

DUST MANAGEMENT PLAN

101 Amington Road, Birmingham B25 8EP

Kiely Bros. Ltd

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1 Introduction

1.1 Site history / background

1.1.1 Oaktree Environmental Ltd have been instructed by Kiely Bros. Ltd to prepare a Dust Management Plan (DMP) for their site situated at 101 Amington Road, Birmingham B25 8EP.

1.1.2 Kiely Bros. Ltd can be found on the Fleet Operator Recognition Scheme (FORS) and their ID number is 008977. Kiely Bros. Ltd a currently have a silver status via a Single Operating Centre Accreditation (SOCA) from this site.

1.1.3 All references to the site in this DMP shall mean the permitted boundary extracted from the EP.

1.1.4 This DMP will allow Kiely Bros. Ltd to implement an action plan should the site operatives detect the presence of airbourne dust escaping beyond the site boundary, receive complaints from local business or residents and should the EA suspect dust emissions from the site during an inspection.

1.2 Site location

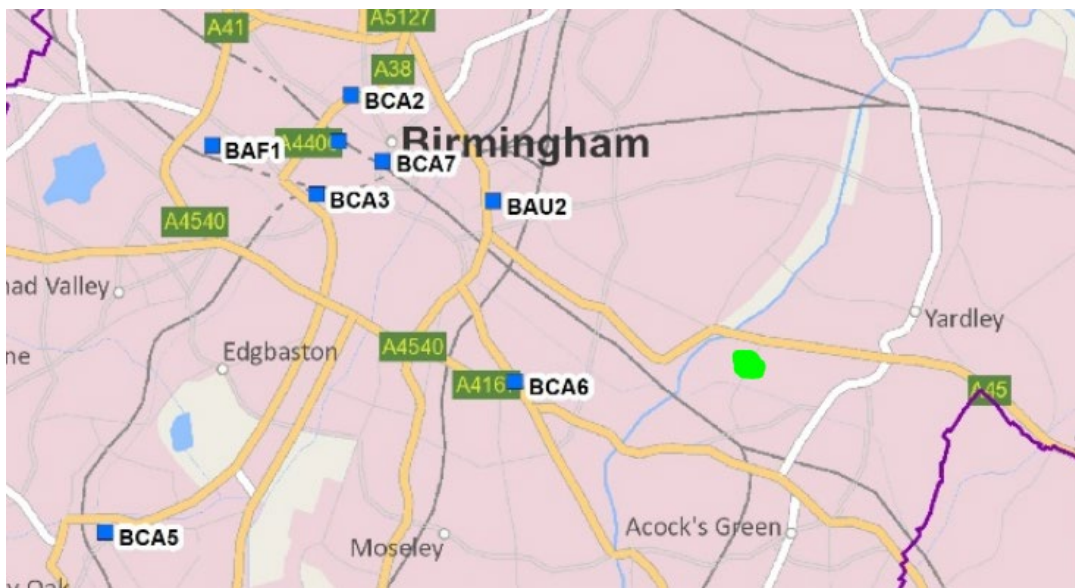
1.2.1 The site is located at 101 Amington Road, Birmingham B25 8EP as shown on Drawing Nos. AMI/918/01 & 02. The national grid reference for the site is SP113684761.

1.2.2 **AQMQ** - The whole of Birmingham has been designated an Air Quality Management Area (AQMA) under the Environment Act 1995, which means that companies have a duty to monitor and report on levels of nitrogen dioxide (NO₂) and particulates (PM₁₀). Birmingham City Council (BCC) have produced an Air Quality Action Plan to bring the air quality under the limits. It outlines the action BCC will take to improve air quality in Birmingham between 2021 and 2026. The main aims of the Action Plan are as follows:

- Improve the air quality monitoring at schools across the city
- Support businesses to encourage active travel amongst staff

- Actively participate in joint initiatives such as West Midlands Air Quality Improvement Programme, led by the University of Birmingham which seek to improve the understanding of pollution sources and levels of exposure
- Further development of the Birmingham Transport Plan encourages more people to adopt more active modes of transport in order to improve air quality and everyone's health
- Enhanced capability and capacity around the capture and sharing of air quality data from the across the city

1.2.3 The nearest local authority monitoring location is approximately 3km to the west of the site which is BCA6 situated on Stratford Road, Sparkhill as shown on the image below. The site has been highlighted in green on the same image.



1.2.4 The measures in this DMP detail how the particulates will be reduced to a minimum.

1.3 Facility overview

1.3.1 Kiely Bros. Ltd will hold and operate an Environmental Permit (EP); Ref. EPR/FB3403ZY which will be operated as a Section 5.4 (a)(iii) and b(ii) non-hazardous waste installation. The site will primarily be accepting residual waste under EWC codes 19 12 10 and 19 12 12 from their facility at Speedwell Road which will be treated to produce a solid recovery fuel (SRF) which will be sent for incineration.

- 1.3.2 The current EP allows for the acceptance, storage and treatment of mixed household, industrial and commercial (HIC) waste under an A11 activity, this activity is discussed in Section 3.6 of this EMS.
- 1.3.3 The EP also allows for acceptance, storage and treatment of construction, demolition and excavation (CDE) waste under an A16 activity but as this activity is not taking place at the site and will be relinquished from the EP.
- 1.3.4 The main issue of dust could arise from, but not limited to the following:
- i) Waste reception and tipping areas;
 - ii) Manoeuvring of vehicles tracking dust
 - iii) Operation of mechanical treatment plant and treating waste
 - iv) Storage and loading areas comprising potentially 'dusty' wastes.
- 1.3.5 In addition to this document, the site will also operate in accordance with a number of site-specific documents; namely an Environmental Management System (EMS) which will make reference to this DMP.
- 1.3.6 All relevant operational staff will be suitably trained to ensure they understand the purpose of this DMP and understand what actions need to be taken in event of a complaint. Training will be taken by the site manager, technically competent manager/s (TCM/s) or third-party Dust / Air Monitoring Consultant.

2 Sensitive Receptors

2.1 Receptor Plan

2.1.1 A sensitive receptors plan (SRP) has been produced to accompany this DMP and is shown in Appendix I referenced as on Drawing No. AMI/918/04. The receptors highlighted are those which are considered to be at risk by dust and dust particles generated by the site. The SRP also details the prevailing wind direction shown to be south-westerly.

2.2 List of receptors

2.2.1 The receptors listed from the SRP are also shown in the table below with approximate distances to these properties.

Table 2.1 – Distances to Selected, Representative Sensitive Locations

Boundary	Receptor	Approximate distance from centre of site (m)
East / North- East	Residential Properties on Amington Road, Durley Road, Elsworth Grove, Retford Grove	50 – 200
South	Residential Properties on Wharf Road	100
South-west	Residential Properties on Dorothy Road	150
East	Residential Properties on Stockfield Road	150 – 250
South-east	Residential Properties on Kilmorie Road, Denham Road, Douglas Road, Alexander Road and roads adjoining	220 – 950
North-west	Residential Properties on Francis Road	450
South	Grand Union Canal	Adjacent
South; west; north	Flora & fauna situated on Grand Union Canal and other recreational green areas	Adjacent; 500 (N & W)
North-west	River Cole (Main River)	900

2.2.2 Commercial/industrial businesses which may also be affected by dust are:

- Tarmac
- Vauxhall
- Pathway Apprenticeship
- Selco Building Warehouse
- Rucom Recycling

- Generation Hire and Sale
- Bathroom City
- M.V.Kelly
- Jonic Engineering
- Monster Skips
- Redfern Stevens
- Camtrex
- Phoenix Steels
- Euro Packaging

2.2.3 Other receptors not shown in the above table are illustrated on Drawing No. AMI/918/04.

2.3 Other dust and emission sources

2.3.1 Other dust/particulate emitting operators are tabulated below in Table 1.4 below.

Table 2.2 – Other Dust/Particulate Emitting Operators

Company	Address	Type of Business	Approximate distance & location from site boundary (m)
Tarmac	Amington Road, Birmingham, B25 8EL	Aggregates Manufacturing	Adjacent
Rucom Recycling	Wharf Road, Birmingham, B11 2DX	Recycling Facility	40
Monster Skips Ltd	5, Kiln Lane, Hay Mills, Birmingham, West Midlands, B25 8HF	A11 – Waste Recycling Facility	400 / North-west

3 Site Operations

3.1 Waste deliveries/removals

3.1.1 Waste will be delivered to the site via the existing access to the north of the site off Amington Road which is surfaced with concrete. Upon arrival, an operative will direct the driver to the relevant area on site.

3.1.2 Waste will arrive and depart at/from the site primarily consisting of Kiely Bros. Ltd's own vehicles/contracts and all loads are either sheeted, netted or contained upon delivery and removal. In terms of delivery vehicles, these comprise self-sheeting nets which are activated upon entry to the site ensuring the load can be tipped to prevent an employee climbing on the side of the vehicle.

3.1.3 Any third-party deliveries to the site will be advised that any potentially dusty loads be suitably sheeted, netted or contained. If the customer has the capability to wet down potentially dusty loads before deposit into Kiely Bros. Ltd's site, they will be asked to do this. If a customer is unable to place a dust sheet on a vehicle or wet a load they will be prohibited from loading/unloading until suitable containment has been provided. In more extreme cases customers may be asked to leave the site immediately. It must be noted, the waste will arise from Kiely Bros. Ltd's own sites using their own vehicles.

3.1.4 Following initial inspection of the load, if any loads are found to be containing high levels of powders, it will be rejected in accordance with the site's rejected waste procedure.

3.2 Site infrastructure

3.2.1 The site infrastructure is clearly detailed on Drawing No. AMI/918/03 which is shown in Appendix I of this DMP. The drawing illustrates the following areas on site:

- i) Different surfaces i.e. concrete, tarmac etc.
- ii) Location of buildings
- iii) Height/type of perimeter fencing
- iv) Reception and storage areas of waste

- v) Location of fixed plant/equipment i.e. loading hoppers, screeners
- vi) Existing dust mitigation techniques
- vii) Locations of mains water points and vehicle wash-down areas

3.3 Wastes with dust potential

3.3.1 The following common waste which will be present on the site have the potential to create dust will be:

Table 3.1 – EWC Codes/descriptions with dust potential

EWC Code	Description
19 12 12	Other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11
170 09 04	Mixed C&D waste

3.3.2 The site may accept other wastes listed in the permit but currently the site is only accepting the above.

3.4 Waste deposit, treatment and storage (A11 activity)

3.4.1 The site will primarily be used as the Section 5.4 activity but in the event of breakdowns on the operator's other sites, the site may need an overflow to avoid over stockpiling. In summary, skips of waste arising from householders or businesses on behalf of householders will be tipped into AREA 3 where the wastes will be crudely sorted by hand or using mechanical grabs. Recyclable wastes will then be stored in adjacent skips. The skips would then be transferred back to the operator's other site and tipped prior to removal off site. The wastes which would be tipped would comprise mixed sources and only 17 09 04 and 20 03 01. There is a further overflow bay (AREA 9) which can also store this material in the event AREA 3 is at capacity.

3.5 Waste deposit, treatment and storage (S5.4)

3.5.1 The operator will ensure that all delivery loads of 19 12 12 are clearly defined on waste transfer notes which will include a full description of the material i.e. residual / non-recyclable waste

3.5.2 It is proposed the operator will not accept any third-party tips of 19 12 12 material and will comprise only of the operator's waste from their other two permitted sites; Speedwell Road - EPR/ NP3092FC/V003 and Cherrywood Road - EPR/HB3805FE. In the event third party tips of 19 12 12 are required, the EA will be informed of the nature of the material and proposed mitigation procedures.

3.5.3 All staff will be trained to identify the different types of 19 12 12 material which could be accepted at the site.

SRF PRODUCTION PROCEDURE

3.5.4 The waste imported to the site for this process will be tipped into the reception area for residual waste (**AREA 1**) which is in a covered area comprising an annex to the building. This material will then be subject to the following procedures:

- i) An initial visual inspection will take place by trained staff to remove any wastes not suitable for the production of SRF. This waste would be moved by hand or grabs to AREAS 3 or 4.
- ii) Once the waste in **AREA 1** has passed inspection, the material in **AREA 1** will be loaded into a hopper using a 360⁰ grab, the hopper feeds an incline conveyor.
- iii) The conveyor then deposits the waste directly into the jaws of the first shredder which produces a 150mm shred material which is discharged into **AREA 2** via the shredder output conveyor.
- iv) The waste in **AREA 2** will then be loaded into two further shredders via a 360⁰ excavator which will reduce the material to <40mm in size.
- v) The <40mm material is then directly fed into an eddy current separator which will remove any metal and other heavy fractions which will discharge the material into skips (**AREAS A - B**). These skips will be monitored daily and removed to a suitably permitted site when full.
- vi) The eddy current separator then discharges the lighter <40mm shred material into a blower which discharges the now SRF waste into an adjacent bay (**AREA 10**).
- vii) The waste from **AREA 10** is then transferred to holding bays (**AREAS 5 – 9**) where it is dried ready to be loaded into a bulker and taken off site for incineration.

- viii) As mentioned in Section 3.5, the site may blend POPs waste with the above areas. The shredding of POPs would take place during a weekend period when no HCl waste is accepted to ensure it is a completely separate process and to prevent contamination of other wastes.

3.6 Processed waste types/product

- 3.6.1 Once waste has been subject to mechanical treatment, it will remain as 19 12 12 but will either consist of fines or oversize 19 12 12 material. All this material will be contained inside the waste transfer building and stored in secure bays. The site may also have some wastes with dust potential arising from EWC code 17 09 04 such as soils, stones but these will also be contained inside the building.

3.7 Mobile plant and equipment

- 3.7.1 Mobile plant and equipment along with their preventative maintenance are clearly detailed in the site's Fire Prevention Plan (FPP) and not considered necessary to duplicate as part of this DMP.
- 3.7.2 A no idling policy is in place which ensures that engines are switched off when vehicles or plant are not in use. This policy will ensure that tail pipe emissions are significantly reduced. Vehicle drivers undergo extensive idle training as part of the FORS accreditation.

4 Dust Management & Control Measures

4.1 Responsibility for implementation of the DMP

4.1.1 The site manager, site foreman and TCM (site management) will be responsible for the implementation of the DMP. Deputy site managers, senior plant operatives will also be identified in order to support the site manager. Full job roles at the site are clearly demonstrated in the operator's Fire Prevention Plan.

4.1.2 Site management will ensure the DMP is reviewed annually or sooner in the event of complaints/dust issues; whichever is the soonest, with any amendments or alterations put in place as soon as reasonably possible.

4.1.3 The above staff with the aid of Oaktree Environmental Ltd (if required) will be responsible in providing training to relevant operational staff to ensure they are deemed competent and understand the contents of this DMP. Staff will undergo re-fresher every 12 months or in the event of a dust complaint / issue or the implementation operational changes. If deemed necessary, a suitable Dust/Air Monitoring Consultant may be contacted to train staff regarding third party monitoring i.e. Ambient Air Monitoring.

4.2 Sources of fugitive dust/ emissions

4.2.1 The main dust/emission sources which arise from site are detailed in the following table below:

Table 4.1 – Dust emission source table 1

Source/Plan Ref	Description
Areas 2 - 10	Waste storage areas
Loading of waste into mechanical plant	Loading waste into the Shredder
Various sources	Output and storage of waste arising from treatment
Various sources	Vehicles accessing/aggressing the site tracking dust on to or off the site
Various sources	Dust being blown around from site surfaces or dusty wastes not contained
Various sources (sorted waste bays)	Loading waste materials back on to vehicles for export from site
Various sources	Particulate emissions from the exhaust of vehicles/plant/machinery on site (NO ₂).

4.3 Control Measures (staff training/daily inspections)

- 4.3.1 Good housekeeping and site practices are vital to ensure that the impacts from fugitive dust and debris impacts are controlled. The site undertakes regular inspections throughout the day for the presence of dust/debris with corrective actions taking place upon discovery. Operational staff are suitably trained in procedures to keep the levels of dust /debris to a minimum including prevention and mitigation. The inspections will be once a day minimum and more frequent (three times daily) during dry weather conditions or when winds reach 4 or above on the Beaufort Wind Scale (13mph – 18mph). All inspections will be visual and are recorded on the Dust Monitoring Forms shown in Appendix III. The inspections points may vary on site so are therefore not included on the drawing.
- 4.3.2 The areas listed in table 4.1 above i.e. where dusts arise or build up will be continuously monitored throughout the working day and cleaned on a daily basis; paying special attention to the machines where dust is more likely to build up. Results of inspections will be daily and noted in the site diary along with any key factors which could lead to dust emanating on/off site including weather conditions, staff negligence, unauthorised waste, suppression system out-of-action, low water supply etc../
- 4.3.3 The site will rely on weather updates for wind speed/gusts using live information from the Met Office or other suitable weather website (Refer to Section 6.3 which details how the site will operate under periods of winds exceeding 4 on the Beaufort Wind Scale). Site management will train operational staff of the winds speeds in the Beaufort Wind Scale and by reviewing weather conditions in advance, site management can inform operatives of the type/no. of inspections required. As waste is being stored and treated inside the building, there is a lesser risk of dust emanating in external areas of the site.
- 4.3.4 Site management will review all results/data at the end of the working day or immediately in the event of complaints, dust plumes on site or dust emanating off site causing pollution.
- 4.3.5 The operator will avoid fugitive dust emissions by committing to the following housekeeping:

- Maintain a clean, well-organised site
- Use suppression systems to dampen down potentially dusty wastes
- Jet spray and disinfect storage bays when emptied
- Clean equipment that has been in contact with dusty materials
- Carry out a deep clean of the reception / processing building and external areas once a quarter and record this in the site diary
- Concrete floors designed with a slope towards drainage system and designed in a way that allows easy cleaning.
- Floors sealed to prevent absorption and adsorption of dust producing residues.

4.3.6 The operator has a maintenance team which carries out the cleaning and maintenance on a continual basis then a final check 1 hour at the end of each day or 1 hour before their shift ends.

4.4 Control measures (containment)

4.4.1 **Waste reception and storage areas** – The waste reception/tipping area and storage locations are situated within an enclosed building. The building is considered to act as wind barrier and considered a suitable measure to reduce the potential for dust escaping beyond the site.

4.4.2 In addition to the above, all other waste storage areas are stored within dedicated storage bays as detailed section 4.9.

4.5 Control measures – site surfacing /drainage

4.5.1 The entire site benefits from a concrete hardstanding surface draining to the mains sewer system on Amington Road. As the site is surfaced with concrete, this reduces the risk of airborne debris such as mud, stones being tracked around areas of the site from vehicle chassis. It must be noted that no waste is being stored outside of the building/covered area.

4.5.2 The concrete area is relatively flat and any defects such as cracks, rivets will be repaired as soon as practically possible to ensure the site can be swept using the measures shown in

Section 4.6.2. If the concrete cannot be repaired immediately due to poor weather or , inability to source suitable concrete, temporary alternatives such as using inert rubble or steel plates will be used and a timescale for repair will be agreed with the EA.

4.6 Control Measures – site surfaces and vehicle movements

4.6.1 The control measures implemented by site management to minimise the risk of dust and debris emissions from dusty site surfaces and vehicle movements include:

- A permanent water supply will be made available on site during dry weather conditions to ensure that the dust suppression systems can function effectively.
- All site surfaces used for the tracking and running of vehicles and/or plant and all stockpiles of wastes which have the potential to be dust-forming are swept morning and pre-end of shift, six days per week to minimise dust & debris as per Section 4.6.2.
- Vehicle speed on site is restricted to 5 miles per hour. Signs are erected at the relevant areas of the site, including the main access gates, to advise drivers of the speed limit. This will reduce the re-suspension of dust and particulate matter.
- Exiting vehicles will leave the site and will avoid all areas where wastes are stored or stockpiled. All vehicles will be checked before they leave the site to ensure no mud/dust can stretch beyond the site access. All incoming/outgoing vehicle loads will be sheeted.
- Any mud/dust deposited onto the public highway (Amington Road) will be treated as an emergency and cleaned by operatives as per Section 4.6.2.
- Any dust/fluff cleared from mobile plant or other areas where dust/fluff could idle, the material will be deposited into one of various mobile wheelie bins with lids which are located throughout the site in a manner which do not restrict vehicle movements.

4.6.2 In terms of the road sweeper, Kiely Bros. Ltd apply a hierarchy of systems as shown below:

- i) Firstly, a manual street clean to collect any large items of litter/debris which may have accumulated
- ii) If the manual clean is not deemed sufficient, A JCB Telehandler (which is insured and road legal) with the brush attachment will be used collect any debris/litter (usually satisfactory).

- iii) If the JCB is not suitable, a road sweeper store at an alternative site operated by Kiely Bros. Ltd will be used to rectify the problem.

4.6.3 The site manager/TCM will be responsible for elevating the hierarchy steps following inspections.

4.7 Control Measures – site suppression

4.7.1 **Hosepipes** – There a number of hoses situated around the site which can be utilised to spray on bays and stockpiles which do not benefit from suppression systems; and for further dampening of the main ‘dusty’ stockpiles and the site surface.

4.7.2 **Flocculent Suppression System** – The waste transfer building is fitted with a flocculent suppression system installed by APPS UK Ltd consisting of nozzles which spray a mixture of chemical and water. The nozzles are situated over all processing and storage areas to combat the potential dust nuisance. Details of the system are shown in Appendix III and a summary how the system works is shown in section 4.7.3 below.

4.7.3 The rotary units to the north of the building are designed to provide coverage to large areas with a visible push of up to 25m and non-visible up to 40m. These units rely on a rear fan to project the mist over the offending area and the performance of any fan-based system is optimised without the presence of large amounts of dust.

4.7.4 The nozzles fitted inside the shed building include 24 no. nozzles, which are split to provide full cover within the main building. These nozzles are set into three zones, furthermore the panel allows for a further fourth zone depending on where the plant will be located, so further nozzles can be utilised to facilitate spot treatment for areas of particularly dusty operations during shredding operations or discharge points.

4.7.5 The nozzles are installed down the centre, left and right side of the building. The centre ones being cluster nozzles with 4 sets of 4 nozzles totalling 16 no. nozzles. The remaining nozzles split either side to provide further and/or alternate cover. The nozzles here are set to pulse mode, this will be the most effective treatment in this area, rather than having

them operate continuously. This will balance the moisture levels in the building, although will combat the dust effectively enough, with the added benefit of the Airborne to polish the atmospheric dust when the process isn't running constantly as shown in Appendix III. The system has been designed to cover all areas of the building which process and store waste.

4.7.6 The system is not designed to 'arc' due to the nature of the technology behind them. Using a 40-micron droplet size enables the particulate to travel wherever it needs to go, utilising existing wind patterns and movements within any locations they are installed to their advantage.

4.8 Control measures – water supply

4.8.1 A permanent water supply will be made available on site during all weather conditions to ensure that the dust suppression can function effectively. All external water pipes will be lagged to prevent frost damage during winter months and the operator will set up a notification alert system with the Met Office in the event of a drought being imminent. This will enable the operator to source water in the short and long term and store in tanks prior to a potential water ban.

4.8.2 The supply and drainage of the water is provided from the sewerage undertaker who can be contacted in the event of low water pressure to ensure the issue is rectified so suppression techniques are not compromised.

4.9 Control Measures – storage of waste

4.9.1 The control measures implemented by site management to minimise the risk of dust and debris emissions from the continuing storage of wastes and the loading/unloading of these include:

- Stockpiles of dusty waste 1.0m below the height of their relevant storage bays which are considered appropriate for this type of facility given the nature surrounding receptors.

- If required stockpiles will be sprayed with water during periods of dry/windy weather to prevent excessive drying and dust formation.
- Drop heights will be kept to a minimum to prevent dust emissions where adjustment permits
- All waste which has undergone waste sorting/separation are stored in dedicated bays with a suitable freeboard to prevent the waste exceeding the height of the bay.

4.9.2 When waste is stored out-of-hours, there will be a minimum freeboard of 1m between the waste storage and top of the bay. As the waste is continually moved and stored throughout the, the freeboard is likely to reduced due to the type of material. The freeboard can be monitored as each legio block as 0.8m high and the interlocks are easily viewable by staff.

4.10 Control measures – vehicle movements and mobile plant

4.10.1 All HGV'S and plant have the latest Euro 6 engines and are serviced by main agents under contract to ensure any impact to the AQMA is reduced to an absolute minimum.

4.10.2 As discussed in Section 3.6.2, a no idling policy is in place which ensures that engines are switched off when vehicles or plant are not in use. This policy will ensure that tail pipe emissions into the AQMA are significantly reduced.

4.10.3 The site will follow the first in first our principle as detailed in the FPP to reduce additional movements inside the building. In summary, waste will be tipped from the HGV into waste reception areas, the oldest material will be extracted from the rear of the pile and scooped into the mobile processing plant and the same HGV will collect the processed material and remove off site. It is unlikely that vehicles will access/egress the site unladen.

5 DUST MANAGEMENT RISK ASSESSMENT MODEL

5.1 Fundamental considerations

5.1.1 **Source/Hazard:** A property or situation that in particular circumstances could lead to harm.

5.1.2 **Consequences:** The adverse effects or harm as the result of realising a hazard which causes the quality of human health or the environment to be impaired in the short or long term.

5.1.3 **Risk:** A combination of the probability of occurrence of a defined hazard and the magnitude of the consequences of the occurrence.

5.2 Pathway

5.2.1 Important in the assessment of a particular risk(s) and to inform the subsequent management of the risk(s) is the identification of the pathway(s) through which the risk may affect the identified receptor(s). The following are examples of pathways:

- Air
- Ground
- Water
- Direct contact / exposure

5.3 Consequences

5.3.1 The following table highlights the consequences of the hazard(s) identified and the abbreviations for each as used in the Risk Assessment Table 5.5 in Section 5.7.

Table 5.1 – Consequences

Abbreviation	Consequences
A	MINOR INJURY
B	MAJOR INJURY
C	DEATH
D	AIR POLLUTION
E	WATER POLLUTION
F	POLLUTION OF LAND

5.4 Effects of consequences

5.4.1 In order to quantify the level of risk and identify the appropriate management procedures, the potential effects must be considered, as outlined in the table below:

Table 5.2 – Potential effects

Abbreviation	Effect of Consequences	Management Required?
S	SEVERE	In all cases
Mo	MODERATE	In most cases
Mi	MILD	Occasionally
N	NEGLIGIBLE	No

5.4.2 Note: “Management” is the action required to reduce the risk of a hazard causing a problem on site. Contingency measures are procedures which are in place to reduce the consequences of a hazard.

5.5 Risk estimation and evaluation (probability/frequency of occurrence of hazard)

5.5.1 The following table allows the likelihood of an occurrence of an identified risk to be assessed:

Table 5.3 – Likelihood

	Probability	Evaluation
1	Very likely	Could occur during any working day
2	Likely	Could occur regularly
3	Possible	Event possible
4	Unlikely	Event very unlikely

5.6 Risk assessment outcome (combination of probability & consequence)

5.6.1 The following table shows the resultant risk of an identified hazard or potential situation. This uses the hierarchy of both probability and consequence to assess the level of risk. The level of risk determines what level of management would be required in order to reduce the risk of occurrence and/or scale.

Table 5.4 – Risk assessment outcome

		Consequence			
		S	Mo	Mi	N
Probability	1	High	High	Medium	Low
	2	High	Medium	Low	Near-Zero
	3	Medium	Low	Near-Zero	N/A
	4	Low	Near-Zero	N/A	N/A

- 5.6.2 Where the risk assessment outcome is high, first-level management of the risk is essential, i.e. removal of hazard, implementation of major infrastructure/structural design measures to contain the risk/hazard and company policy changes to incorporate the management of the risk. All risk management measures must be supplemented with detailed induction training, spot training and tool-box talks to ensure all site staff and users are made fully aware of the risk/hazard, all potential consequences and necessary management and contingency procedures.

- 5.6.3 Where the risk assessment outcome is medium, the management of the risk should be tackled by management or delegates. If removal of the hazard is not possible, management will normally be met through implementing minor structural design measures or by imposing procedures for the prevention of occurrences which will be conveyed to all site staff through the appropriate training, including any contingency measures/procedures.

- 5.6.4 Where the risk assessment outcome is low, the management of the risk can be done wholly through appropriate training to site staff including any contingency measures/procedures.

- 5.6.5 Where the risk assessment outcome is near-zero, site staff should be made aware of the possibility of an occurrence and contingency measures should be readily available to all staff should they be required.

5.7 Risk assessment table

- 5.7.1 The following pages contain the site-specific risk assessment for the site with appropriate remedial actions, recommendations and comments included for each identified hazard, potential contaminant or situation.
- 5.7.2 The table also contains references to the appropriate section(s) of the site's EMS for additional management procedures.
- 5.7.3 As discussed in the section above, all situations which identify a risk from Low –High should be incorporated into the staff/visitor training schedule, where appropriate and acted on as required.
- 5.7.4 Table 5.1, overleaf details the relevant pathways and receptors for each individual dust/emission source and relevant measures required to break these linkages. The control measures outlined in Section 4 will be included within these tables as well as additional specific measures.

SEE TABLES OVERLEAF

Table 5.5 – Source, pathway, receptor, abatement tables

Hazard / Potential Contaminant or Situation	Source(s)	Pathway	Receptor(s)	Consequences	Effect	Probability	Assessment Outcome	Remedial Action/ Recommendations/ Comments	Assessment Outcome following action /recommendation
Dust / Particulates	Unsheeted vehicles accessing/ egressing to/from the site	Air	Site personnel / visitors Surrounding site users / occupiers Surface water including the Grand Union Canal to the south Flora & fauna Residential receptors Surrounding businesses River Cole (Main River)	Air Pollution Water Pollution	Moderate	3	Med	Management will ensure that all site vehicles operated by Kiely Bros. Ltd are adequately sheeted before accessing and leaving the site. The site will ensure Amington Rd is maintained in good state of repair to prevent unnecessary dust being generated through correspondence with Birmingham City Council. A maximum speed limit of 5mph will be maintained. Any mud/dust deposited onto the public highway will be treated as an emergency and cleaned by operatives or by way of a road sweeper which should management observe significant dust build up or generation along the access road.	Low
Dust / Particulates	Vehicles tipping into waste reception/storage areas	Air	Site personnel / visitors Surrounding site users / occupiers Surface water including the Grand Union Canal to the south Flora & fauna Residential receptors Surrounding businesses River Cole (Main River)	Air Pollution Water Pollution	Moderate	2	High	Drop heights will be kept to a minimum to prevent dust emissions. The site operations are predominantly enclosed within a building which will reduce dust emissions The onsite hosepipes can also offer additional suppression. Dust suppression system in place. The operator will avoid doubling handling of waste and may directly load from vehicle directly into the treatment plant if feasible.	Low

Dust / Particulates	Loading of waste into treatment plants	Air	Site personnel / visitors Surrounding site users / occupiers Surface water including the Grand Union Canal to the south Flora & fauna Residential receptors Surrounding businesses River Cole (Main River)	Air Pollution Water Pollution	Moderate	2	High	Drop heights will be kept to a minimum to prevent dust emissions i.e. 1m – 2m maximum above the hopper. Waste loaded into the hopper will be pre- sprayed/dowsed prior to loading via the flocculent system. The onsite hosepipes can also offer additional suppression during extreme weather conditions Dust suppression system in place.	Low
Dust / Particulates	Waste storage bays	Air	Site personnel / visitors Surrounding site users / occupiers Surface water including the Grand Union Canal to the south Flora & fauna Residential receptors Surrounding businesses River Cole (Main River)	Air Pollution Water Pollution	Moderate	3	Mild	Drop heights will be kept to a minimum to prevent dust emissions. Stockpiles will be sprayed with water to prevent excessive drying and dust formation. All dust generating materials are situated inside a building which will help reduce wind whipping and dust generation. The process is ongoing and therefore waste is unlikely to remain at the site for any significant length of time prior to the loading, processing and removal from site. Staff will ensure there is suitable space in the bay to ensure the waste can be deposited and safely contained. Dust suppression system in place.	Low

Dust / particulates	Prolonged periods of dry/warm or windy weather conditions	Air	Site personnel / visitors Surrounding site users / occupiers Surface water including the Grand Union Canal to the south Flora & fauna Residential receptors Surrounding businesses River Cole (Main River)	Air Pollution Water Pollution	Mo	2	High	Additional visual assessment / monitoring will be onsite and undertaken around the site perimeter in order to ensure dust is not escaping beyond the site. Dust suppression system in place.	Low
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6 Monitoring and contingency measures

6.1 Monitoring and recording

6.1.1 **Visual assessment** – Site management will make a visual inspection of dust emissions using the Dust Monitoring Form in Appendix II. This will enable the person carrying out the assessment to inspect the presence of dust and whether it is present on site with a risk of escaping off site. It is not considered necessary to have a fixed monitoring point due to infrequent weather conditions. If there is an easterly or westerly wind, the staff member carrying out the monitoring will observe the area from the north or south so dust can be easily identified. The site staff member will complete the monitoring and form in Appendix II at least once every 12 hours or in the event of the circumstances shown in Section 4.7.2, additional monitoring i.e. every 3 hours. The monitoring will be carried out while the site is operational and should it be observed if dust is being wind whipped or clouds of dust observed emanating outside of the building onto external surfaces, the site will increase suppression methods. If the suppression methods are not suitable, operations will reduce or cease until the problem fully has been fully rectified. Site management will be responsible for investigating dust issues and provide additional training to staff to prevent any re-occurrences. Site management will record all findings in the dust monitoring form or site diary and also detail staff training using training forms provided in the EMS or the operator's own internal training records.

6.1.2 The monitoring can also take place in the evenings or during times when light is low as there is suitable flood lighting available covering all loading/unloading and processing areas..

6.1.3 In the event the site needs to shut down or is temporary closed, before closure, site management will ensure before the site closes that all dusty waste is stored internally, in secure containers or 1m below the height of containment walls. If weather conditions i.e. dry, hot, +4 on the Beaufort Wind Scale have led to an increased risk of dust escaping from the site, site management will ensure the site is wetted down prior to closure. Site management will be responsible for signing the site off prior to closing using inspections forms.

- 6.1.4 The results of monitoring exercises and any remedial action taken will be entered into the site's diary or logbook which is available for the EA to inspect upon request. The name of the inspector will be stated in the site's diary / inspection form for each day of operation.
- 6.1.5 The site supervisor will be suitably trained to carry out these duties. Further information regarding training and technical competence is provided within the site's EMS.

6.2 Monitoring

- 6.2.1 Site staff will continuously visually monitor dust emissions whilst external plant is in operation and will control dust emissions using the procedures shown throughout Sections 4.2 – 4.13 and asking the site manager, compliance manager, TCM or third party for advice as required. Work procedures will be stopped/adjusted should it be evident significant dust is being emitted which has the potential to migrate offsite.
- 6.2.2 Site management will also be required to make a note of any unavoidable events such as periods of dry weather or winds reaching 7 on the Beaufort Wind Scale in the site diary, rather than just actual complaints received. This will ensure that if complaints are received retrospectively from either the local authority or directly, any circumstances which led to that complaint as a result of elements outside of the operator's control would be able to be attributed (or, at least, in part) to the cause of the complaint.

6.3 Staff shortages/human error

- 6.3.1 In the event of unforeseen staff shortages arising from illness, suspension or no shows, the operator will make a judgement whether to reduce the number of incoming loads, thus reducing processing frequency and divert material to an alternative site. The operator will then seek further employment within a timely manner to ensure the site can continue to operate at its required capacity.
- 6.3.2 All staff are trained and undergo toolbox talks every 6 months (or sooner if operations change) to reduce the impact of human error. In instances where a human error has caused to an on-site dust issue, the site may suspend operations until the issue has been rectified and the member of staff will be warned and re-trained accordingly.

6.4 Weather conditions

6.4.1 The site will subscribe to the Met Office to receive updated weather alerts for the following weather conditions which could cause a potential on or off-site dust complaint:

- Dust plumes occurring on site, potentially if winds reach 4 on the Beaufort Wind Scale
- Winds exceeding 7 on the Beaufort Wind Scale
- Dust escaping beyond the site boundary
- Droughts or periods of hot weather exceeding 3 major dry days which could lead to water shortages, hosepipe bans and excessive dust.

6.4.2 The site will install the following preventative measures to avoid serious dust pollution:

WINDS EXCEEDING 7 ON THE BEAUFORT WIND SCALE

- No sorting, processing or treatment of any wastes which are likely to be blown around during these wind conditions; operations would also be suspended where it is evident where dust is escaping beyond the site. Operations would only continue once the problem has been rectified i.e. by carrying out suppression or reducing stockpile heights.
- Vehicles leaving the site will be sheeted to comply with the requirements of the Duty of Care legislation.
- Stockpiles will be reduced to a suitable height to prevent the material escaping beyond the site boundary i.e. below the heights of boundary walls.
- Stockpiles may be covered with tarpaulin in the event the above procedures are not considered effective.
- In the event of extreme winds, the site will deploy the above measures and may be forced to close operations until conditions have improved.

DROUGHTS/WARM, DRY WEATHER

- In extreme cases such as a hosepipe ban or water shortage, the site will ensure there is additional water available i.e. tanks which can be used for filling the dust cannons to ensure suppression techniques can still function.

- The site will contact the water company in the event of an emergency to see if the water pressure can be increased.
- Where dust is becoming a major concern then the operator will stop processing the material and cover the piles using tarpaulin until conditions or dust suppression techniques are considered effective.

6.5 Operational/power failure

- 6.5.1 The site manager will be contacted by staff in the event of any operational failure such as the breakdown of plant, systems or equipment and will decide whether operations are to continue or be suspended prior to corrective action being taken. Serious operational failures will be recorded in the site diary and operations suspended if dust is apparent.
- 6.5.2 If there was a significant power failure or power cut, the site would not operate, doors would manually shut and no dust would be created. The site has direct contact with engineers who can be called out and attend site within a 48-hour period; the engineers also carry specific parts for mobile plant or any electrical items on their vehicle. If repairs cannot be undertaken within 48 hours, the local EA officer or department will be notified in the event of any serious operational failures to agree a suitable course of action.
- 6.5.3 If the site is closed and it is still evident dust is escaping from site following site inspections or a complaint, the operator would source a back-up generator as soon as practicable and advise the complainant if required of the action taken.
- 6.5.4 All details of defects, problems and repairs carried out will be recorded on a daily inspection form. Detailed comments may also be recorded in the site diary. All repairs will be carried out as soon as practicable.
- 6.5.5 All repairs to site security will be made on the discovery of the damage and the site will be made secure until the repair has been carried out.
- 6.5.6 Any major defects found during the daily site inspection which are likely to lead to a breach of permit conditions will be repaired by the end of the working day in which they are found,

where possible. If a repair is not possible by the end of the working day and a potential breach of permit conditions may occur, the EA will be contacted to agree a suitable timescale for repair.

6.5.7 All defects and problems likely to give rise to pollution will be recorded on the form KBL/RF/4 or the operators own recording procedures with repairs/solutions being carried out immediately.

6.5.8 The operator would also be required to make a note of any unavoidable events plant/equipment malfunctions in the site diary, rather than just actual complaints received. This will ensure that if complaints are received retrospectively from either the Council/EA or directly, any circumstances which led to that complaint as a result of elements outside of the operator's control would be able to be attributed to the cause of the complaint. If there are significant dust releases outside normal operations, the operator will cease operation, investigate and resolve the issue before continuing.

6.6 Liaison with Neighbours

6.6.1 In the extreme event of significant but temporary dust issues during normal operations, neighbours will be contacted to advise them of the situation and the action being taken. The EA will also be notified.

6.6.2 An open-door policy will be encouraged by the operator to enable any complaints from neighbouring premises (if received) to be dealt with immediately. The complainant will then be supplied with remedial actions taken and any procedures or measures put in place by the operator to reduce or ideally eradicate the likelihood of a subsequent complaint.

6.6.3 If any dust complaints are received, the complaint will be assigned to an operative familiar with the sites operation who will complete a 'complaints and events log' and detailed individually on the complaints form (in Appendix II), both of which will be kept for inspection on request by the EA. Details of information to be completed are dates, nature of complaint, weather conditions at the time of the complaint, investigation details, action taken and a

signature (as a minimum). Dust complaints will be investigated and responded to within 24 hours and suitably reviewed by the site manager who is ultimately responsible.

- 6.6.4 The operator would also be required to make a note of any unavoidable events plant/equipment malfunctions in the site diary, rather than just actual complaints received. This will ensure that if complaints are received retrospectively from either the Council/EA or directly, any circumstances which led to that complaint as a result of elements outside of the operator's control would be able to be attributed to the cause of the complaint. If there are significant dust releases outside normal operations, the operator will cease operation, investigate and resolve the issue before continuing.

7 Actions when complaints are received

7.1 Complaints procedure

- 7.1.1 If any dust complaints are received, the relevant operator will complete a ‘complaints and events log’ and detailed individually on the complaints form (in Appendix II), both of which will be kept for inspection on request by the EA. Details of information to be completed are dates, nature of complaint, weather conditions at the time of the complaint, investigation details, action taken and a signature (as a minimum).
- 7.1.2 The operator would also be required to make a note of any unavoidable events plant/equipment malfunctions in the site diary, rather than just actual complaints received. This will ensure that if complaints are received retrospectively from either the Council/EA or directly, any circumstances which led to that complaint as a result of elements outside of the operator’s control would be able to be attributed to the cause of the complaint.
- 7.1.3 If the source cannot be ascertained with 100% confidence, the site manager, compliance manager or TCM will either suspend or reduce the likely dust/particulate generating activities, i.e. the loading of waste into the mechanical treatment plants.
- 7.1.4 If the source is within the site’s control, the site manager, compliance manager or TCM will take appropriate action in terms of dust/particulate abatement, to ensure that the alarm is not re-activated. This may take the form of the following:
- a) Investigating the source of the dust/particulates to prevent a re-occurrence.
 - b) Suspending operations which are not being conducted using best-practice controls.
 - c) Additional use of the dust abatement measures.
 - d) Logging findings of a – c in the site diary / complaints form and also in the reporting template within the EP.
 - e) Report actions to the complainants and/or EA
- 7.1.5 If following the above complaints are still being received, the site will cease operations until the issues have been rectified.

7.2 Complaints recording

7.2.1 Any complaints received in relation to dust will be recorded on the form shown in Appendix II by the person in receipt of the complaint:

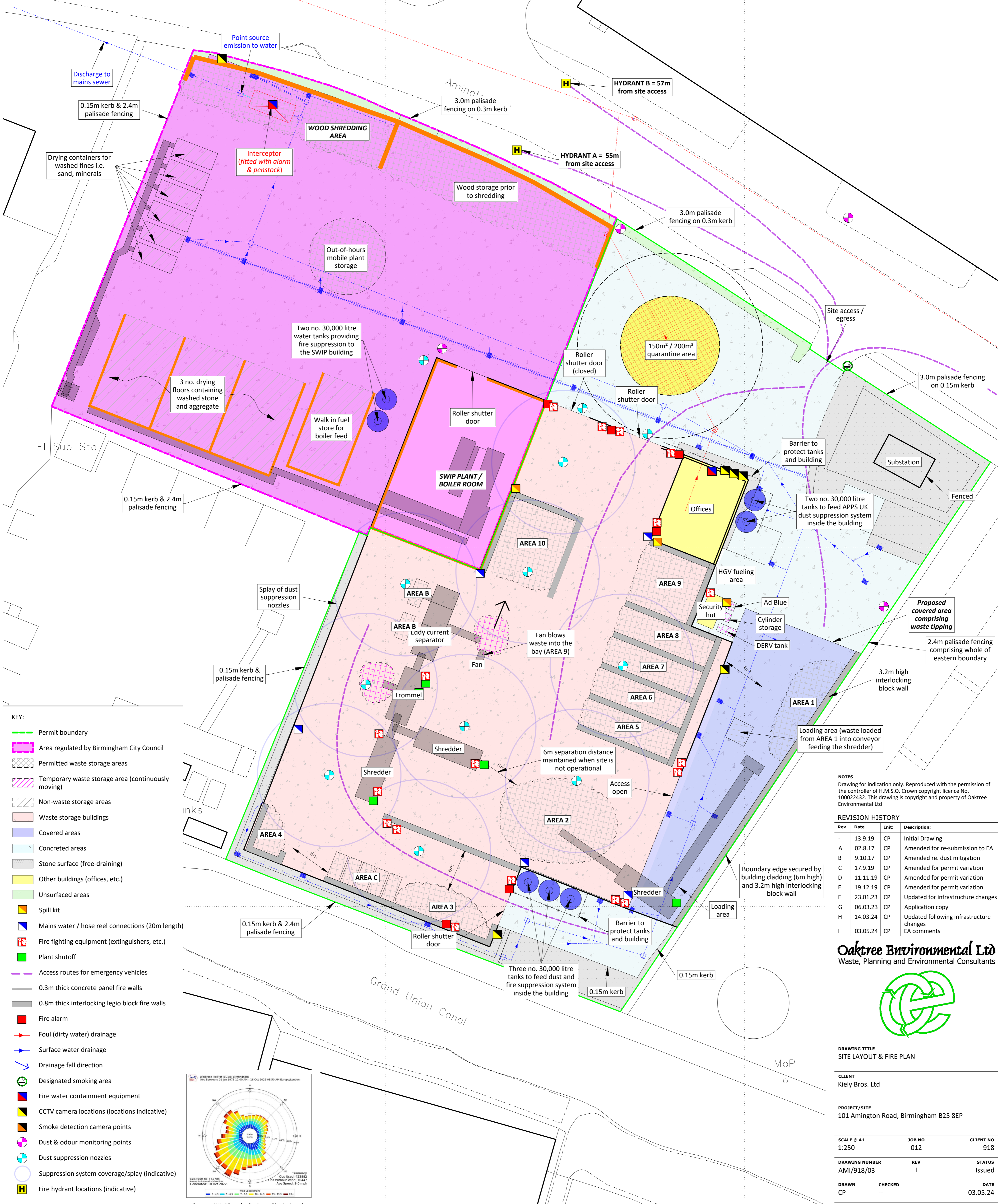
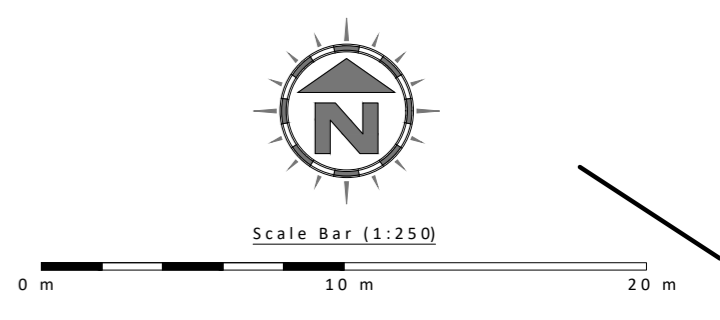
7.2.2 The following details as a minimum will be completed on the form.

- a) The name, address and telephone number of the caller will be requested.
- b) Each complaint will be given a reference number.
- c) The caller will be asked to give details of:
 - the nature of the complaint;
 - the time;
 - how long it lasted;
 - how often it occurs;
 - is this the first time the problem has been noticed; and,
 - what prompted them to complain.
- d) The person completing the form will then, if possible, make a note of:
 - the weather conditions at the time of the problem (rain snow fog etc.)
 - strength and direction of the wind; and,
 - the activity on the installation at the time the noise, dust or odour was detected, particularly anything unusual.
- e) The reason for the complaint will be investigated and a note of the findings added to the report.
- f) The caller will then be contacted with an explanation of the source of the complaint if identified and the action taken to prevent a recurrence of the problem in future.
- g) If the caller is unhappy about the outcome or unwilling to identify themselves the caller will be referred to the appropriate department of the EA or Local Council.
- h) Following any complaint, the complaints procedure will be reviewed to see if any changes are required or if new procedures need to be put in place.

Appendix I

Drawings

Plan Ref	Description	Storage form/containment	Height, width (m) & type of fire wall	Max Length / Width (m)	Operational storage height (m)	Out-of-hours storage height (m)	Approx. Area (m ²)	Conversion factor used	Volume (m ³)	Tonnes (approx.)	Max storage duration	Comments
AREA 1	Tipping / reception area for residual waste (RDF material) >150mm	Free standing / fire wall	3.2m high, 0.8m thick interlocking concrete blocks	20	3	2.2	120	0.75	270	135	<24 hours	The entire pile would be processed during operational hours.
AREA 2	Shredded residual (RDF) waste <300mm	Free standing / fire wall	6, 0.15 / 0.8 & interlocking concrete blocks and concrete panel of building	20	2	2	250	0.5	250	125	<24 hours	The entire pile would be processed during operational hours.
AREA 3	Mixed HIC waste reception and sorting area	Free standing / fire wall	3.2, 1.5 & 0.8 interlocking concrete blocks	15	2	2	75	0.5	75	37.5	<72 hours	The entire pile would normally be processed during operational hours, 72 hours based on contingency
AREA 4	POPs/bulky waste	Free standing / fire wall	3.2m high, 0.8m thick interlocking concrete blocks	12	3	2	90	0.75	202.5	101.25	<24 hours	POPs would be removed from AREA 3 or segregated from AREA 1 following visual inspections
AREAS 5 - 8	Drying bays for SRF material awaiting removal from site	Free standing / fire wall	4, 0.8m & interlocking concrete blocks	14	4	3	50	0.75	150	75	<7 days	The nature of waste may change the bay. If the waste in the bays is wet, it may be stored for up to 7 days so it can dry naturally.
AREA 9	As above or either POPs / mixed HIC waste	Free standing / fire wall	As above	14	4	3	80	0.75	240	120	<7 days	Overflow drying bay from AREAS 5 - 8 but may also be used as overflow for wastes in AREAS 3 & 4.
AREA 10	Holding bay for processed SRF	Free standing / fire wall	As above	12	4	3	90	0.75	270	135	<7 days	Transferred to drying bays (AREAS 5-8) continuously.
AREAS A - B	Containers of non-ferrous metal removed via eddy current separator	12-cubic yard skips	N/A	3.7	1.86	1.86	10	1	20	10	<7 days	Containers usually removed weekly.
AREA C	Sorted waste containers arising from AREA 3	12-cubic yard skips	N/A	3.7	1.86	1.86	10	1	20	10	<7 days	Containers usually removed weekly.



- KEY:**
- Permit boundary
 - Area regulated by Birmingham City Council
 - Permitted waste storage areas
 - Temporary waste storage area (continuously moving)
 - Non-waste storage areas
 - Waste storage buildings
 - Covered areas
 - Concreted areas
 - Stone surface (free-draining)
 - Other buildings (offices, etc.)
 - Unsurfaced areas
 - Spill kit
 - Mains water / hose reel connections (20m length)
 - Fire fighting equipment (extinguishers, etc.)
 - Plant shutoff
 - Access routes for emergency vehicles
 - 0.3m thick concrete panel fire walls
 - 0.8m thick interlocking legio block fire walls
 - Fire alarm
 - Foul (dirty water) drainage
 - Surface water drainage
 - ↘ Drainage fall direction
 - ⊙ Designated smoking area
 - Fire water containment equipment
 - CCTV camera locations (locations indicative)
 - Smoke detection camera points
 - ⊙ Dust & odour monitoring points
 - ⊙ Dust suppression nozzles
 - ⊙ Suppression system coverage/splay (indicative)
 - H Fire hydrant locations (indicative)

NOTES
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Rev	Date	Init	Description
-	13.9.19	CP	Initial Drawing
A	02.8.17	CP	Amended for re-submission to EA
B	9.10.17	CP	Amended re. dust mitigation
C	17.9.19	CP	Amended for permit variation
D	11.11.19	CP	Amended for permit variation
E	19.12.19	CP	Amended for permit variation
F	23.01.23	CP	Updated for infrastructure changes
G	06.03.23	CP	Application copy
H	14.03.24	CP	Updated following infrastructure changes
I	03.05.24	CP	EA comments

Oaktree Environmental Ltd
Waste, Planning and Environmental Consultants



DRAWING TITLE
SITE LAYOUT & FIRE PLAN

CLIENT
Klyly Bros. Ltd

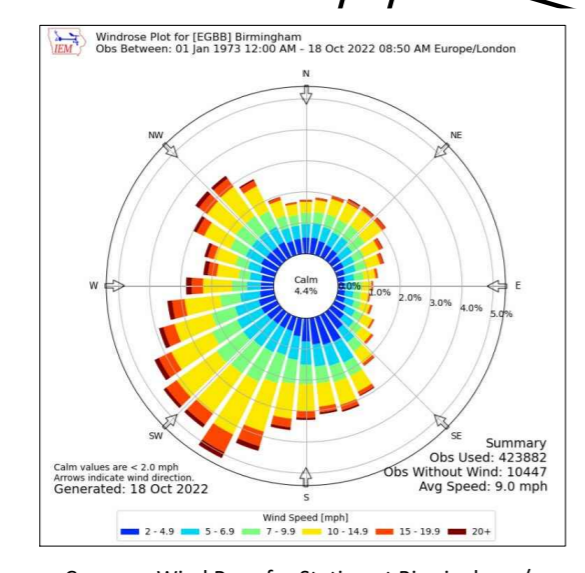
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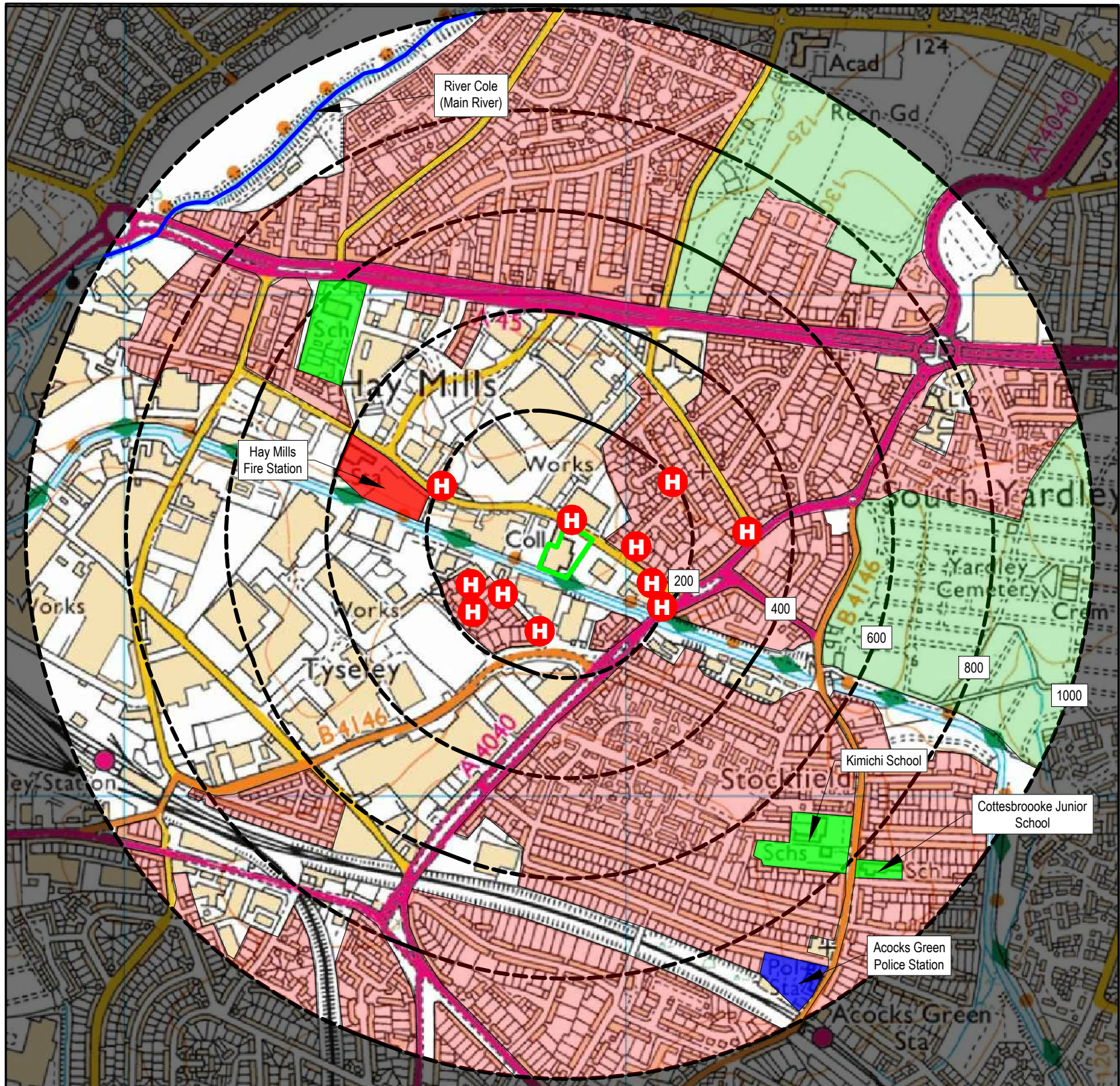
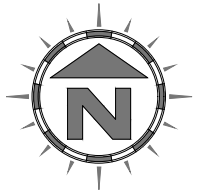
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DRAWING NUMBER	REV	STATUS
AMI/918/03	1	Issued

DRAWN	CHECKED	DATE
CP	--	03.05.24

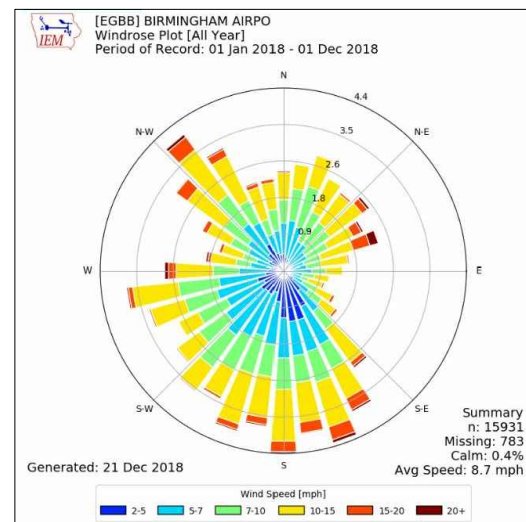
Line House, Road Two, Winsford, Cheshire, CW7 3QZ
t: 01606 558833 | e: sales@oaktree-environmental.co.uk





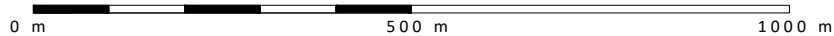
KEY:

- ▬ Permit boundary
- ▬ Surface water body (river / stream / pond / pool / lake)
- ▬ Residential blocks / workplaces
- ▬ Woodland habitats
- H Fire hydrant minimum 100mm bore
- ▬ Main river (River Cole)
- ▬ Mixture of retail, commercial, and industrial premises
- ▬ Recreational / green areas
- ▬ Mixture of A, B, C roads
- Railway line



Compass Wind Rose for Station at Birmingham / Airport (EGBB) Period 2018

Scale Bar (1:10,000)



 Oaktree Environmental Ltd Waste Management and Environmental Consultants Unit 5, Oasis Park, Road One Winsford Industrial Estate Winsford, Cheshire CW7 3RY Tel: 01606 558833 Fax: 01606 861182 E-mail: sales@oaktree-environmental.co.uk	Client: Kiely Bros. Ltd Site: 101 Amington Road, Birmingham B25 8EP NGR: SP 11878 84501 Date: 19 September 2019	Notes: (1) Boundaries of designated sites (habitats and protected sites) are shown indicatively. (2) Wind rose data shows the prevailing wind direction from the south.	Revision Details:								
	Scale: 1:10,000 Client No: 918		Revision: A Job No: 4146	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Rev:</th> <th>Description:</th> <th>Date:</th> </tr> </thead> <tbody> <tr> <td>-</td> <td>Initial drawing</td> <td>19/06/17</td> </tr> <tr> <td>A</td> <td>Updated for permit variation</td> <td>17/09/19</td> </tr> </tbody> </table>	Rev:	Description:	Date:	-	Initial drawing	19/06/17	A
Rev:	Description:	Date:									
-	Initial drawing	19/06/17									
A	Updated for permit variation	17/09/19									
Title: RECEPTOR PLAN Drawing No: AMI/918/04	Date: 19 September 2019 Scale: 1:10,000 Client No: 918	Printed At: A3 Drawn By: CP Checked:									

Appendix II

Complaints recording form

Complaints Report Form	
Date Recorded	Reference Number
Name and address of caller	
Telephone number of caller	
Time and Date of call	
Nature of complaint (noise, odour, dust, other) (date, time, duration)	
Weather at the time of complaint (rain, snow, fog, etc.)	
Wind (strength, direction)	
Any other complaints relating to this report	
Any other relevant information	
Potential reasons for complaint	
The operations being carried out on site at the time of the complaint	
Follow Up	
Actions taken	
Date of call back to complainant	
Summary of call back conversation	
Recommendations	
Change in procedures	
Changes to Written Management System	
Date changes implemented	
Form completed by	
Signed	
Date completed	

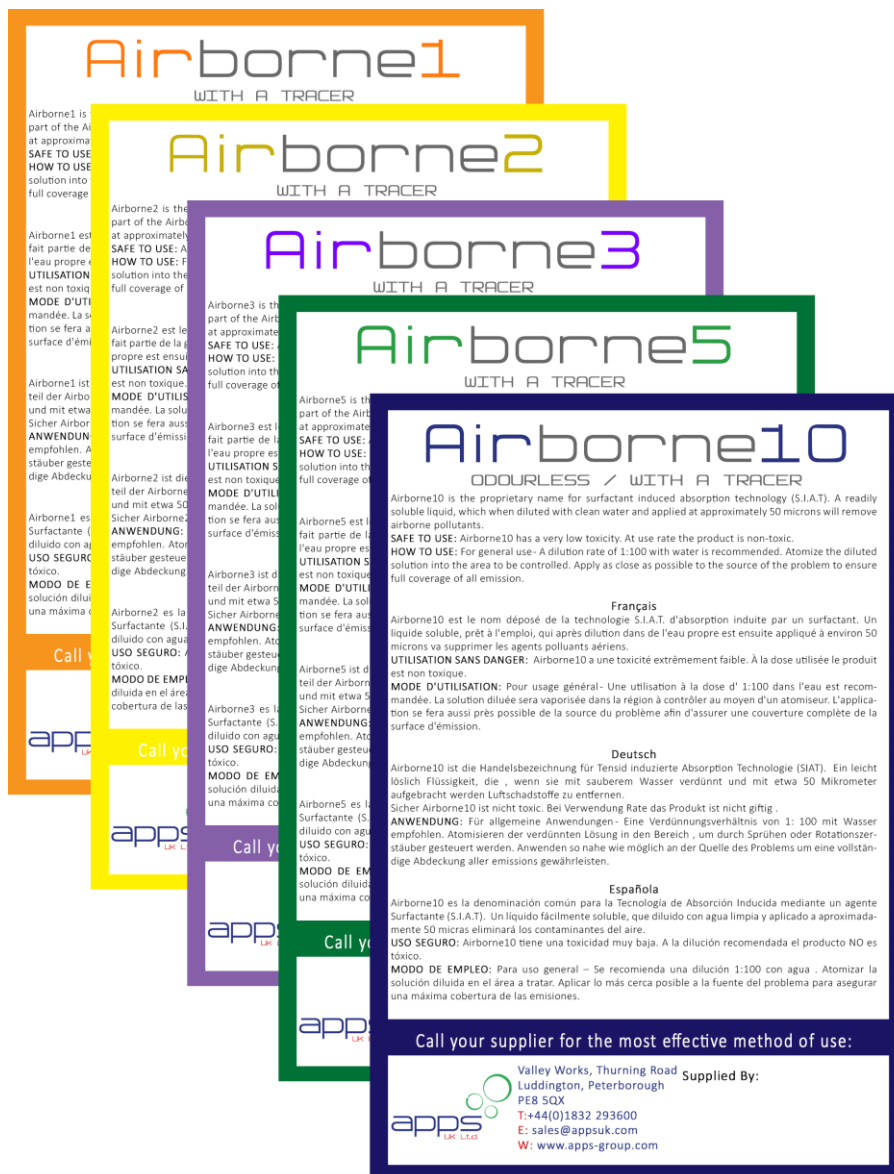
Appendix III

Dust Suppression System

APPS UK Ltd Odour & Dust Control Specialists

Airborne10

Surfactant Induced Absorption Technology



Airborne1
WITH A TRACER

Airborne2
WITH A TRACER

Airborne3
WITH A TRACER

Airborne5
WITH A TRACER

Airborne10
ODOURLESS / WITH A TRACER

Airborne10 is the proprietary name for surfactant induced absorption technology (S.I.A.T). A readily soluble liquid, which when diluted with clean water and applied at approximately 50 microns will remove airborne pollutants.

SAFE TO USE: Airborne10 has a very low toxicity. At use rate the product is non-toxic.

HOW TO USE: For general use - A dilution rate of 1:100 with water is recommended. Atomize the diluted solution into the area to be controlled. Apply as close as possible to the source of the problem to ensure full coverage of all emission.

Français
Airborne10 est le nom déposé de la technologie S.I.A.T. d'absorption induite par un surfactant. Un liquide soluble, prêt à l'emploi, qui après dilution dans de l'eau propre est ensuite appliqué à environ 50 microns va supprimer les agents polluants aériens.

UTILISATION SANS DANGER: Airborne10 a une toxicité extrêmement faible. À la dose utilisée le produit est non toxique.

MODE D'UTILISATION: Pour usage général - Une utilisation à la dose de 1:100 dans l'eau est recommandée. La solution diluée sera vaporisée dans la région à contrôler au moyen d'un atomiseur. L'application se fera aussi près possible de la source du problème afin d'assurer une couverture complète de la surface d'émission.

Deutsch
Airborne10 ist die Handelsbezeichnung für Tensid induzierte Absorption Technologie (SIAT). Ein leicht löslich Flüssigkeit, die , wenn sie mit sauberem Wasser verdünnt und mit etwa 50 Mikrometer aufgebracht werden Luftschadstoffe zu entfernen.

Sicher Airborne10 ist nicht toxic. Bei Verwendung Rate das Produkt ist nicht giftig.

ANWENDUNG: Für allgemeine Anwendungen - Eine Verdünnungsverhältnis von 1 : 100 mit Wasser empfohlen. Atomisieren der verdünnten Lösung in den Bereich , um durch Sprühen oder Rotationszstäuber gesteuert werden. Anwenden so nahe wie möglich an der Quelle des Problems um eine vollständige Abdeckung aller emissions gewährleisten.

Española
Airborne10 es la denominación común para la Tecnología de Absorción Inducida mediante un agente Surfactante (S.I.A.T). Un líquido fácilmente soluble, que diluido con agua limpia y aplicado a aproximadamente 50 micras eliminará los contaminantes del aire.

USO SEGURO: Airborne10 tiene una toxicidad muy baja. A la dilución recomendada el producto NO es tóxico.

MODDO DE EMPLEO: Para uso general - Se recomienda una dilución 1:100 con agua . Atomizar la solución diluida en el área a tratar. Aplicar lo más cerca posible a la fuente del problema para asegurar una máxima cobertura de las emisiones.

Call your supplier for the most effective method of use:

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PE8 5QX
T: +44(0)1832 293600
E: sales@appsuk.com
W: www.apps-group.com

Supplied By:
apps UK Ltd

Airborne10 Technology

Airborne10 is a proven and efficient S.I.A.T (Surfactant Induced Absorption Technology), scientifically developed for absorbing odours and dust from the atmosphere, suitable for all industries covering a variation of odour, dust and environmental issues.

This technology has Millennium Products Status and has been WRC & EPA approved.

We have expanded our range of odour control and dust suppression technology to enable us to maintain quality and a cost effective solution to allow the products to be integrated in to any misting system and meet our customer needs. Airborne10 is naturally odourless and can be supplied with trace elements of Strawberry and Fresh Cotton.

Airborne10 is a surfactant induced absorption technology that will remove annoying odorous gases and dust particulate from your working environment with outstanding results leaving all other neutralisers and oil based products behind not just in absorbency but also with its cost effectiveness.

Airborne10 is leading the way in eliminating nuisance odours and dust whether it be waste recycling streams from a materials recovery facility, waste water treatments, food processing, wood recycling or any application that would generate odorous compounds and dust particulate.

Approved by:

- EPA
- WRC
- Has Millennium Product Status



Benefits

- Odour and Dust Absorption
- Suitable for all budgets
- Cost Effective
- Environmentally Friendly
- Biodegradable
- Non Masking Agent
- Non Neutraliser
- Applicable to Any Industry

Distribution Centres

- Throughout UK & Ireland

Applications

- Recycling
- Farming
- Sewerage Treatment
- Manufacturing
- Food

Airborne Range



Airborne10 is the proprietary name for surfactant induced absorption technology (S.I.A.T.) a biodegradable absorption technology that greatly increases the absorbency of water. When the solution is turned into tiny droplets by atomisation, the non-selective scrubbing agent is highly effective without the need for extensive, expensive ductwork or retention chambers.

How does Airborne10 work?

Surfactant Induced Absorption Technology (SIAT) increases the solubility and also the effective area or interface of the water droplet by something in the order of 500 000%. It achieves this by having its hydrophilic (water loving) end in the water and its hydrophobic (water hating) end in air. This happens immediately the droplets are formed, this means that our 50 micron droplet that had a surface area of 7,855 square microns and effective volume of 65,458 cubic microns has now got an effective area of 39,275,00 square microns and an effective volume of 8,182,227 cubic microns. Now when we go back to our collisions we can see why this is important.

The bigger the effective volume and the area of our droplet the more effective it is at catching the pollution molecules, the mass of our water droplet is huge in comparison and is just about floating in the air. When we look at the size of our pollution molecules Hydrogen Sulphide, for example, has an atomic mass of 34.08 this means that it is less than 1,000,000,000th the size of our 50 micron droplet, even a very big pollutant molecule like Skatole with a molecular weight of 131.17 is very small by comparison when they collide with our droplet they are caught forming a solute. This makes the droplets heavier so they drop to the ground where they are broken down by the natural bacteria present.

Ok, so far so good. But why don't we make our droplet sizes even smaller? Well what we have found is that if they are too small they will flash and evaporate into the air, and they are lost for our purposes. Let's look at some larger droplet sizes the type people use in scrubbing systems for example. A typical gas scrubber would use a droplet size somewhere in the order of 300 microns.



Airborne is available in various strengths dependant on the severity of the odour or dust.

Physical Chemical Properties

Form	Liquid
Colour	Water White
Odour	Odourless/Tracer
Change in Physical State	None
Density/Bulk Density	0.9996 – 1.0006@20°C (H2O=1)
Solubility	Complete in Water
PH Value	6.8
Flash Point	Non Flammable
Ignition Temperature	N/D
Explosion Limits	N/D