate/ consolidate dust management practices. With these measures in place, cumulative construction related activities are expected to have a 'not significant' effect on these receptors.

5.7.4 The ECR has given consideration to 'Cumulative 'Effects' for schemes located within (1) km radius from the boundary of the Site. Since the 2019 ESA, additional traffic flows generated from the below list of cumulative schemes have been taken into consideration:

- Huntingdon Industrial Estate
- 9 Hewett Street

5.7.5 The effects of the above cumulative schemes have been considered within the dispersion modelling traffic assessments for construction phase assessment on existing receptors, so cumulative effects are accounted for in the assessment of effects presented.

## 5.8 Summary and Conclusion

5.8.1 Air quality at the Site and surrounding environs is generally good and will likely improve over time.

5.8.2 This chapter of the ECR reviewed existing air quality within the study area and assessed the potential effect of the Proposed Development on air quality at existing. The effects of dust deposition during the construction phase were also considered.

5.8.3 Fugitive dust from construction related activities was assessed as having a maximum dust risk of high (for construction, earthworks and trackout) in the 2019 ESA, which remains unchanged. Similarly, the mitigation measures are proposed to be implemented remain unchanged from the 2019 ESA. With these mitigation measures in place, residual effects on receptors are likely to be negligible, with possible short-term minor adverse effects during adverse weather conditions. The assessment of impacts from air pollution attributable to the movement of heavy goods vehicles when the Site is under construction was also assessed quantitatively as insignificant.

5.8.4 The assessment of impacts when the Proposed Development is operational has been assessed as insignificant and is air quality neutral. Therefore, the conclusions of the Air Quality Assessment undertaken for the 2019 ESA remain unchanged.