# Dust Monitoring Plan

Stephenson House, 75 Hampstead Road

October 2018

www.phlorum.com

# Dust Monitoring Plan

Stephenson House, 75 Hampstead Road
October 2018

Document Control:

| Project no. | Project |
|---|---|
| 8344 | Dust Monitoring Plan - Stephenson House, 75 Hampstead Road |

| Client | |
|---|---|
| 8 Build | 64 Leman Street, London, E1 8EU |

| Report No. | Version | Date of issue | Prepared by | Checked |
|---|---|---|---|---|
| 8344 AQ drft 2 | Final | 02/09/2018 | Harley Parfitt | Nigel Jenkins |
| | | | | |
| | | | | |



**Phlorum Limited**

Southern Office: Unit 12, Hunns Mere Way, Woodingdean, Brighton, East Sussex, BN2 6AH

T: 01273 307 167 E: info@phlorum.com

# Contents

# 1. Introduction

1.1 Phlorum Ltd has been commissioned by 8Build to undertake a dust monitoring plan for the construction phase of a proposed development at Stephenson House in the London Borough of Camden (LBC), the location of which is shown in Figure 1. The National Grid Reference for the centre of the site is 529170, 182510.

1.2 Planning permission has been granted for the development subject to planning condition 30 (Air Quality) which states:

> *"Air quality monitoring should be implemented on site. No development shall take place until full details of the air quality monitors have been submitted to and approved by the local planning authority in writing. Such details shall include the location, number and specification of the monitors, including evidence of the fact that they have been installed in line with guidance outlined in the GLA's Control of Dust and Emissions during Construction and Demolition Supplementary Planning Guidance and have been in place for 3 months prior to the proposed implementation date. The monitors shall be retained and maintained on site for the duration of the development in accordance with the details thus approved."*

1.3 An attempt to discharge the condition has been made by the client and their contractor; however, LBC have raised a number of issues and have requested further information. Full details of the comments are included in Appendix A.

1.4 The purpose of this report is to create a dust monitoring plan that addresses these key issues and enables 8Build to discharge condition 30 (Air Quality).

# 2. Context

## Guidance

2.1 This dust monitoring plan has been prepared in line with the Greater London Authority's (GLA) Control of Dust and Emissions during Construction and Demolition Supplementary Planning Guidance (SPG)[1].

2.2 The current IAQM guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites (2012)[2] is also referred to, as well as the forthcoming 2018 draft update of the guidance [3].

## Comments from LBC

2.3 A summary of the issues associated with a previous attempt to discharge Condition 30 (Air Quality) are included in Table 2.1 below.

**Table 2.1: Comments from LBC**

| Item | Key Issue | Comments from LBC |
|---|---|---|
| 1 | Number of monitors | • *One is not sufficient for baseline – please use same number as for during demolition/construction.* |
| 2 | Location of baseline monitors | • *Baseline monitor locations should be same as for demolition and construction* |
| 3 | Suitability of monitor locations | • *The suitability of monitor positions should be determined by the AQ professional and the precise positions specified prior to instruction, not left to the installation contractor.*<br>• *A proposal to install 2 m in from the edge of the balcony does not inherently demonstrate suitability for capturing unobstructed fugitive dust at the site boundary. More justification required.* |

[1] GLA (2014). The Control Of Dust And Emissions During Construction And Demolition Supplementary Planning Guidance
[2] IAQM (2012). Air Quality Monitoring in the Vicinity of Demolition and Construction Sites
[3] IAQM (2018). Air Quality Monitoring in the Vicinity of Demolition and Construction Site (Draft for consultation)

| | | |
|---|---|---|
| | | • *In general, it is not made clear in the submissions how positions have been selected i.e. with regard to the planned locations of high-risk activities on site, the location of sensitive receptors, or to capture reading from incoming SW winds (depending on monitoring rationale being employed).*<br>• No installation brief or detailed positioning information provided for demolition/construction phase. |
| 4 | Timescales, monitoring and reporting | • *Not made clear what phases the "commencement" monitoring covers – monitoring should be retained from baseline through entire programme of works.*<br>• *No information on planned duration of monitoring*<br>• *No information on proposals for providing baseline monitoring data and report; no trigger proposed for when to submit data and report. Report should be provided to* ***airquality****@camden.gov.uk.* |

# 3. Dust Monitoring Plan

3.1 The Dust Monitoring Plan will address the requirements of Condition 30.

## Issue 1: Number of Monitors

3.2 The original AQ assessment has assessed the overall construction impact to be *Medium*, following a worst-case approach.

3.3 However, it is worth noting that background levels of fine particulate matter ($PM_{10}$) were predicted to be 'well below' the UK Air Quality Standard of 40µg.m$^{-3}$ at the site and as such, the risk of $PM_{10}$ health effects were considered to be low.

3.4 As such, it is considered sufficient that the minimum (i.e. two automatic particulate monitors) should be installed on-site.

## Issue 2: Location of Baseline Monitors

3.5 The purpose of baseline monitoring is to establish existing conditions at the site, which can then assist in the interpretation of "trigger thresholds".

3.6 It is recommended that baseline monitoring and construction phase monitoring should occur at the same site location. For the reasons explained below, this will not be possible:

- The building is still in use and will be in use until November. As such, the hoardings around the site have not and will not be erected until late November/ early December. There are therefore security issues associated with leaving unattended pieces of equipment;
- The attachment of dust monitors to street furniture (i.e. lampposts) is not a viable option due to power and security issues (the post suggested on Drummond Street by Gabriel in Appendix B is too short and any equipment could be accessible by standing on the bike rack below);
- Access to the car park area to the west of Stephenson House is not possible.
- Furthermore, the existing building, which covers the entire application site, will be demolished to the ground floor level: as such, at least one device will need to be relocated.

3.7 These issues were discussed with Gabriel Berry-Khan, the London Borough of Camden's (LBCs) Senior Sustainability Officer, on the 24.09.2018.

3.8 No site specific guidance could be given. However, Gabriel agreed in principle that if baseline and construction monitoring couldn't be undertaken at the same location, baseline monitoring locations should be as representative of the construction monitoring sites within reason and subject to details i.e. site constraints, opportunities and rationale for choice.

3.9 Due to the discussed site constraints, it will not be possible to undertake baseline and construction phase monitoring at the same locations, however the locations will be in as closest proximity as practicable during the phases. As soon as the site hoardings are erected the dust monitors should be moved to allow a short period of same location monitoring.

## Issue 3: Suitability of Monitor Locations

3.10 The GLA's SPG on the Control of Dust and Emissions from Construction states:

> *"The local planning authority will provide advice on the appropriate air quality monitoring procedure and timescale on a case by case basis. Two frequently used procedures for automatic real-time air quality monitoring are:*
>
> - *Monitoring along straight lines across the construction site, with monitors set up in the direction of the prevailing wind. This will allow the developer to take into account background levels to determine the relative contribution of air quality and dust emissions from the construction site. Prior monitoring of background air quality may not be needed in this case; and*
>
> - *Monitoring to take place close to sensitive receptors to assess any impact at these locations."*

3.11 The sensitivity of the area to dust soiling was defined as *High* in the original air quality assessment due to the large numbers of sensitive receptors in proximity of the site. It was determined impractical and unnecessary to undertake monitoring at multiple sites and therefore a 'prevailing wind' monitoring option was chosen. A 'prevailing wind' monitoring option entails, a minimum of two sites; one upwind (at monitoring location 1) and one downwind (at monitoring location 2) of the site, in relation to the prevailing wind.

3.12 This option also has the benefit of allowing the developer/contractor to take into account background levels and can help discern whether increased dust/$PM_{10}$ concentrations originate on-site or off-site (e.g. if monitor downwind of site records increased dust concentrations but the upwind monitor doesn't it is likely that dust originated on-site).

3.13 The prevailing wind in London is south westerly. It is, however, recognised that buildings in urban areas can influence the direction of the prevailing. As such, it is recommended that a meteorological station (wind direction and speed) be attached to one of the monitors. This will allow the contractor to determine where to step-up mitigation when the wind is blowing towards sensitive receptors.

3.14 Plate 1 shows the suggested dust monitoring locations (for baseline and construction). The two construction phase monitor locations have been chosen to create a transect that will run from the south-west to the north-east of the application site, along the prevailing south-westerly wind. The most south-west and north-east corners were not chosen due to the impact of tall buildings in the vicinity of these sites, which may influence air flow.


**Plate 1: Proposed monitoring locations**

3.15 Furthermore, the chosen construction phase monitoring locations are adjacent to the proposed loading bays, a potentially large dust emissions source. A plan of the loading bays and road closures is included in Appendix C for reference.

3.16 Access for baseline monitoring is only available on the roof terraces on the second and seventh floors. The location of the baseline monitor SE has been chosen to best-reflect baseline conditions on Hampstead Road.

3.17 Baseline monitoring on the roofs to the rear of the extant development were considered; however, the entire area is relatively enclosed by taller buildings and it is anticipated that air flow would be interrupted.

3.18 The selection of monitoring locations should also be subject to the microenvironment positioning of samplers, IAQM guidance states:

- *"sampler inlets should be located in a clear, unobstructed position, and some metres away from any large structures (such as walls of buildings) that might interrupt airflow; immediately above should be open to the sky (free in an arc of at least 270°), with no overhanging trees or other structures. To measure airborne dust concentrations, the sampler head should ideally be located between 1.5 to 4m above ground level as suggested in the 2008 Ambient Air Quality Directive (2008/50/EC)" (IAQM dust monitoring)*

- *In most circumstances, the principal aim of monitoring will be to ensure that the agreed mitigation measures are being effectively applied, and that impacts upon the local community are minimised. In such circumstances, monitoring at, or close to, the site boundary is recommended as this will record the highest dust emissions."*

3.19 The baseline monitors should be located as close to the roadside edge's balconies/terraces, as practically possible, to best reflect existing air quality on Drummond Street and Hampstead Road. The lip of the roof terrace is not considered a large structure that should significantly interrupt air flow.

3.20 The height of the tripod should be 1.5m.

3.21 The location of the construction dust monitors was chosen to reflect the location of the dustiest activities (i.e. the demolition of the tallest buildings, the construction of the tallest buildings, loading and trackout). These monitors should be installed on a tripod, with the air sampler at a similar height to the top of the hoarding (between 1.5m and 4m in height) and at least 2m from the edge of the site hoarding and proposed building. If this is not possible at the monitor in the south west corner, the dust monitor should be attached to the hoarding, with the air inlet sample clearly above the hoarding to allow air to circulate around the sample.

## Issue 4: Timescales

**Timescales**

3.22 The construction phase of the proposed development will begin on the 10th December and is predicted to last 110 weeks. Monitoring should occur for the entire construction period, even if the construction phase of the development takes longer than anticipated.

*3.23* The minimum time required for baseline monitoring is 3 months.

*3.24* The baseline monitoring will be just short of the 3 months, however, as the construction phase monitoring will also take account of the prevailing wind direction and in accordance with the GLA SPG:

- *'monitoring along straight lines across the construction site, with monitors set up in the direction of the prevailing wind. This will allow the developer to take into account background levels to determine the relative contribution of air quality and dust emissions from the construction site'; and*

- *'prior monitoring of background air quality may not be needed'.*

3.25 One monitor will be located upwind of the site during baseline monitoring and continuing through the construction phase and shall therefore provide the background levels beyond the minimum 3-month period.

3.26 The start of the construction date will, therefore, remain unchanged and will begin on 10th December.

**Action levels**

3.27 In most cases the principal aim of monitoring is to ensure that the agreed mitigation measures are being effectively applied, and that impacts upon the local community are minimised.

3.28 There are air quality objectives for both long-term and short-term concentrations of $PM_{10}$. These are levels beyond which the impact on human receptors is considered unacceptable and poses a risk to human-health.

3.29 The long term AQO for $PM_{10}$ is 40µg.m$^{-3}$, averaged over an annual period. The AQ assessment has shown that background levels of $PM_{10}$ are well below the AQO and are hence less of a concern.

3.30 The short-term AQO for $PM_{10}$ is 200µg.m$^{-3}$, averaged over an hour, with 35 allowable exceedances a year.

3.31 In order to ensure that the air quality objectives are met the below site action levels are recommended:

- 250µg.m$^{-3}$ – 15 minute mean.
- 190µg.m$^{-3}$ – 1 hourly mean (from draft IAQM guidance)

3.32 The 15 minute mean is useful as it allows the contractor, who will be alerted to the exceedance of the threshold, to react and apply additional mitigation.

3.33 Alerts should be set up so that the construction manager is alerted as soon as an exceedance occurs.

3.34 The contractor should make a note of the activities which were occurring when an alert was recorded as this will aid in the interpretation of the alert thresholds

**Reporting obligations**

3.35 Monthly reports are required to be sent to airquality@camden.gov.uk. The reports will provide information on the number of exceedances of the hourly mean and 15 minute mean action level.

3.36 The presentation of the 15-minute mean data in combination with comments regarding actions taken should demonstrate to LBC that actions have been taken to reduce dust emissions on site (i.e. stopping dusty activities or additional mitigation).

3.37 LBC can be provided with the login details to the data portal, if requested, to allow them to monitor emissions in real-time. This is an alternative to the monthly monitoring reports suggested above.

3.38 In addition, quarterly full analysis reports should be provided; these should contain all data and include detailed narrative on any exceedances, sources identified and action taken during that period. This will require input from a suitably qualified Air Quality Consultant.

# 4. Summary

4.1 Phlorum Ltd has been commissioned by 8Build to undertake a dust monitoring plan for the construction phase of a proposed development at Stephenson House in LBC.

4.2 This dust monitoring plan has addressed the issues raised by LBC's Senior Sustainability Officer, taking into account the site constraints and the GLA's SPG on the Control of Dust and Emissions from Construction and Demolition.

4.3 If at all possible baseline monitoring and construction phase monitoring should occur at the same location. Due to the site constraints, it has not been possible to identify locations for both baseline and construction phase monitoring. Proxy baseline locations have, therefore, been identified; these were considered to provide the most representative conditions of baseline conditions at the proposed location of construction monitoring.

# Figures and Appendices

Figure 1: Site Location Plan

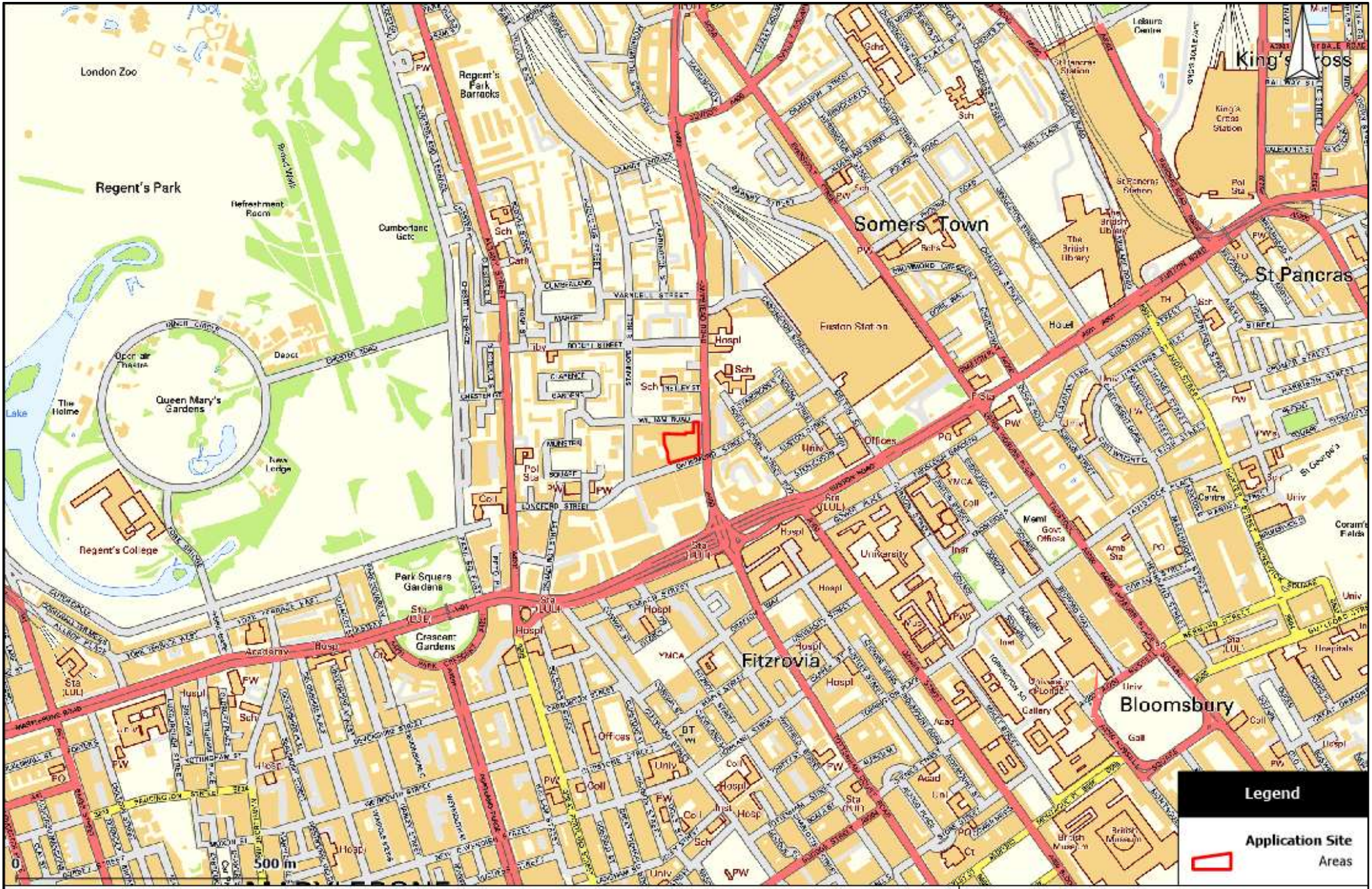



**Figure 1: Site Location Plan**



Job No.: 8344
Drawn by: HP
Date: 25/09/2018
www.phlorum.com

# Appendix A: Comments from Gabriel Berry-Khan PIEMA MInstp (Senior Sustainability Officer)

**"Requirements**

The AQ Assessment (AQA) has assessed overall construction impact risk to be Medium – table 5.3 below. For this risk level Camden requires at least 2 monitors to be installed during the baseline, demolition and construction phases.

**Table 5.3: Summary of Impact Risk by Construction Stage based on the IAQM's dust guidance**

| Stage | Impact Risk | | |
|---|---|---|---|
| | Nuisance Dust | Ecology | $PM_{10}$ |
| Demolition | Medium Risk | Negligible | Low Risk |
| Earthworks | Negligible | Negligible | Negligible |
| Construction | Medium Risk | Negligible | Low Risk |
| Trackout | Low Risk | Negligible | Negligible |

Sensitive receptors: The AQA refers to the local meteorology and receptor locations as follows

- "the prevailing wind is south-westerly."
- "The only highly sensitive receptor downwind of the site is Maria Fidelis Lower School."
- The main sensitive receptors downwind of the proposed development, which are therefore likely to be most affected by any windblown dusts, are the residential dwellings to the north-east and east of the site.
- "relatively high number of sensitive receptors in the surrounding area of the application site"

**Proposals**

Product type/specification: Product is suitable (has the necessary MCERTS accreditation for PM10).

Number of monitors: One for baseline two for "commencement".

**Issue 1**

- One is not sufficient for baseline – please use same number as for during demolition/construction.

Location of monitors: Proposals for baseline (L) and "commencement" (R) as shown below.

**Issue 2**

- Baseline monitor locations should be same as for demolition and construction.
- No statement is submitted on suitability of chosen locations with regard to downwind dust (ref. prevailing SW wind), stated locations of adjacent sensitive receptors, or high-risk activities and their location on site.

Position of monitors: A photo and plan are submitted.


The Installation Brief for the baseline monitors states

- The dust (PM10) monitors must be located at high level with direct line of sight of work activities to ensure they records representative measurements of dust (PM10) generated during demolition, construction and associated works.

- During the installation visit, the locations for monitoring will be assessed for suitability, compliance and safe installation. The dust monitor will be fixed to a heavy duty tripod using customised brackets and cable ties as required. The proposed location is a second floor balcony, with low edge. Monitoring equipment will be installed at least 2m from the edge of the balcony"

**Issue 3**

- The suitability of monitor positions should be determined by the AQ professional and the precise positions specified prior to instruction, not left to the installation contractor.
- A proposal to install 2 m in from the edge of the balcony does not inherently demonstrate suitability for capturing unobstructed fugitive dust at the site boundary. More justification required.

- In general, it is not made clear in the submissions how positions have been selected i.e. with regard to the planned locations of high-risk activities on site, the location of sensitive receptors, or to capture reading from incoming SW winds (depending on monitoring rationale being employed).
- No installation brief or detailed positioning information provided for demolition/construction phase.

Timescales, monitoring and reporting

**Issue 4**

- Not made clear what phases the "commencement" monitoring covers – monitoring should be retained from baseline through entire programme of works.
- No information on planned duration of monitoring
- No information on proposals for providing baseline monitoring data and report; no trigger proposed for when to submit data and report. Report should be provided to airquality@camden.gov.uk.

**Recommendation**: Object / Further information required.

Kind Regards,

Gabriel Berry-Khan PIEMA MInstP
Senior Sustainability Officer (Planning)
Community Services
Supporting Communities
London Borough of Camden

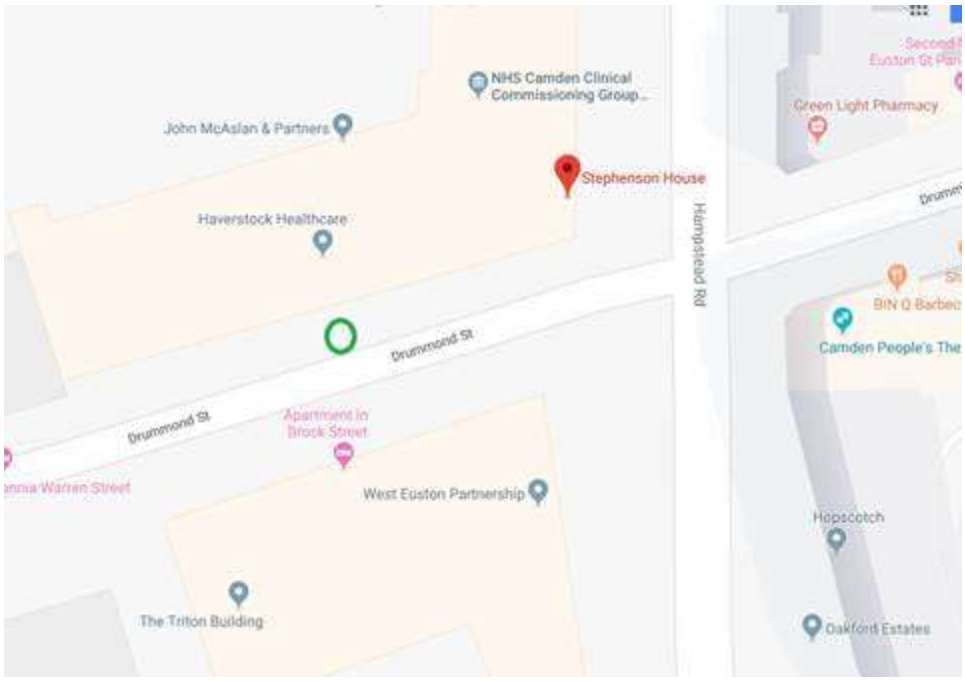
# Appendix B:  Further Email Conversations with Camden

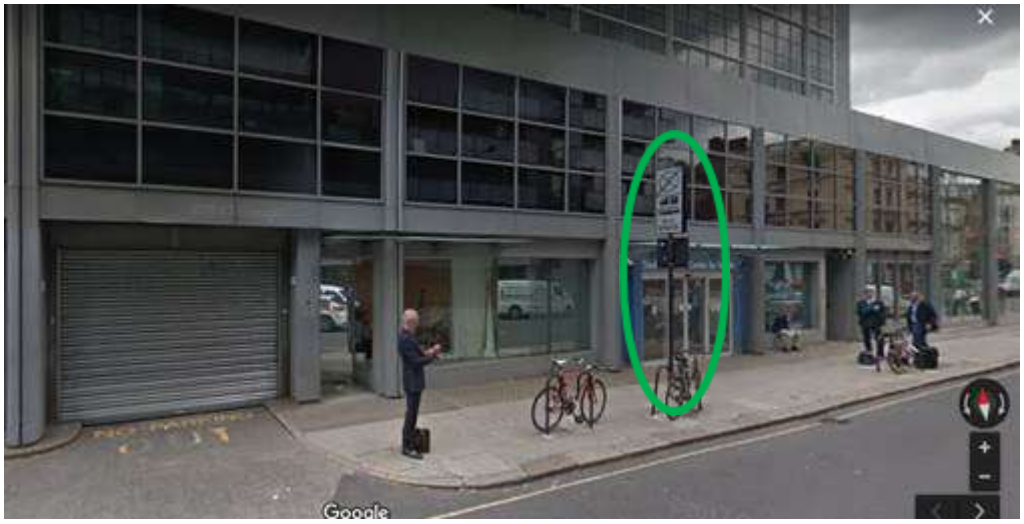
Thanks for noting that. We would expect sufficient time be allowed to discuss and arrange locations, notwithstanding existing contractor appointments. In other words for the sake of a few days it is more important to allow time to plan ahead and get it right. Note that Thurs/Fridays are non working days for me.

If you can send through detailed proposals I will endeavour to get you an answer by COB tomorrow. Our AQ officer has confirmed the locations should remain the same from baseline to construction, and agrees the mezzanine/terrace may not be suitable in any case.

Regarding the contractor's view on claimed non-viability of lamp-column installation, without further details this response appears to be arbitrary and I would expect additional investigation into this option and overcoming any barriers.

As mentioned there is a team within Highways who deals with enquiries of this nature. Our Highways Manager is getting me the contact details today. Please see an example lamp post below outside the property, circled green. Alternatively I imagine you would need to discuss a suitably arm-extended, wall-mounted solution with the owners of the neighbouring property to the west (166 Drummond St). I suggest consistency of location may have a higher priority than achieving the perfect SW transept. Please ensure the vehicle access location towards the SW corner may skew PM10 results during baseline period.

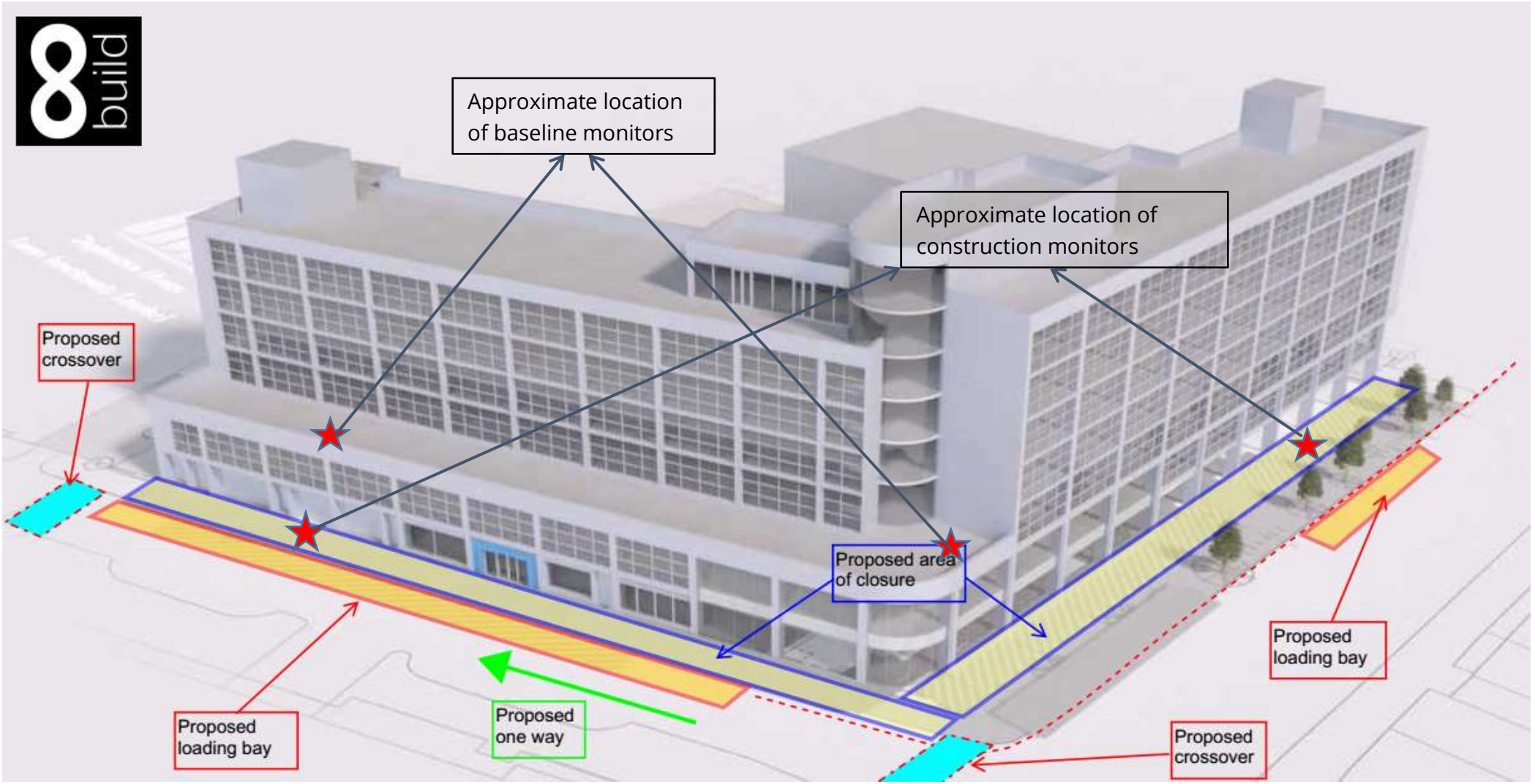



Regards

Gabriel Berry-Khan
Senior Sustainability Officer (Planning)

# Appendix C:  3D Site Plan with Loading Bays and Road Closures


Approximate location of baseline monitors
Approximate location of construction monitors
Proposed crossover
Proposed area of closure
Proposed loading bay
Proposed loading bay
Proposed one way
Proposed crossover


## Phlorum Limited

**Head Office & Registered Office:**
Unit 12
Hunns Mere Way
Woodingdean
Brighton
East Sussex
BN2 6AH
**T:** 01273 307 167

**Northern Office:**
Ground Floor
Adamson House
Towers Business Park
Wilmslow Road
Didsbury
Manchester
M20 2YY
**T:** 0161 955 4250

**Western Office:**
One Caspian Point
Pierhead Street
Cardiff Bay
Cardiff
CF10 4DQ
**T:** 029 2092 0820

**Scottish Office:**
Hole of Clean Farmhouse
Glencarse
Perth
PH2 7NS
**T:** 07540 307 677

info@phlorum.com
**www.phlorum.com**


Registered in England & Wales. Reg No. 4967256