



Baseline Construction Dust Monitoring: Belgrove House, Camden

July 2022



Experts in air quality
management & assessment

Document Control

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1 Introduction

- 1.1 An Air Quality Monitoring Strategy (Appendix A2) was prepared by Air Quality Consultants Ltd (AQC) in February 2022 (AQC, 2022a) to address Condition 30 of the planning permission granted to “*To safeguard the amenities of the adjoining premises and the area generally in accordance with the requirements of Policies A1, A4 and CC4 of the Camden Local Plan 2017.*” The Monitoring Strategy was submitted to, and approved by, the London Borough of Camden (LBC). The document sets out the requirements for the monitoring of particulate matter with a diameter of less than 10 microns (PM₁₀) to be undertaken at two locations throughout the demolition and construction work, the trigger levels to be applied, reporting frequency, and for three months of ‘baseline’ monitoring prior to work commencing on site.
- 1.2 Three-months of baseline monitoring commenced on 25th April 2022 and was completed on 25th July. No works are being carried out on site at present. This report summarised the PM₁₀ monitoring results for this initial 3-month period, as required by Condition 30 of the planning permission.

2 Monitoring Methodology

Monitoring Method

- 2.1 Monitoring is undertaken using two MCERTS certified Osiris instruments to measure concentrations of particulate matter. The Osiris instruments measure concentrations of particulate matter less than 10 micrometres in aerodynamic diameter, which is known as 'PM₁₀'. The monitoring is continuous, operating 24 hours a day, 7 days a week. Where data capture is less than 90%, an explanation for the data loss is provided, where possible.
- 2.2 Further details of the Osiris monitoring method are described in Appendix A1.

Assessment Levels

- 2.3 The Osiris monitors are set up to raise an alert if PM₁₀ concentrations greater than 190 micrograms per cubic metre ($\mu\text{g}/\text{m}^3$) are recorded during a 1-hour averaging period or 250 ($\mu\text{g}/\text{m}^3$) are recorded for 15-minute averaging period. This 1-hour trigger level is based on criteria recommended in the IAQM Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites v1.1 (IAQM, 2018). This is to help identify when abnormal levels of particulate matter may be being produced by the construction activities carried out. Instances of PM₁₀ concentrations greater than 190 $\mu\text{g}/\text{m}^3$ are investigated and action is taken, if required, to stop dusty site activities.

Monitoring Locations

- 2.4 There are two Osiris monitors installed, the locations of which are shown in Figure 1. The locations of the monitors were discussed and agreed with the LBC in February 2022.



Figure 1: Monitoring Locations

Imagery ©2021 Google.

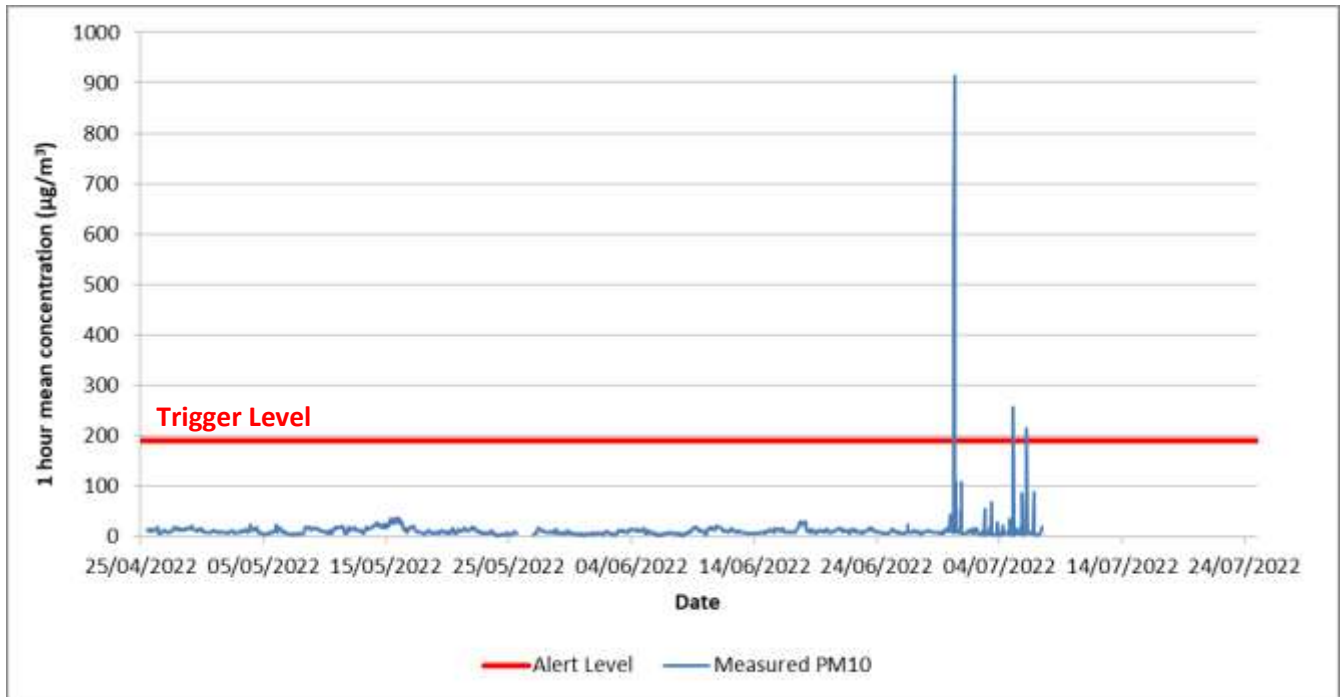
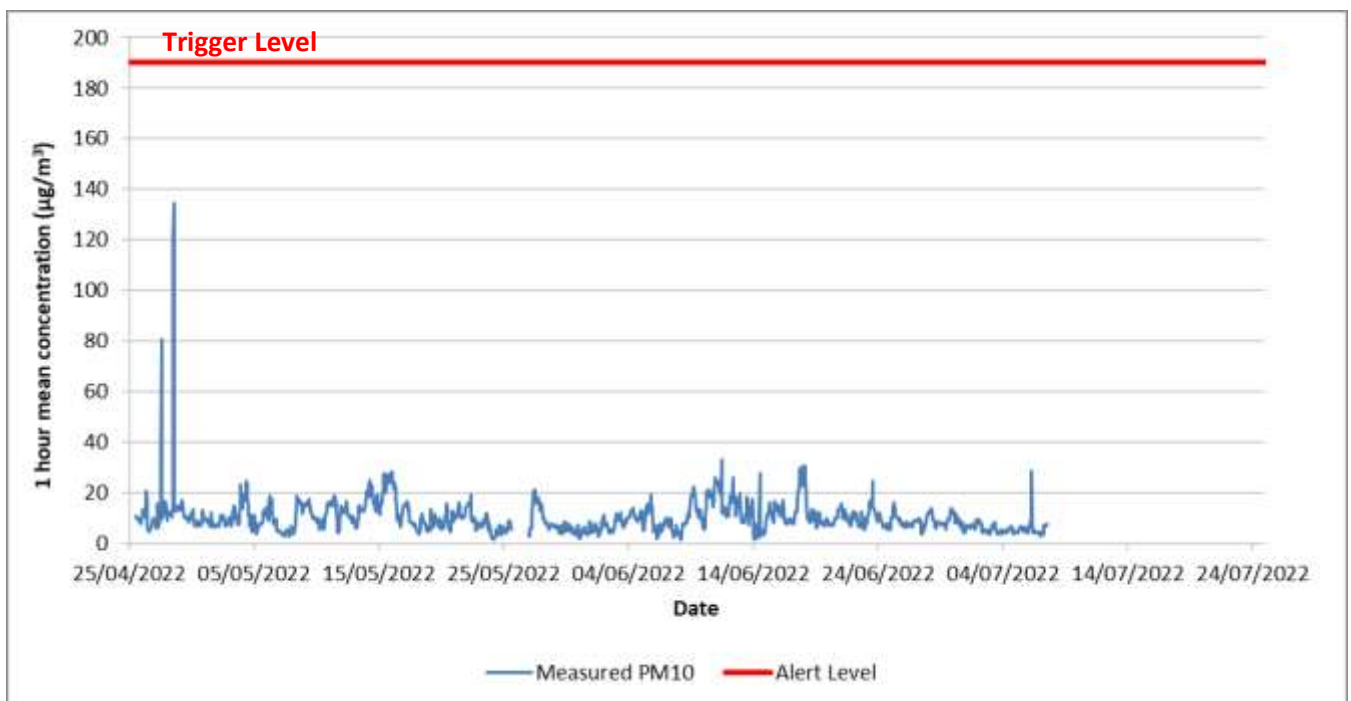
3 Monitoring Results

- 3.1 Monitoring statistics for the period 25th April 2022 – 25th July 2022 are shown in Figure 2 and Figure 3, and are summarised in Table 1.

Table 1: PM₁₀ Monitoring Statistics

Monitor	Average Concentration (µg/m ³)	Date and Time of Highest Concentration	Exceedences of 15-min Trigger Level	Exceedences of 1-hr Trigger Level	Data Capture (%)
Belgrove 1	11.5	912.7 µg/m ³ on 30/06/2022 08:00	13	4	77.3%
Belgrove 2	10.3	134.6 µg/m ³ on 28/04/2022 13:00	0	0	77.4%

- 3.2 Data capture was Limited to 77.3% at Belgrove 1 and 77.4% at Belgrove 2, this was due to a site-wide power failure occurring during the month of July This issue has since been rectified.
- 3.3 Belgrove 1 recorded 13 exceedences of the 15-minute trigger level and 4 of the 1-hour trigger level. These were resultant from external sources associated with the nearby Euston Road as no works are currently occurring on-site. Belgrove 2 recorded no exceedences of either the 1-h or 15-minute trigger level. This data is outlined in the in Figure 2 and Figure 3.

Figure 2: 1-hour Mean PM₁₀ concentrations at Belgrove House 1, Camden**Figure 3: 1-hour Mean PM₁₀ concentrations at Belgrove House 2, Camden**

4 Conclusions

- 4.1 Data capture was limited to 77.3% at Belgrove House 1 and 77.6% at Belgrove House 2 between 25th April 2022 to 25th July 2022. This is the result of a site wide power failure occurring in July, this issue has since been rectified.
- 4.2 Belgrove House 1 recorded 13 exceedances of the 15-minute trigger level and 4 exceedances of the one hour trigger level. As no works were occurring on site during the monitoring period these exceedances are resultant from external sources.

5 References

AQC. (2022a). *Air Quality Monitoring Strategy: Belgrove House Camden J10/12085A-F1*.

IAQM. (2018). *Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites v1.1*. Retrieved from
http://iaqm.co.uk/text/guidance/guidance_monitoring_dust_2018.pdf

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A1 Air Quality Monitoring Methodology - Osiris

- A1.1 The Osiris air quality monitoring units measure concentrations of particulate matter with a diameter of less than 10 micrometres, known as PM₁₀.
- A1.2 The Osiris monitors are operated continuously and work by pumping air through a heated inlet to remove moisture, and past an optical sensor which measures the concentration of PM₁₀ in the sampled air.
- A1.3 The Osiris monitors are set up to record average PM₁₀ measurements every 1 hour, which are sent via a mobile connection to an online database which stores the recorded data. Concentrations are recorded in micrograms of PM₁₀ per cubic metre of air (µg/m³).
- A1.4 The Osiris monitors are all subject to the following routine checks and maintenance:
- Daily online checks of monitoring data and power connection;
 - Quarterly filter changes; and
 - Annual monitor servicing.
- A1.5 It is desirable to achieve over 90% successful data capture on the Osiris monitors. An overall data capture rate of 100% is ideal; however, best practice guidance acknowledges that monitoring methods such as the Osiris can be prone to occasional power losses, communication errors and erroneous readings, which result in data capture lower than 100%. Successful data capture greater than 90% represents a high performance with no devaluation of the monitoring results. Where data capture is less than 90% in any monitoring period, justification as to the reasons for the low data capture are to be provided.
- A1.6 The Osiris monitors are set up so that they send an automated alert message to the site manager and air quality specialists if 15 minute PM₁₀ or 1-hour concentrations exceed a set level known as a 'Site Action Level'.
- A1.7 The purpose of the Site Action Level is to provide a warning of unusually high concentrations of PM₁₀, which may be an indication that dust is being produced by site works, but might also indicate other causes such as regional dust episodes (e.g. Saharan dust clouds) and other local dust and PM₁₀ sources such as road traffic, roadworks and utility works, bonfires, or adjacent construction sites. Dry and windy weather conditions are often the cause of high dust and PM₁₀ levels.
- A1.8 When a Site Action Level message is received, it is immediately investigated. If site works are identified as a possible contributory factor in the high PM₁₀ levels, then remedial action is taken. This might include using additional dust mitigation measures, relocating or stopping the dusty activity, or completely stopping works.

A2 Monitoring Locations

A2.1 Belgrove 1 location



A2.2 Belgrove 2 location

