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Olympic Park Dust Monitoring Scheme

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Olympic Park

Dust Monitoring Scheme

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CONTENTS

1.	INTRODUCTION AND CONTEXT	1-1
	Background	1-1
	Site description	1-2
	Scope and coverage	1-2
	Guidance Documents	1-3
	Document Context	1-3
2.	ROLES AND RESPONSIBILITIES	2-1
	Olympic Delivery Authority (including Deliver Partner)	2-1
	Principal Contractors	2-1
	Construction Zone Manager	2-1
	Environment Manager	2-1
	Site Operatives	2-2
3.	AIR QUALITY MONITORING REGIME	3-1
	Introduction	3-1
	Summary of measurement techniques	3-1
	Baseline data	3-1
	Site Selection - Fixed positional analysis	3-2
	Site Selection – Mobile monitoring equipment	3-3
	Supporting information	3-3
4.	ADDITIONAL PROCEDURES	4-1
	Daily Inspections	4-1
	Site Logs	4-1
	Elevated Concentration Monitoring and Reporting Procedure	4-2
5.	REPORTING REQUIREMENTS	5-1

APPENDIX A

APPENDIX B

APPENDIX C

1. INTRODUCTION AND CONTEXT

BACKGROUND

- 1.1 On the 6 July 2005, the International Olympic Committee elected London to stage the 2012 Olympic and Paralympic Games and entered into the host city contract with the Mayor of London and the British Olympic Association. The Olympic Delivery Authority is the public body established to deliver the infrastructure to hold the London 2012 Games. This role is supported by the ODA Delivery Partner (DP). ODA and Delivery Partner have a shared vision to achieve excellence in health, safety, and environmental protection.
- 1.2 This report sets out a scheme for particulate monitoring (dust and PM₁₀) during the enabling works and construction phases of the Olympic Park development.
- 1.3 The air quality monitoring scheme has evolved from the following studies:
- a review of the baseline monitoring data available from Capita Symonds;
 - a review of relevant legislation and planning conditions for the Site Preparation permission;
 - an assessment of risk from construction dust for sensitive receptors around the construction sites; and
 - identification of appropriate monitoring techniques.
- 1.4 The report is divided into the following main sections:
- Introduction and Context;
 - Roles and Responsibilities;
 - Air Quality Monitoring Regime;
 - Additional Supporting Procedures; and
 - Reporting Requirements.

SITE DESCRIPTION

- 1.5 The Olympic Park site is located within the London Boroughs of Newham, Hackney, Tower Hamlets and Waltham Forest. The site covers an area of approximately 250 hectares within the Lower Lea Valley. The area was previously characterised by railroad infrastructure, industrial and commercial use and amenity, interspersed with areas of semi-natural habitat and 'wasteland'. The River Lea and the Lea Navigation, together with a number of other watercourses, flow through the site.
- 1.6 The Olympic Park site has been subdivided into areas known as construction zones (CZ) 1 to 15.

SCOPE AND COVERAGE

- 1.7 The air quality monitoring scheme relates to the following phases of work in the construction zones of the site preparation and venue construction.
- Demolition;
 - Remediation;
 - River Works;
 - Bulk Earthworks;
 - Venue Construction;
 - Landscaping.
- 1.8 This document presents an overall Site Preparation monitoring scheme for the Olympic Park site. The scheme may be supplemented by additional local monitoring regimes if the need arises.
- 1.9 Some air quality monitoring was instigated during the early works (Tier 1 Contractors Enabling Works Air Quality Monitoring Strategy, 30 January 2007, REP-MOR-TZ-ZZZ-ZZZ-E-5001 Rev02), to meet the requirement for good construction practice and the preliminary Code of Construction Practice (CoCP), developed in response to planning conditions associated with the Early Works planning applications. As such, the Tier 1 contractors established a number of additional or alternative monitoring locations to accommodate their own site specific requirements.
- 1.10 This monitoring scheme builds on the monitoring strategy submitted for the early works permissions, to meet the new Olympic Park CoCP submitted as part of the Site Preparation and Olympic Facilities and Legacy planning applications and the draft conditions.

GUIDANCE DOCUMENTS

- 1.11 The following guidance documents have been used to develop the air quality monitoring scheme:
- Environment Agency Technical Guidance Note M8: Environmental Monitoring Strategy – Ambient Air;
 - Environment Agency Technical Guidance Note M17 Monitoring of Particulate Matter in Ambient Air around Waste Facilities;
 - Greater London Authority, London Boroughs and the Association of London Government: London Best Practice Guide, The Control of Dust and Emissions from Construction and Demolition; and
 - CIRIA: C502 Environmental Good Practice On-Site.

DOCUMENT CONTEXT

- 1.12 The ODA'S Sustainable Development Strategy has 12 objectives, one of which is to 'optimise positive and minimise adverse impacts on air quality.' It also states: 'an important element of the ODA's environmental management approach will be air quality on site. The ODA is committed to following the Greater London Authority, London Boroughs and the Association of London Government: London Best Practice Guide, The Control of Dust and Emissions from Construction and Demolition.'
- 1.13 This document also realises a requirement of the Olympic Park Code of Construction Practice and the Site Preparation Planning Permission (SP.0.50 see Appendix A) which may be discharged on a Planning Delivery Zone basis.
- 1.14 Details of the relevant planning policy, guidance and conditions are presented in Appendix A.

2. ROLES AND RESPONSIBILITIES

OLYMPIC DELIVERY AUTHORITY (INCLUDING DELIVER PARTNER)

- 2.1 The Olympic Delivery Authority (ODA) and its Delivery Partner, CLM, have certain legal obligations and planning commitments to protect the environment.

PRINCIPAL CONTRACTORS

- 2.2 The Principal Contractors (currently Morrison and Nuttall) are responsible for the Enabling Works which forms part of the Site Preparation works. Further Principal Contractors will be appointed to construct the venues. They will have responsibility for complying with the requirements of this monitoring scheme and will plan their work programmes to minimise impacts on local air quality.

CONSTRUCTION ZONE MANAGER

- 2.3 Individual construction zone managers will be responsible for site activities, plant and personnel, implementation of mitigation measures and corrective action in the event of an attributable exceedance of an air quality threshold. They will also be responsible for haul roads maintenance, installation of wheel washes, provision of water bowsers and site logs.

ENVIRONMENT MANAGER

- 2.4 The Principal Contractors' Environment Managers will ensure that the contractors comply with this monitoring scheme and that it is reviewed on a monthly basis. The Environment Manager will be responsible for the monitoring programme, site audit and inspections, complaint procedure stewardship, local authority liaison, direct line project reporting and non conformance close out. The Environment Manager will also undertake training and awareness of dust problems for all operatives on site.

- 2.5 The Environment Manager will ensure the following is undertaken:

- installation and collection of the sticky pad (Fablon) dust monitors;
- installation and collection of Frisbee dust gauges;

- receiving and acting upon alerts from the automatic analysers (Osiris);
- quality control procedures for all air quality monitoring;
- mitigation measures and corrective actions in relation to air quality.

SITE OPERATIVES

- 2.6 All site personnel have an obligation to comply with legislative requirements and should be made aware of any site specific requirements. The co-operation of site operatives is key to the minimisation of any emissions from site.

3. AIR QUALITY MONITORING REGIME

INTRODUCTION

- 3.1 As part of the site works, buildings are being demolished, demolition materials re-processed, soil remediated, plant equipment will operate on site for canal works and there will be major excavation and earthworks activities. All these activities have the potential to increase both suspended dust (PM₁₀ particulates) and depositional dust concentrations around the site. Monitoring for these parameters must therefore be undertaken before, during and after demolition activities.
- 3.2 Statutory UK environmental criteria are published for PM₁₀ and summarised in Appendix B. There are no statutory UK criteria for rates of soiling or dust deposition, although a relatively small number of custom-and-practice values have become the default industry standard. These are also included in Appendix B.

SUMMARY OF MEASUREMENT TECHNIQUES

- 3.3 The following techniques are in use or proposed for use on the site:
- PM₁₀ by optical scattering technique (OSIRIS analyser – gives indicative real-time PM₁₀ data);
 - PM₁₀ by beta-attenuation meter (gives robust 24-hour average concentrations);
 - Fablon pads (gives indicative data on soiling relative to wind direction);
 - Frisbee gauges (gives robust mass of deposition per unit area data).

BASELINE DATA

- 3.4 The London Boroughs of Hackney, Newham, Tower Hamlets and Waltham Forest routinely collect real-time air quality data as part of their own local air quality management requirements under the Environment Act 1995. This data offers useful characterisation of local air quality in east London at roadside and for urban background (i.e. not directly adjacent to major roads) locations. Routine measurements of deposited dust or soiling are generally not undertaken by local authorities.

3.5 Capita Symonds Limited (CSL) started monitoring air quality at the Olympic site in August 2006. The monitoring was instigated to provide data for the Olympic Park Environmental Statement (ES) to accompany the planning applications, rather than for construction activities. Monitoring for deposited dust has been undertaken using sticky pad samplers and all such monitoring has been continued by the Principal Contractors.

3.6 Reporting details are included in Section 5 of this document.

SITE SELECTION - FIXED POSITIONAL ANALYSIS

3.7 For construction purposes, dust and PM₁₀ monitoring will follow phases of work in the Construction Zones. A risk assessment previously carried out has indicated that the following construction zones are considered high risk:

- 4; 5a; 5b; 5c; 6a; 6b; and 6d.

3.8 The following zones are considered medium risk:

- 1a; 2a; 2b; 3a; 3b; 7a; 7b; 8a and 8b.

3.9 The most sensitive construction zone due to its proximity to residential receptors is Construction Zone 5.

3.10 All the locations of the proposed sampling sites have been discussed with the EHOs and there is general agreement that the locations are the most appropriate for the purposes of the site works. It was proposed that monitoring during construction works be deployed around the closest sensitive receptor to each construction zone. The positions originally identified and utilised by CSL during pre-construction surveys for the ES have been adopted for the revised Scheme, where appropriate. These have, however, been subject to review and rationalisation and in some instances locations have been changed, moved or increased in number to reflect the on-site needs. .

3.11 Details of all proposed dust monitoring locations are presented in Appendix C. A number of additional monitoring sites have been suggested following a review in August 2007 to enhance the overall spatial coverage across all delivery zones. These new sites are included at the end of the table in Appendix C with an "ATK" prefix.

3.12 The suitability in a local context of the agreed monitoring positions will be discussed with the Stratford City development team. The Public Protection Officers Liaison

Forum will be utilised to propose the sharing of data and avoid the duplication of monitoring efforts.

SITE SELECTION – MOBILE MONITORING EQUIPMENT

- 3.13 Real-time PM₁₀ measuring equipment should be located as close as is safe and practicable to the intended receptors. The precise location should be decided upon with building edge effects and local eddying in mind. Remote or rooftop installation may be preferable to mounting on building facades if provision of electrical supply is practicable.
- 3.14 There are presently two Osiris monitors in the Northern Site, situated adjacent to the Travellers' Site at Clays Lane¹ and Gainsborough Primary School. These are considered to be the most sensitive locations in the Olympic Park in relation to the Site Preparation works. Installation of the Southern Site monitors is expected in early October 2007, once logistics are installed and details of proposed sites are approved.
- 3.15 The current situation of the two optical analysers is broadly upwind and downwind of construction activities, assuming a prevailing south-westerly wind. This situation should be replicated wherever possible when relocating the analysers. If measurement at two sensitive sites is the overriding consideration, a third analyser should be introduced.
- 3.16 Two Osiris monitors are proposed with associated meteorological stations. These will be able to be moved to the desired receptor positions near whichever zone is being demolished at the time, though this must be carefully planned to ensure representivity, practicality and size of dataset (a minimum of six months is recommended). One will continue at Gainsborough Primary School and the other co-located with the BAM, possibly at the Quartermile Lane offices. If it is deemed appropriate to relocate these positions, their next locations will be discussed with the EHOs as part of the ongoing review of monitoring data.

SUPPORTING INFORMATION

- 3.17 It may be desirable to introduce certain enhancements to the existing monitoring regime in order to increase the representivity and robustness of the overall dataset.

Routine Frisbee gauge sampling

- 3.18 Frisbee gauge monitoring has previously been proposed as an additional technique to deploy in the event of incidents or complaints from local stakeholders. It is

¹ Note that the Clays Lane OSIRIS unit will be removed from this location once the Travellers' site has been relocated

desirable that a small number of permanent base units co-located with existing sticky pad samplers, as there are likely to be marked differences in method performance between the two techniques. The significance of the differences in method performance can thus be assessed. It is recommended that a small number (three for instance) of co-location sites be established at relatively secure locations. The Quartermile Lane office site, Gainsborough Primary School and another more remote location are suggested. The collection period should be one month to ensure a measurable sample of deposited dust is collected. .

Dawlish Road and Ruckholt Close PM₁₀

- 3.19 LB Waltham Forest operates a permanent continuous monitoring station (CMS) at Dawlish Road, Leyton and is currently commissioning a mobile CMS at Ruckholt Close near the site boundary, both of which will measure PM₁₀. Access to the PM₁₀ datasets, in pre-and post-ratification forms, should be sought for subsequent discussion with the LB EHOs. These monitoring locations are generally downwind of the site and should be used as a warning system to identify any off-site increases in long-term PM₁₀ concentrations.

Beta-attenuation meter

- 3.20 Commercially-available beta-attenuation meters generally meet equivalency tests to the EU particulate monitoring standard EN 12341 when certain adjustments are made, with established factors, to the slope and intercept of a plotted dataset. The BAM provides a 24-hourly average PM₁₀ concentration which may be used to assess compliance with long-term PM₁₀ criteria.
- 3.21 Although the optical systems currently used on site do not meet the EU equivalency tests, they are useful as screening tools and means of measuring short-term fluctuations associated with demolition and earthmoving activities. However they cannot be used to robustly assess long-term PM₁₀ concentrations, so it is considered desirable to co-locate the two types of analyser, such that the Osiris data may be subsequently corrected against the “true” BAM values. Provided that data capture is reasonable for both instruments (>75%) over the comparison period, the BAM can subsequently be redeployed as contemporary monitoring priorities dictate. The correction factor may then be applied to long-term PM₁₀ measurements taken by the optical systems.

Supersite

- 3.22 Measuring the same or related parameters using a variety of techniques will invariably give different results. For this reason, a “supersite” which co-locates all of the principal measuring techniques is proposed to generate a robust dataset to

determine the relative differences in method performance. The proposed “supersite” location will be agreed with the LPA EHOs, taking into account the importance of procuring a safe and stable power supply for the instrument. A nine-month collective co-location should be undertaken.

- 3.23 Following the “supersite’s” decommissioning after a minimum of nine months, the Osiris and BAM may be redeployed at the next selected location of particular sensitivity.

Meteorological data

- 3.24 Micro-scale meteorological data (i.e. collected at the continuous PM₁₀ monitoring site) will be of questionable value in episode investigation due to local building edge, wake and eddying effects. Site-wide meso-scale data will be of considerably more value. A relatively flat location with minimal potential for interference by existing buildings should be established as soon as possible. Solar-powered equipment with wireless telemetry is widely available; hence security against theft or damage is likely to be the primary constraint.

4. ADDITIONAL PROCEDURES

4.1 A comprehensive treatment on the control of activities which may give rise to pollutant emissions (e.g. road vehicle heavy plant emission standards, site access arrangements, working hours &c.) are included in the Olympic Park CoCP, in particular Section 6. Further mitigation measures are included in Project Environmental Management Plans.

4.2 The following sections describe the routine procedures to collect air quality and related environmental data.

DAILY INSPECTIONS

4.3 The Environment Manager will make daily inspections for black smoke (vehicles), dust plumes and odour. Any occurrences of black smoke, dust plumes and odour will be included in site logs including the time and duration of any occurrence. Mitigation measures will be checked by the Environment Manager to ensure appropriate measures are in place.

SITE LOGS

4.4 During the construction period, detailed site logs will be maintained which include the following:

- any complaints from a local resident or business relating to alleged emissions from construction activities;
- the date of the complaint;
- the nature of the complaint;
- any measures taken as a result of the complaint;
- copies of any correspondence between the complainant and the construction team.

4.5 Complaints shall be logged and investigated as soon as possible, although no longer than two hours after receipt of a complaint.

- 4.6 The dates on which dust suppression techniques were utilised on site for dust mitigation purposes, detailing the location and duration, shall be recorded.
- 4.7 The dates and vehicle registration numbers will be recorded for any construction vehicle or plant travelling off site which is observed:
- not covered when carrying materials travelling off site with a dust generating potential;
 - site plant or vehicles avoiding/ not utilising wheel washing facilities;
 - appearing to exceeding the site and highway speed limits;
 - not utilising the approved haul road and off site construction routes;
 - emitting black exhaust smoke.
 - vehicles parked with idling engine
- 4.8 The site logs will be reviewed on a weekly basis and cross referenced against the construction activities to determine any correlation between particular activities and / or locations and any dust complaints.
- 4.9 Where complaints are made, mitigation measures will be reviewed to ensure they are performing as expected. New procedures should be developed where problems continue to occur.

ELEVATED CONCENTRATION MONITORING AND REPORTING PROCEDURE

- 4.10 The action levels for depositional dust and automatic monitoring (suspended dust, PM₁₀) will be set above ambient/baseline concentrations to be agreed with EHOs following of the early works depositional dust monitoring and suspended dust monitoring. Whilst some works were on-going, some areas of the Olympic Park site were not being worked allowing baseline conditions to be established. This approach has been agreed with EHOs due to concerns that generic thresholds are inappropriate for the site, given the commercial/industrial nature of the site and its surroundings. Where baseline monitoring for either PM₁₀ or depositional dust exceed or are close to trigger or action thresholds, then the following actions will be triggered:
- notification to Works Manager or similar supervisor (this will may be automatic if generated by Osiris) to check if there is an obvious cause;
 - verification of the result to ensure it is site-generated dust and not external (review of data in broader context and review of meteorological data);
 - if it is a site effect, then take steps to reduce dust production by sweeping, wetting, and/or stopping vehicles or processes as required;

- investigation of London-wide conditions at the time of the event via the National Air Quality Archive, for context;
- notification of appropriate EHOs to confirm acceptability of results after measures implemented.

5. REPORTING REQUIREMENTS

- 5.1 The reporting of monitoring results has been the subject of discussion with the Local Authority EHOs. There is a requirement for periodic reporting which will be dependent upon the initial findings once regular site monitoring results become available.
- 5.2 Reports will be presented to Atkins and the Olympic Delivery Authority (ODA) Delivery Partner (CLM) for review, prior to presentation to the Regulatory Authorities. Any results of significance will, however, be acted upon immediately, if there is suggestion of a pollution event or incident.
- 5.3 The PM₁₀ and dust data shall be reported, in electronic format compatible with the project's GIS, and as PDF file. All reporting will be presented to Atkins/CLM for review, prior to submission to the relevant Regulatory Authority.
- 5.4 The frequency of reporting will depend on the specific requirements of each monitoring programme. A monthly summary report should be issued in addition to monitoring that has to be reported on a weekly basis or less.
- 5.5 The monthly report shall include the following:
- a table of monitoring sites and tests undertaken in period to highlight missing or delayed data;
 - a summary discussion of data at each monitoring site against trigger levels and statutory and guideline criteria;
 - a discussion of any episodes with details both of likely causes and resolution;
 - a discussion of London-wide episodes which may have influenced on-site conditions, with reference to the simplified Low-Medium-High pollution index published on the National Air Quality Archive;
 - a wind-rose showing prevailing wind speed and direction over the month;
 - a discussion of local data from Dawlish Road and the forthcoming Ruckhold Close mobile monitoring station, which should be proactively sought from the network managers (Kings ERG) each month;
 - individual test results and one-hour average Osiris data (as appendices);

- trend graphs produced over a rolling annual timeframe for deposited dust (disaggregated by measurement method) and PM10 by continuous analyser.
 - the number of complaints received for dust and mud on road issues
- 5.6 In addition to the monitoring data, the reports should also contain sections presenting the methodology followed, equipment used, additional information/observations (e.g. weather conditions) and comments (e.g. changes from previous monitoring).
- 5.7 A fit-for-purpose quality control regime will be developed to ensure the appropriate reporting and transposition of raw data from laboratory and network sources. Quality assurance will be by means of periodic audit.

APPENDIX A

APPENDIX A: PLANNING POLICY, GUIDANCE AND CONDITIONS

London Wide Requirements

The Draft Supplementary Planning Guidance (SPG) Sustainable Design and Construction has been produced by the Greater London Authority to provide additional information to support the implementation of the London Plan - Policy 4B.6. Part 3 of the SPG relates to sustainable development including air quality during construction and refers to the London Best Practice Guide, one of the guidance documents used in the preparation of this monitoring scheme report.

The Mayors Air Quality Strategy includes an undertaking to develop specific best practice to reduce emissions from construction and demolition sites in London (Policy No. 22). This monitoring scheme report has been prepared in accordance with the Draft London Best Practice guide and has therefore been undertaken in accordance with Policy No. 22.

Olympic Commitments

The following commitments have been made with respect to air quality and construction activities by ODA in their Sustainable Development Strategy. This has 12 objectives, one of which is to 'optimise positive and minimise adverse impacts on....air quality.' It also states: 'an important element of the ODA's environmental management approach will be air quality on site. The ODA is committed to following the Greater London Authority, London Boroughs and the Association of London Government: London Best Practice Guide, The Control of Dust and Emissions from Construction and Demolition.'

To enable the delivery of the London 2012 Sustainability Policy, the ODA aims to create the best possible economic, social and environmental legacy arising from its developments in the Lower Lea Valley, for London and the UK, whilst minimising any adverse economic, social or environmental impacts through the design, construction and build of the Olympic Park, venues and infrastructure and transport programme.

The ODA development activities will operate within building regulations, venue requirements of the London 2012 Organising Committee, London Plan Policy, the Mayor's environmental strategies, the Mayor's essential standards in his

Supplementary Planning Guidance on Sustainable Design and Construction and the Mayor's Supplementary Planning Guidance on Accessible London.

The construction of the Olympic Park site will result in the development of transport and other infrastructure, both temporary and permanent. The design, construction and management of this infrastructure will be planned and undertaken so as to minimise its impact on air quality, so as to not compromise UK Government and the Greater London Authority's (GLA) efforts to meet legally binding air quality limit values. Assessments will be made of the immediate and long term impacts on air quality for all proposed development, alongside the measures to be put in place to minimise and mitigate such impacts.

The ODA wishes to minimise the environmental impact of construction and disturbance to local communities. The ODA is also mindful of its statutory requirements regarding the management of environmental issues during construction to minimise adverse impacts on air, and water quality, wildlife, and noise levels. The ODA will promote proactive management by its contractors of these issues to reduce emissions and dust arising through demolition, bulk earthworks, and construction, and will promote low noise solutions where practicable. The ODA will require its construction contractors to have robust environmental management plans in place prior to the commencement of construction. The ODA is also keen to promote the adoption of voluntary codes of practice by its contractors, such as the Considerate Constructors Code.

The ODA will seek to minimise disturbance during demolition, remediation and construction to local communities, and will establish a dedicated phone number for local residents to call with suggestions or complaints for speedy resolution.

Planning Conditions

The Site Preparation planning permission has the following condition:

SP0.50

Site Preparation Development shall not be commenced until a scheme for dust monitoring, assessment and mitigation for all construction activities has been submitted to and approved by the Local Planning Authority.

The scheme shall include:

- The identification of dust sensitive premises to be used as the location for dust monitoring, including any arrangements proposed for amending the selected locations if new dust sensitive premises are introduced;
- The frequency and other arrangements for dust monitoring;
- The arrangements for reporting the results of dust monitoring and for implementing any mitigation measures to the Local Planning Authority.
- This condition may be discharged on a Planning Delivery Zone basis.

Reason: To protect the amenities of local residents and occupiers of other buildings.

APPENDIX B

APPENDIX B: AIR QUALITY CRITERIA

Statutory Criteria

Pollutant	Objective	Compliance date
Nitrogen dioxide	Hourly average concentration should not exceed $200\mu\text{g}/\text{m}^3$ more than 18 times a year	31 December 2005
	Annual mean concentration should not exceed $40\mu\text{g}/\text{m}^3$	[1 January 2010]
PM ₁₀	24-hour mean concentration should not exceed $50\mu\text{g}/\text{m}^3$ more than 35 times a year	31 December 2004
	Annual mean concentration should not exceed $40\mu\text{g}/\text{m}^3$	[1 January 2005]
PM _{2.5} Exposure reduction [^]	UK (except Scotland): annual mean concentration should not exceed $25\mu\text{g}/\text{m}^3$	2020
	Scotland: annual mean concentration should not exceed $12\mu\text{g}/\text{m}^3$	2020
	UK urban areas: target of 15% reduction in concentrations at urban background*	Between 2010 and 2020
Benzene	Running annual mean concentration should not exceed $16.25\mu\text{g}/\text{m}^3$	31 December 2003
	Annual mean concentration should not exceed $5\mu\text{g}/\text{m}^3$	31 December 2010 [1 January 2010]
1,3-butadiene	Running annual mean concentration should not exceed $2.25\mu\text{g}/\text{m}^3$	31 December 2003
Carbon monoxide	Running 8-hour mean concentration should not exceed $10\text{mg}/\text{m}^3$	31 December 2003

Notes:

[] denotes EU Limit Value compliance date in UK Regulations

[^] New European obligations for a target of 20% reduction are still under negotiation

* $25\mu\text{g}/\text{m}^3$ is a cap to be seen in conjunction with 15% reduction

Guideline values

Sticky Pad Depositional Dust Assessment Criteria

The trigger level criteria applying to depositional dust collected using the sticky pad method will be agreed in consultation with the EHO's.

Dry Frisbee Gauge Depositional Dust Assessment Criteria

The criteria applying to depositional dust collected using the dry Frisbee gauge will be agreed in consultation with the EHO's.

APPENDIX C

APPENDIX C: SITE LOCATION TABLE

All sites measure dust deposition / coverage by sticky pad method. Data is reported as %EAC and deposition rate. All samples changed weekly.

Table C1: Sorted by old reference number

New Ref No.	HCL Ref. No.	Proposed Location	Delivery Zone
Dust_06	25	CSL site No. 25 – Clays Lane	6
Dust_07	25B	Clays Lane (opposite former UEL towers)	6
Dust_42	101	Roach Road. Urban Background site	4
Dust_09	102	Windsor Wharf. Urban Background site	5
Dust_10	103	Towing path on canal opposite Windsor Wharf. Urban Background site	5
PM10_02	104	Gainsborough Community Primary School. Background Site	5
Dust_01	105	Ruckholt Close. Urban Background site	7
Removed	106	GB Mack Skips – Recycling Depot. Kerb site	7
Dust_14	107	Temple Mill Lane. Kerb Site	6
Dust_03	108	141 Westdown Road. Urban Background site	7
Dust_17	109	Gibbins Road. Urban Background site	1
Dust_18	110	Warton Road. Kerb site	1
Dust_20	111	44-60 (evens) Biggerstaff Road. Urban Background site	1
Dust_21	112	13 Biggerstaff Road. Urban Background site	1
Removed	113	The Kendon Packaging Group off Bridgewater Road. Kerb site	8
Dust_25	114	Otter Close. Urban Background site	8

New Ref No.	HCL Ref. No.	Proposed Location	Delivery Zone
Removed	115	Marshgate Business Centre. Kerb site	8
Removed	116	Pudding Mill Lane - DLR. Kerb site	8
Dust_30	117	Marshgate Road. Kerb site	8
Dust_31	118	Central House. Urban Background site	8
Dust_19	119	Lock keeper cottage at rear of Bow Industrial Park. Kerb site	4
Dust_16	120	Bow Industrial Park. Kerb site	4
Dust_15	121	River Lea - Site 1. Urban Background site-	4
Relocated	122	River Lea – Site 2. Urban Background site	4
Dust_38	123	River Lea – Disused Footbridge. Urban Background site	5
Removed	124	River Lea outside depot. Urban Background site	5
Dust_13	125	River Lea – adjacent to railway bridge. Urban Background site	5
Dust_12	126	Waterden Road (South). Kerb site	5
Dust_08	127	Waterden Road (North). Kerb site	5
Dust_11	128	Leabank Square. Urban Background site	5
Removed	129	Autumn Street. Kerb site	5
Dust_41	131	Carpenters Road (adjacent to River Lea)	4
Dust_05	133	Core Team Office, upper car park	7
Dust_40	135	Temple Mill Lane - cycle track behind Clays Lane	7
Dust_39	136	Rear of site team office	7
To be removed	137	Clays Lane Travellers Site	10
To be removed	138	Clays Lane Travellers Site	10
Dust_36	126A	East Cross Centre former Nightclub	5
Dust_37	126B	Canal fence rear of East Cross Centre	5

New Ref No.	HCL Ref. No.	Proposed Location	Delivery Zone
Dust_35	127A	Waterden Road – Travellers Park Driveway	5
Dust_34	127B	Waterden Road – Opposite Travellers Park	5
Dust_33	127C	Waterden Road – Travellers Park and Car Park boundary	5
Dust_02	East	Downsell Primary School	None
Dust_22	New site	Warton Road (near school)	
Dust_23	New site	Construction zone 3b adjacent to The Greenway	3
Dust_24	New site	Rear of Wise Road properties	12
Dust_26	New site	Otter Close. Urban Background site	
Dust_28	New site	Wick Lane	14
Dust_29	New site	Wrexham Road	8/14
Dust_32	New site	Abbey Lane	12
PM10_01	New site	Clays Lane Travellers Site	10
PM10_03	New site	East of Carpenters Road, adjacent to railway	1
Dust_27	West	Flora House	None
PM10_04		The Greenway, adjacent to Old Ford NR	3
BAM_01		Core Team Office, upper car park	7
PM10_05	New site	River Lea - Site 1. Urban Background site-	4

Table C2: Sorted by new reference number

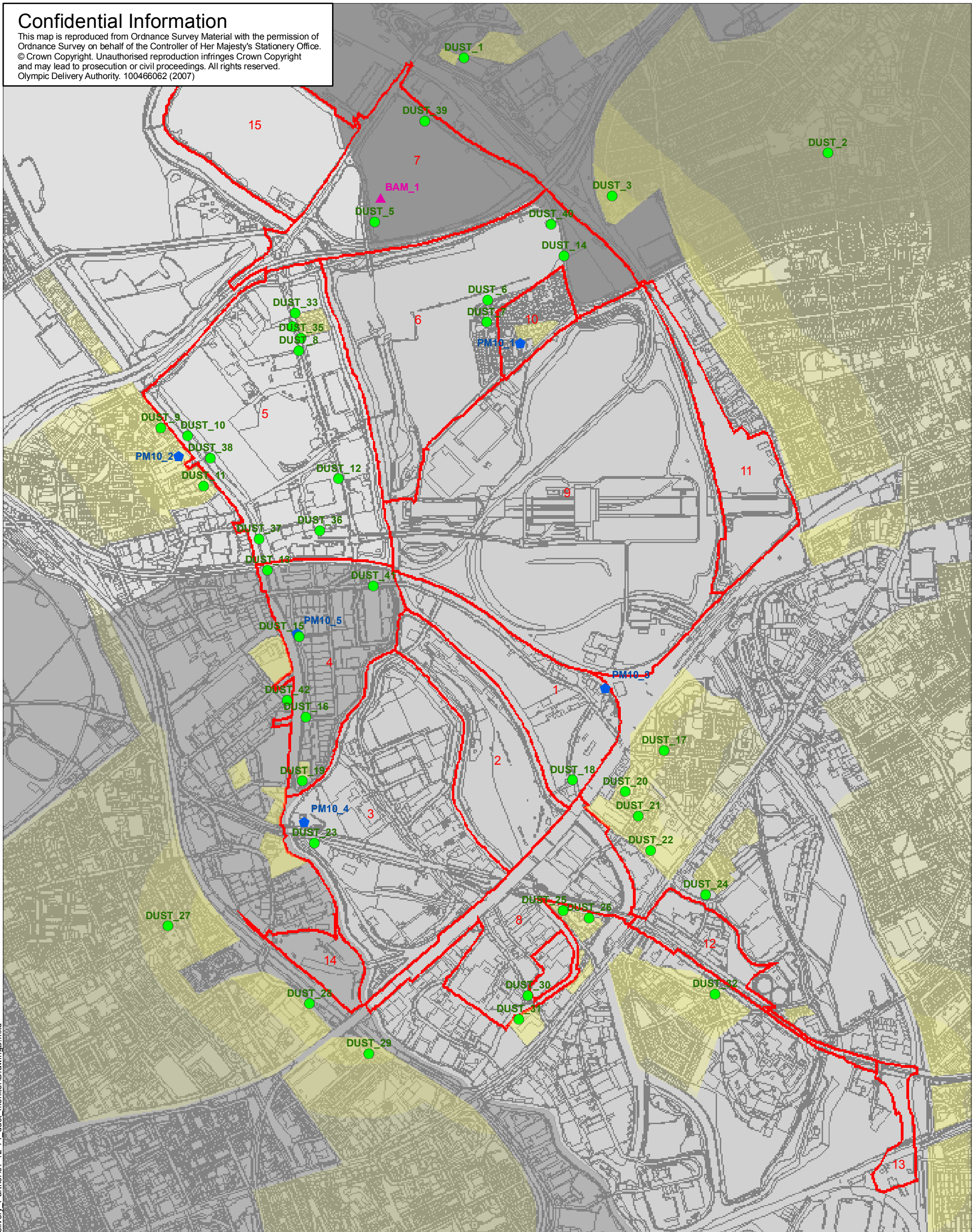
New Ref No.	HCL Ref. No.	Proposed Location	Delivery Zone
Dust_01	105	Ruckholt Close. Urban Background site	7
Dust_02	East	Downsell Primary School	None
Dust_03	108	141 Westdown Road. Urban Background site	7
Dust_05	133	Core Team Office, upper car park	7
Dust_06	25	CSL site No. 25 – Clays Lane	6
Dust_07	25B	Clays Lane (opposite former UEL towers)	6
Dust_08	127	Waterden Road (North). Kerb site	5
Dust_09	102	Windsor Wharf. Urban Background site	5
Dust_10	103	Towing path on canal opposite Windsor Wharf. Urban Background site	5
Dust_11	128	Leabank Square. Urban Background site	5
Dust_12	126	Waterden Road (South). Kerb site	5
Dust_13	125	River Lea – adjacent to railway bridge. Urban Background site	5
Dust_14	107	Temple Mill Lane. Kerb Site	6
Dust_15	121	River Lea - Site 1. Urban Background site	4
Dust_16	120	Bow Industrial Park. Kerb site	4
Dust_17	109	Gibbins Road. Urban Background site	1
Dust_18	110	Warton Road. Kerb site	1
Dust_19	119	Lock keeper cottage at rear of Bow Industrial Park. Kerb site	4
Dust_20	111	44-60 (evens) Biggerstaff Road. Urban Background site	1
Dust_21	112	13 Biggerstaff Road. Urban Background site	1
Dust_22	New site	Warton Road (near school)	

New Ref No.	HCL Ref. No.	Proposed Location	Delivery Zone
Dust_23	New site	Construction zone 3b adjacent to The Greenway	3
Dust_24	New site	Rear of Wise Road properties	12
Dust_25	114	Otter Close. Urban Background site	8
Dust_26	New site	Otter Close. Urban Background site	
Dust_27	West	Flora House	None
Dust_28	New site	Wick Lane	14
Dust_29	New site	Wrexham Road	8/14
Dust_30	117	Marshgate Road. Kerb site	8
Dust_31	118	Central House. Urban Background site	8
Dust_32	New site	Abbey Lane	12
Dust_33	127C	Waterden Road – Travellers Park and Car Park boundary	5
Dust_34	127B	Waterden Road – Opposite Travellers Park	5
Dust_35	127A	Waterden Road – Travellers Park Driveway	5
Dust_36	126A	East Cross Centre former Nightclub	5
Dust_37	126B	Canal fence rear of East Cross Centre	5
Dust_38	123	River Lea – Disused Footbridge. Urban Background site	5
Dust_39	136	Rear of site team office	7
Dust_40	135	Temple Mill Lane - cycle track behind Clays Lane	7
Dust_41	131	Carpenters Road (adjacent to River Lea)	4
Dust_42	101	Roach Road. Urban Background site	4
PM10_01	New site	Clays Lane Travellers Site	10
PM10_02	104	Gainsborough Community Primary School. Background Site	5
PM10_03	New site	East of Carpenters Road, adjacent to railway	1

New Ref No.	HCL Ref. No.	Proposed Location	Delivery Zone
PM10_04		The Greenway, adjacent to Old Ford NR	
PM10_05	New site	River Lea - Site 1. Urban Background site-	4
Relocated	122	River Lea – Site 2. Urban Background site	4
Removed	129	Autumn Street. Kerb site	5
Removed	124	River Lea outside depot. Urban Background site	5
Removed	106	GB Mack Skips – Recycling Depot. Kerb site	7
Removed	113	The Kendon Packaging Group off Bridgewater Road. Kerb site	8
Removed	115	Marshgate Business Centre. Kerb site	8
Removed	116	Pudding Mill Lane - DLR. Kerb site	8
To be removed	137	Clays Lane Travellers Site	10
To be removed	138	Clays Lane Travellers Site	10
BAM_01		Core Team Office, upper car park	7

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Safety, Health and Environment Information		Creator	
In addition to the hazards / risks normally associated with the types of work detailed on this drawing, note the following risks and information		Prepared by CLM on behalf of the ODA	
Construction	Cl. Cii. Ciii.	Project Title	Dust Monitoring Plan
Dismantling / Demolition (Future)	Di. Dii. Diii.		
For information relating to Use, Cleaning and maintenance see the Health and Safety File.			
It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement			

Drawing Title			
DUST MONITORING PLAN			
Drawn	MS	Checked	CB
Approved			
Scale [A3]	1:10,000	Date	14/12/2007
Status	Information		
Purpose of Drawing			
Information			
Drg. No.	OPS-ODP-ZZ-PWD-MP-G-5-Z61-0786		Rev. 02

02	Monitors added	MS	CB	
01	Monitors added	MS	CB	06/12/07
00	Information	PM	CB	24/09/07
Rev	Description	Drawn	Check'd	Date

Do not scale this drawing

Notes:

- Dust_Monitoring Location
- Osiris Monitors
- ▲ BAM Monitor
- Residential Area
- Olympic Delivery Zones
- Hackney
- Newham
- Tower Hamlets
- Waltham Forest