F M Conway Ltd

Asphalt Plant, Plots 6 & 7, North Quay Road, Newhaven

Dust and Odour Emissions Management Plan

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1	31st January 2018	First Draft Issue
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1. Introduction

An emissions management plan has been created to support a planning application submitted to East Sussex County Council (ESCC).

The application is for the operation of an asphalt plant, concrete batching plant, street sweepings and gully waste plant, ancillary development and access to be located on Plots 6 & 7, North Quay Road, Newhaven, BN9 0AB (the 'Site').

The Site extends to approximately 3 hectares (Ha) and is situated within North Quay Industrial Estate. The Site is bounded to the north, east and south by an industrial estate and to the west by the River Ouse.

The Site is not located within an Air Quality Management Area (AQMA).

This report has been produced based on comments received from ESCC (e-mail from Tim Bartlett dated 01 August 2017) who asked whether the Applicant would consider producing an operational dust management plan as per the mitigation measures set out on page 11 of the dust assessment referenced below.

Dust assessments have been produced for the Site as follows and should be read alongside this report:

- Dust Assessment, PDE Consulting, March 2017; and
- Air Quality Assessment, WYG, June 2017.

This Emissions Management Plan is for the control of dust and odour from the site during both the construction and operational phases.

Following discussions at the meeting dated 24th January 2018 this document has been produced to summarise the proposed mitigation measures during both the construction and operational phases of the development.

1.1 Sensitive Receptors

Sensitive receptors include, but are not limited to, hospitals, schools, childcare facilities, elderly housing and convalescent facilities. These are areas where the occupants are more susceptible to the adverse effects of exposure to high levels of dust and particulates.

Sensitive receptors identified in the dust assessment (PDE Consulting Limited, March 2017) are listed in Table 1.1.

Table 1.1 Sensitive Receptors within 500 m of the Site.

Receptor	Description	Direction from closest boundary of Site	Distance from Site boundary (m)
River Ouse	River	West	15
Businesses on Estate Road (including Surrey Nanosystems).	Commercial/ industrial premises	East	70
Businesses on Railway Approach Road	Commercial/ industrial premises	South	85
Denton Island Indoor Bowls Club	Recreation	West	115
AQMA (refer to Section 1.10 for further details)	Air quality management area for NO2	South west	120
Newhaven Children's Centre / Denton Island Community Centre	Health centre / recreation	West	125
Businesses off Railway Road	Commercial/ industrial premises	South east	125
Sussex Downs College	School	West	155
Newhaven Town Centre	Residence / recreation	South west	155
UTC@Harbourside	University college	South	170
Mooring stages	Residence	North west	170
Noah's Ark	Nursery School	South east	210
Newhaven Ferry Port Office	Commercial/ industrial	South	260
Paradise Park	Recreation	North east	300
Properties on Robinson Road	Residence	West	325
Riverside Country Park Site of Nature Conservation Interest (SNCI)	Recreation/ habitat	North west	355
Ouse Estuary Nature Reserve	Nature Reserve/ Park	South east	420

Lewes District Council (LDC) has declared an AQMA for NO_2 within the borough. The designated area incorporates Newhaven Town Centre, Southway, Northway, and sections of the A259 Brighton Road, Lewes Road and the swing bridge. It is located approximately 120 m south from the Site's access via North Quay Road. The source of the NO_2 is reported to be unspecified road traffic.

Adjacent waste management operations which have the potential to generate dust are listed in Table 1.2.

Table 1.2 Other Dust/Particulate Emitting Operators

Company/ environmental permit number	Address	Type of Business	Distance and direction from site boundary
Skip It Containers/ EPR/LB3231RN/V002	North Quay Road	Non-hazardous physical treatment facility	0m North
Sussex Skips/ EPR/AB3433RF/V002	North Quay Road	Household, commercial and industrial waste transfer station with treatment and asbestos storage	0m South
Veolia/ BP3139ET	North Quay Road	Energy recovery facility	360m North

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2. Operations at the Site

2.1 Construction Phase

- Mobilization/site compound – Set up of site compound and parking/holding areas for labour, plant, equipment and materials. Site security and access arrangements put in place for contractors and visitors etc.
- Groundworks - Existing brownfield site, largely bare ground. Former plant equipment and structures removed. Some former sub-surface foundations remain. These will be left in situ where practicable. Proposed works – Levelling, construction roadways & holding areas (compacted type 1 or planings), formation works for foundations, surface drainage, utility ducts and site paving.
- Demolition – Minimal given existing site condition. Redundant structures and supports from Berth 3 will be removed off site as part of the Berth's refurbishment. No on site crushing and recycling proposed.
- Berth 3 Refurbishment – Subject to detailed design and approvals. To run parallel with site development
- Plant and Structure foundations - Still subject to detailed design, but anticipate CFA piling, capping & formation works with imported aggregates, steel & formwork and ready mixed concrete, all roads borne during construction phase.
- Asphalt plant – Largely pre-assembled off site. Road delivered. Erected by asphalt plant manufacturer with own specialist team, using cranes and specialist plant.
- Aggregate storage bays – Subject to detailed design. Likely to be design and build contract award.
- Other structures – For example, weighbridge office and welfare facilities. Largely come pre-assembled and lifted into position on prepared foundations.
- Site surfacing – Initial materials for access ways and holding areas imported by road. For main site areas, will use trial materials from the asphalt plant commissioning
- Utilities, lighting, fencing, CCTV - Incidental items undertaken during eth construction phase as appropriate.

Indicative construction phase programme. Detailed programme including resource requirement will be prepared upon grant of planning permission:

Newhaven CPEMP Overview - Indicative Programme	Weeks																																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Mobiliztion/site compound																																				
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Site surfacing																																				
Utilities, lighting, fencing, CCTV																																				
Demobilization																																				

2.2 Nature of the Proposed Operations

The principals of the development are to allow for the installation and operation of an asphalt plant, concrete batching plant, gully waste plant, ancillary development and access on Plots 6 & 7, North Quay Road, Newhaven, East Sussex, BN9 0AB.

Activities considered in this assessment include:

- Asphalt plant;
- Aggregate storage bays, conveyors & associated equipment;
- Recycled Asphalt Products (RAP) Shed (crushing and screening);
- Concrete batching plant;
- Gully waste plant; and
- Aggregate importation, storage & distribution.

2.3 Preliminary Works

A suitable platform for the planned infrastructure will be created within the Site. This will involve minor re-profiling of existing ground contours which may necessitate the off-site removal of a nominal amount of surplus materials which will be taken to an appropriate facility for recycling where possible.

The existing brownfield site consists of mainly bare ground, with the former plan equipment and structures ready removed. Therefore the proposed works will include levelling, construction roadways, holding areas, formation works for foundations, surface drainage, utility ducts and site paving. Areas will be set up as a site compound and parking/holding areas for labour, plant, equipment and materials.

Once the Site has been re-graded, the plant and necessary infrastructure will be imported to site. The equipment is of a modular design so shall largely arrive at the site by road, and part assembled. Also, provision is made for a ship conveyor and boot hopper to be installed should the berths become operational

again. No changes are proposed to the existing access via North Quay Road.

2.4 Aggregate Imports and Transfers

2.4.1 Aggregate Imports

In the first instance it is the intention of the Applicant to import aggregates over berth 5 which is located to the north on North Quay Road adjacent to the Veolia facility. In the future the intention would be to import aggregates directly across one of the two wharves located at the Site should it be practical and financially viable for one of them to be brought back into use.

It is envisaged that 120,000 tonnes of aggregates per annum will be imported to the Site and, assuming an average ship capacity of 3000t, this would give rise to 40 ships being unloaded each year. Ship unloading will be done on a 24/7 basis.

Imported aggregates will have an inherent moisture content and therefore have a low potential to generate dust during the unloading process. However, aggregates can be wetted during the unloading process in the unlikely event of fugitive emissions.

Aggregates will be transported from berth 5 to the Site via sheeted heavy goods vehicles (HGV) with an average load capacity of 26t each giving rise to 4615 loads (9230 HGV movements) to and from the Site per annum. The use of berth 5 will not necessitate the use of the public highway and so will not have an adverse impact upon the local highway network.

The importation of aggregates over berth 5 requires HGV movements engaged in the trans-shipment of the aggregates to be typically undertaken during the normal working day on a campaign basis for up to two/three days during each unloading event and for 40 events each year.

Based on the proposed activities and site layout, the main sources of dust from the Site will be wind-whipping of dust from site surfaces and the re-suspension of dust from vehicles delivering and removing materials from Site. Mitigations measures including site surfacing, use of mist canons, regular site cleaning and site speed limits are listed in Table 3 in Section 3.

2.4.2 Aggregate Unloading

Aggregates will be unloaded and temporarily stored in windrows before being transferred into the covered storage bays prior to use in the concrete and asphalt.

Imported aggregates will have an inherent moisture content and therefore have a low potential to generate dust during the unloading process. However, aggregates can be wetted during the unloading process in the unlikely event of fugitive emissions.

2.4.3 Aggregate Transfer to Asphalt Plant

Aggregates will be removed from the storage bays located within the Site and loaded into the cold feed bins, via a loading shovel, until required for use in the asphalt plant. The cold feed bins are covered so as to prevent any wind whipping of dust during the loading process.

From the point that aggregate is loaded into the cold feed bins, the asphalt production process is entirely enclosed and has no potential to generate fugitive emissions.

2.4.4 Aggregate Transfer to Concrete Batching Plant

Aggregates are removed from the storage bays located within the Site and loaded into the ground loading hopper, via a loading shovel. Once within the ground loading hopper the aggregates are conveyed into purpose built storage hoppers within the structure of the concrete batching plant. The ground feed hopper will be covered so as to prevent wind whipping of dust from the materials.

From the point that aggregate is loaded into the ground loading hopper, the concrete batching process is entirely enclosed and has no potential to generate fugitive emissions.

2.5 Other Imports

In terms of other imports to the Site, these would largely comprise, sand, cement, bitumen, fuel and additives as well as asphalt planings and returned asphalt for recycling. There shall also be imported gulley waste and road sweepings for treatment. The imported materials shall be imported by road and largely arrive at the Site in sheeted HGV's with varying payloads.

Cement will be imported to the Site by tanker and shall be transferred into one of three silos, which forms part of the concrete batching plant, via a pneumatic hose. The silo and tanker are fitted with a negative pressure system which prevents the fugitive emission of cement dust.

Bitumen will also be imported to the Site by tanker and shall be transferred into silos via a pneumatic hose. The silo and tanker are fitted with a negative pressure system which prevents the fugitive emission of dust.

Road sweepings and gulley waste shall be imported via street cleansing road tankers. The tankers will enter the Site, whereby they will deposit the gully waste directly into a shallow dewatering pad. These wastes will be wet and therefore have negligible potential to generate fugitive emissions

Asphalt planings and returned loads will be brought to Site in HGV's. Asphalt planings with be stored and treated within the RAP shed only which will prevent the release of fugitive emissions to air.

The overall quantum of HGV movements associated with other imports is likely to be around 15,340 per

annum (7670 in: 7670 out).

2.6 Exports

Exports from Site will include asphalt, concrete, recycled aggregates and waste from the street sweeping activities.

Having been mixed the asphalt must be kept heated to avoid setting before it is loaded on to road going HGV's. It is commonly stored in large electrically heated insulated stainless steel bins, from which it is weighed into delivery vehicles. In the case of the proposed asphalt plant it is proposed that 400 tonnes of hot storage capacity is provided. When an HGV is correctly positioned beneath the appropriate hot storage bin the correct material is weighed and discharged into the vehicle.

There is negligible potential for emissions from the transfer of fresh asphalt from the plant to the HGV's due to the nature of the product which is a viscous liquid or semi-solid, and the direct transfer of product into vehicles.

With regards to the concrete batching plant, the storage hoppers accurately meter out the different aggregate quantities required in any particular mix and, once weighed, the aggregates are transported via a conveyor to the mixing drum where cement and water are added, together with any particular additives if they are required. Once all the component parts of the mix are within the mixing drum, they are mixed for around one minute and then discharged from the mixer via a wet chute into a waiting concrete mixer which will transport the concrete product from the Site.

There is negligible potential for emissions from the transfer of fresh concrete from the plant to the concrete mixers due to the nature of the product and the use of a wet chute.

Recycled planings will be loaded into vehicles within the RAP shed thus no emissions are expected.

Once the gully waste is mainly dry, the residue will be removed by a loading shovel and loaded into HGVs and transported off site for onward treatment at a third party facility or for final disposal.

The combined imports and exports to and from the Site are likely to generate total annual HGV movements as follows:

- Aggregate Imports 9,230
- Other Imports 15,340
- Concrete Exports 6,670
- Asphalt and Secondary Aggregates 14,500

- Road Sweepings and gully wastes 134
- Total 45,874

2.7 Working hours

Broadly, it is proposed that the following elements of the Proposed Development have unrestricted working hours:

- The manufacture and distribution of asphalt;
- The importation of road planings and returned loads;
- The importation of aggregates; and
- The use of the road sweeping and gully waste plant and associated HGV movements.

All other elements of the Proposed Development will be limited to:

- Monday to Friday: 0700 to 1900 Hours; and
- Saturdays: 0700 to 1300 Hours.

During the construction phase of the development, alternate operating hours are proposed. The proposed core working hours are;

- Monday to Friday: 0700 to 1800 Hours; and
- Saturdays: 0700 to 1600 Hours.

These times are not inclusive of a requested half hour start-up and close-down period Monday – Friday between 0630 to 0700 and 1800 to 1830, and on Saturday 0630 to 0700 and 1600 to 1630.

There are no proposed works on Sundays, public or bank holidays, unless these works are inside a building/structure and of a non-noisy nature. By arrangement, some out of hour's construction deliveries to the site may be made.

If any site operations (construction or operational phase) are proposed outside of the core working hours listed above, then East Sussex will be notified in advance together with details of the proposed mitigation measures to avoid any adverse impact upon amenity.

2.8 F M Conway LGV and Driver Overview

2.8.1 Site based vehicles

<u>The below vehicles will be on site.</u>

- Up to ten 32t tippers – Insulated & steel bodied
- Up to fifteen road cleansing tankers between 26-32t

- Off site - For bitumen deliveries to site – 44tmgw tanker
- Off Site - For cement deliveries to site – 44tmgw tanker

Figure 1 F M Conway Vehicles

- All vehicles in F M Conway (FMC) livery
- All tipper vehicles owned by FMC and driven by FMC employees
- All cleansing vehicles leased to FMC, but driven/operated by FMC employees
- Bitumen tanker and cement tanker owned by FMC and driven by FMC employees

F M Conway credentials as LGV operator

Accreditations

- BS ISO 39001 : 2012 Road Traffic Safety Management System
- BS EN ISO 14001 : 2015 Environmental Management System
- BS EN ISO 9001 : 2015 Quality Management System
- BS OHSAS 18001:2007 Occupational Health & Safety Management System
- Fleet Operators Recognition Scheme (FORS) – Gold standard
- Driving Standards Agency - Accredited for Driver CPC Periodic Training
- Chartered Institution of Highways & Transportation – Gold Corporate Member
- Member of Freight Transport Association (FTA)
- Accredited NPORS Assessor

Vehicle specification – vis a vis depending upon vehicle type. For tippers:

- Euro 5 specification if not Euro 6. Latter purchased as company-wide policy when it comes to vehicle replacement.

- Fleet less than 3 years old.
- Insulated tipper body with Shurco left to right sheeting system and/or
- Fruehauf steel tipping body with Shurco left to right sheeting system
- Automatic tailgate lock & split tail gate with two chute, alarm to tailgate, body liner
- Body lift warning/ LED side markings. Twin reverse lights to rear/switch in cab option
- VWS weighing system and all round recording cameras and one camera looking into body, side scan and audible cyclist warning device
- FMC Conway mud-flaps and cyclist aware mud-flap to N/S/R on front and O/S/R
- Side guards system to periphery of body on both sides with infill and yellow warning cyclist sticker
- 600mm LED beacon bar with one pair flashing amber LED lights fitted to front grill of cab and one pair flashing amber LED
- 4 x Labcraft LED Scenelite S18 Reversing aid two each side to rear
- 1 x Vision techniques AVR15C in cab talking alarm
- White type noise reverse bleeper (no cut out switch)
- Idle shut down system
- Height indicator to cab
- Chapter 8 to tailgate and full Conway signage to cab and body
- <u>Current Models</u>
- Scania P410 day cab N3 Chassis. Automatic or pre-select, engine 13ltr Euro 6

The route for all construction and operational vehicles is shown on the Figure below. This will be signposted and all members of staff will be informed.

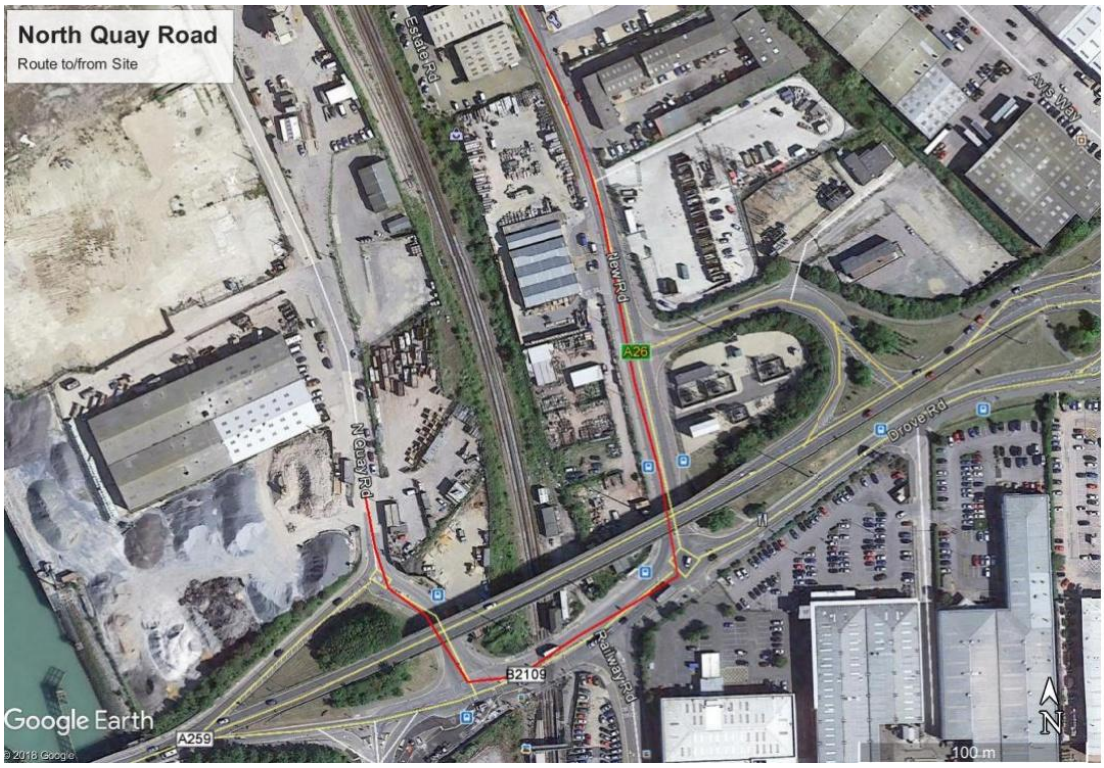


Figure 2 Route to/from Site

3. Dust and Odour Management Measures

This document ensures that

- Dust and odour effects are considered as part of routine inspections;
- Dust and odour are primarily controlled at source by good operational practices, including physical and management control measures; and
- All appropriate measures are taken to prevent or, where that is not reasonable practicable, to reduce emissions to air from the site at nearby receptors.

3.1 Definition of Dust and Odour Management Plan

The definition and the main purpose of the dust management plan are summarised below:

- A management plan is a live working document that formalises and describes how dust issues will be managed on site. The plan forms part of the operational management system (indeed it may form part of a site's wider Environmental Management System or Integrated Management System);
- The plan shows how dust and odours will be managed and controlled so as to prevent or minimise impacts. As well as covering normal operations, it should anticipate and plan for abnormal events and foreseeable accidents and incidents;
- It is not an impact assessment; it is a mitigation/control measure; and
- It should not be complex; simple plans are needed, that can be easily actioned by the site operatives.

3.2 Dust and Odour Management Plan

The measures to be implemented are contained in the table below.

General	
1.	Erect solid screens or barriers around dusty activities or the site boundary that are higher than any stockpiles on the site.
2.	Fully enclose operations where there is a high potential for dust production and where the site is active for an extensive period.
3.	Avoid site runoff of water and mud.
4.	Keep site fencing, barriers and scaffolding clean using wet methods.
5.	Remove materials that have a potential to produce dust from site as soon as possible. If they are being re-used on site, cover as described below.
6.	Cover, seed or fence stockpiles to prevent wind whipping.
7.	Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable.
8.	Use enclosed chutes and conveyors.
9.	Use covered skips.
10.	A bespoke mister water system has been installed to cover all operational areas of the yard to improve general yard coverage and assist emission suppression in the loading area.
11.	If, upon high winds causing emissions release from the facility the duty foreman or site TCM will instruct verbally the plant operators to cease operations immediately. The reason and current weather conditions will be recorded on the daily report along with any technical data from the site monitoring equipment and the time the operations where ceased.
12.	Annual review of the emissions management plan.
Communications	
13.	Display the name and contact details of the person(s) accountable for air quality and dust issues on the site boundary.
14.	Notification of nearby residents and businesses may include letters, door knocking residents and/or advertisements (e.g. print).
15.	Staff will be trained in the required procedures for implementing the DMP. This will given by means of a tool box talk covering the relevant aspects of the DMP. A training record will be kept as part of the appendix to the sites copy of the DMP.
16.	In the case of work required in response to an emergency, the local authority and local residents will be advised as soon as reasonably practicable that emergency work is taking place. Potentially affected residents will also be notified of contact details for a relevant member of the project team in the incidence of undue disturbance.
17.	Good relations can be developed by keeping people informed of progress and by treating complaints fairly and expeditiously. All complaints will be recorded, identifying cause(s) and appropriate measures to reduce emissions in a timely manner, and record measures taken. The complaints log will be made available to the local authority when requested.

18.	Records of any exceptional incidents that cause high dust emissions, either on – or off site will be kept in the log book along with the action taken to resolve the situation.
Monitoring – Full details in Section 4	
19.	A visual site inspection is to be carried out prior to the commencement of processing activities by the site foreman. The weather conditions will be taken into consideration before processing commences. Details to be recorded on the Daily Production Sheet.
20.	If the weather conditions are not suitable for the processing of materials it may still be necessary to implement the use of the dust suppression system (High wind speeds causing emissions from stockpile).
21.	If at any time emissions reach the thresholds then the site operations may have to cease if containment measures cannot be implemented.
22.	If emissions occur outside permitted operational hours then the Senior Manager or the TCM will have to be contacted and appropriate action taken. Contact details to be found on signage at the entrance to the site.
23.	Dust Monitoring as below, the monitoring will occur prior to construction, during construction and during operation.
24.	Odour Monitoring as below
Vehicles and Plant	
25.	Ensure all vehicles switch off engines when stationary – no idling vehicles.
26.	Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
27.	Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction.
28.	Ensure an adequate water supply on the site for effective dust suppression, using non-potable water where possible and appropriate.
29.	Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
30.	Dampening loads leaving the site when necessary during dry conditions;
31.	Availability of a road sweeping vehicle for use on internal and external roads, if required;
32.	All loads transported to and from site will be sheeted and contained to minimise any dust.
33.	Signposts and training will be installed and implemented to ensure that all HGV traffic turns along New Road rather than entering the AQMA.
34.	Vehicles will not be overloaded.
35.	Vehicle exhaust pipes will not discharge directly at the ground and all site vehicle engines, generators, or site plant engines will be switched off when not in use.
36.	Plant and equipment will be kept in good repair and regularly maintained in accordance with the manufacturer's specifications, including meeting statutory emissions standards where applicable. Maintenance will include visual checks to ensure black smoke is not emitted at times other than at ignition.
37.	Non Road Mobile Machinery (NRMM) will comply with either the current or immediately previous EU Directive Staged Emissions Standards that come into effect during the development.

38.	Plant and equipment maintenance records will be kept on site for the duration of the construction stage as relevant
39.	Vehicles transporting materials capable of generating dust to and from site will be suitably sheeted to prevent release of materials and particulate matter. Sheeting will be maintained in good order, free from excessive rips and tears.
40.	A speed limit of 10mph will be enforced over unmade surfaces
41.	Regular monitoring of the road network (internal site road, North Quay Road and the local highway) will be undertaken, both within the site boundaries and proximal to the Site access/egress, to minimize the generation of dust from any resulting deposits. If inspections deem necessary, a mechanical road sweeper with vacuum facilities, spray facilities and on board storage will be deployed.
42.	Road cleaning - Regular inspections of the internal site road, North Quay Road and the local public highway will be undertaken to ensure the routes are kept clear of debris. Should the inspections deem it necessary, a mechanical road sweeper with vacuum facilities, spray facilities and on board storage will be dispatched.
Dust Controls	
43.	Manual control systems overseen by Yard Freeman.
44.	Exposed earthworks will be kept damp where required, to prevent air borne dust emissions;
45.	All areas of concrete or paved hard standing will be kept free of dust and mud. An on-site road sweeper will be employed as and when required.
46.	There will be no fires or burning of materials on site
47.	Waste will be managed and will be removed from site on a regular basis to avoid excessive accumulation
48.	Details of a similar dust suppression system used at a related site is attached in Appendix B for additional information.

4. Monitoring Methodology

4.1 Quality Assurance/Quality Control and Record Keeping

The site will operate the following procedures to ensure that the monitoring equipment works correctly.

- Monitoring Equipment: Frisbee Gauges
- Calibration: As per manufactures recommendations.
- Maintenance: As per manufactures recommendations.
- End of life: Replace
- Records: Recorded on DPS
- Check against BBC weather forecast via internet.

4.2 Dust Monitoring Assessment Criteria

The nuisance guidelines for deposited dust are outlined in the table below as outlined by the Quality of Urban Air Research Group. The frisbee gauge monitoring which has been completed will be compared against this level.

Table 4.1 Deposited Dust Nuisance Level

Authority	Pollutant	Objective	Measured as	Relevance
UK 'unofficial' nuisance dust deposition rate[1]	All particulates	200 mg/m^2/day	Annual mean	Serious nuisance

The nuisance guidelines on fugitive deposited dust based on soiling is outlined below and has been monitored using the 'sticky pad' method.

Table 4.2 Deposition Nuisance Level

Public Response	Typical Situation	Measure of soiling	
		% EAC/day	mg/m^{3}day equivalent
	Rural	0.01	2.38
	Suburban/Small Town	0.02	4.76
Noticeable		0.20	47.6
	Urban	0.30-0.40	71.5-95.3
Possible Complaint	Rural Summer time	0.50	119.1
Objectionable		0.70	166.8

[1] Quality of Urban Air Research Group. (1996) "Airborne Particulate Matter in the United Kingdom: Third Report of the Quality of Urban Air Review Group", prepared at the request of the Department of the Environment. University of Birmingham, Birmingham

Public Response	Typical Situation	Measure of soiling	
		% EAC/day	mg/m^{3}day equivalent
	Industrial	0.80-1.00	190.6-238.2
Probable Complaint		2.00	476.4
Serious Complaint		5.00	1191.1

An assessment using the traffic light approach is considered appropriate and is proposed in Table 4.2 below.

Table 4.3 Traffic Light Criteria for Deposited Dust

Alert level	Maximum Permissible 1 average (mg/m^{3}day)
Red (*at this level all works to cease immediately, investigate cause of exceedance and use alternative methods where appropriate*)	>199
Amber (*continual monitoring and investigation of alternative methods where appropriate*)	100 – 199
Green (*early warning/ no action required*)	00 - 99

Actions to be taken if 'Amber' criteria reached

- Carry out a more detailed investigation to identify the source of the emissions.
- Investigate the possibilities that the source may come from outside the site boundaries by undertaking off site monitoring.
- Check with local air quality monitoring stations to compare their data against the site records. If local monitoring stations are providing similar data, then it is highly likely that the source of emissions may not be from the site (Compare data from the 4 nearest monitoring stations to gain a clearer over view).

Actions to be taken if 'Red' criteria reached

- The site foreman assesses yard activities and the nature of the handling of materials and deliveries immediately prior to the alarm being activated, to work out what has caused the threshold to be reached.
- If the source cannot be ascertained with 100% confidence, the site foreman on duty suspends the likely dust/particulate generating activities i.e. crushing, screening.
- If the source is within the site's control, the site foreman on duty takes appropriate action in terms of dust/particulate abatement, to ensure that the threshold is not breached. This may take the form of the following;
    - Investigation the source of the dust particulates to prevent a re-occurrence.
    - Suspending operations which are not being conducted using best practice controls.

- Additional use of the dust abatement measures.
- Logging findings of the above in the site diary, and in the reporting template within he relevant appendix of the Environmental Permit.

If an effective abatement technique cannot be identified and implemented, and observed and PM_{10} levels remain above the action level for 2 consecutive, 15 minute mean readings concurrent with recorded wind directions suggesting that the source of particulate could be from the site activities, then operations should be suspended until measured PM_{10} concentrations drop below the action level of 100ug/m^3 for 2 consecutive, 15 minute mean readings.

In all cases, any new "lessons learnt" from the site foreman's investigations are considered by the company directors and implemented into dust and particulate emission management plan (if not already included), to prevent a re-occurrence of the emissions threshold being reached.

The emissions threshold is not the sole indicator of a dust event at the site; the continuous visual monitoring of potential dust sources and activities safeguarding all play a very important part in managing dust and particulates.

4.3 Odour Monitoring Assessment Criteria

Daily Odour observations will be undertaken on site.

All operational staff will be responsible for reporting any odour and dust problems immediately to the TCM (or designated responsible person) (or designated responsible person).

Regular olfactory monitoring (odour sniffing) will be undertaken at the site boundary by operational staff.

Observations including time, date, weather conditions, temperature, wind strength, wind direction, intensity, odour type and sensitivity will be recorded in an Odour Report Form. Site operating conditions at the time of survey will also be recorded, enabling the identification of any 'abnormal' site operating conditions such as downtime for refurbishment or maintenance.

Surveys will be conducted utilising the Environment Agency's protocol for testing ("sniff testing") as described in Appendix 8 of the Technical Guidance Note H4 'Horizontal Guidance for Odour Part 1' (2002). The protocol is derived from methodologies set out in VDI 3883 Part 1, VDI 3883 Part 2 and VDI 3940. The VDI standards are the German equivalent to British Standards.

The protocol provides a 'snapshot' of the presence, strength, character and extent of an odour at the time of the assessment. It is, however, subjective, with individual perception of odour varying. Odour may be worse during hot weather or when there is limited dispersion due to the presence of an atmospheric inversion.

The odour assessment methodology requires the assessor to use their own sense of smell to detect odour. The assessor should move from areas of weaker odour to stronger.

A description of the odour intensity and its extent will be recorded using the following classification system:

Odour Intensity:

1. No detectable odour
2. Faint odour (barely detectable, need to stand still and inhale facing into the wind)
3. Moderate odour (odour easily detected while walking and breathing normally, possibly offensive)
4. Strong odour (bearable, but offensive odour - will clothes/hair smell?)
5. Very strong odour (when you really wish you were somewhere else)

Odour Extent (assuming odour detectable, if not then 0):

1. Local and non-persistent (only detected during brief periods when wind drops or blows)
2. Non-persistent as above, but detected away from site boundary
3. Persistent, but fairly localised
4. Persistent and pervasive up to 50 m from site boundary
5. Persistent and widespread (odour detected >50 m from site boundary)

Wind direction and wind speed will need to be taken during the surveys with an anemometer

Traffic light criteria will be used for assessment as below.

Table 4.4 Traffic Light Criteria for Odour

Alert level	Odour Intensity	Odour Extent
Red (*at this level all works to cease immediately, investigate cause of exceedance and use alternative methods where appropriate*)	5	5
Amber (*continual monitoring and investigation of alternative methods where appropriate*)	4	4
Green (*early warning/ no action required*)	0-3	0-3

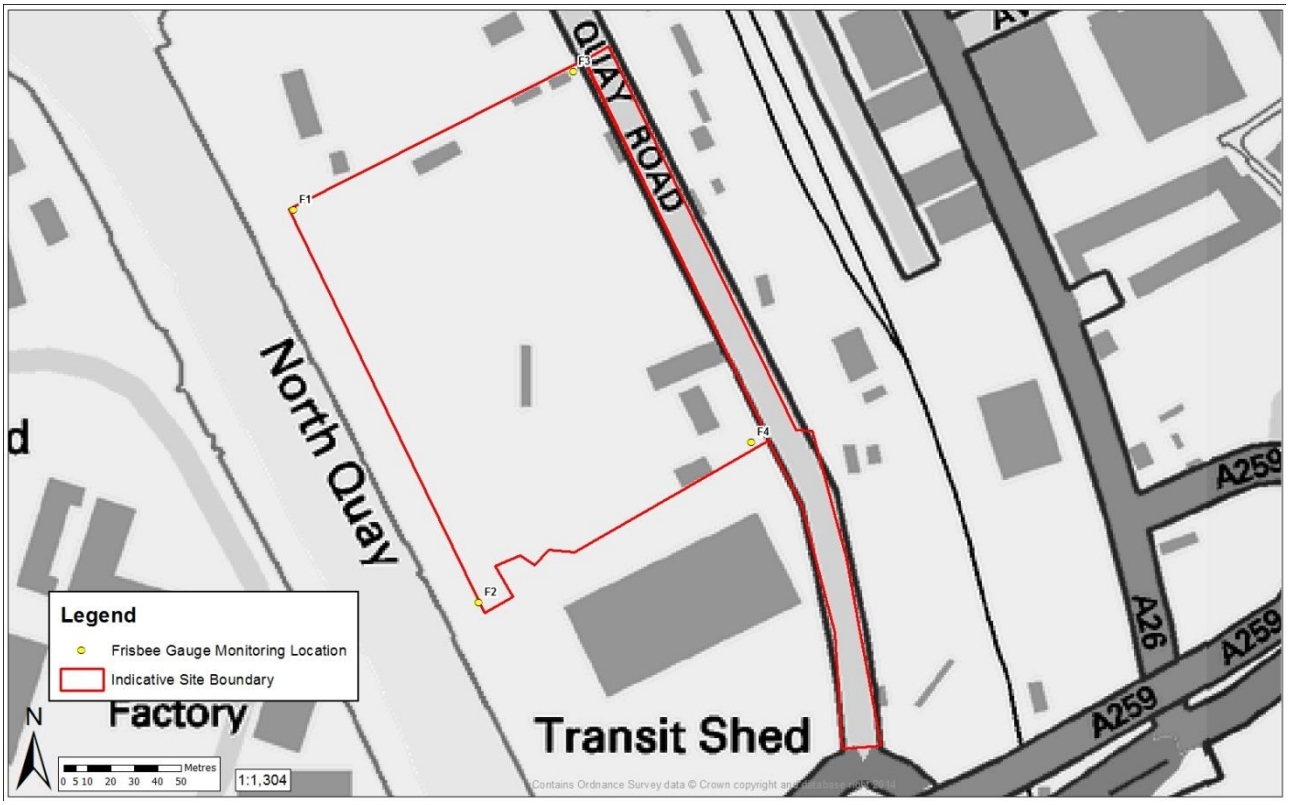
Actions to be taken if 'Amber' criteria reached

- Carry out a more detailed investigation to identify the source of the emissions.
- Investigate the possibilities that the source may come from outside the site boundaries by undertaking off site monitoring.
- Undertake off site sniff testing to establish extent of odour.

Actions to be taken if 'Red' criteria reached

- The site foreman assesses yard activities and the nature of the handling and deliveries immediately prior to the alarm being activated, to work out what has caused the threshold to be reached.
- If the source cannot be ascertained with 100% confidence, the site foreman on duty suspends the likely odour generating activities.
- If the source is within the sites control, the site foreman on duty takes appropriate action in terms of odour abatement, to ensure that the threshold is not breached. This may take the form of the following;
    - Suspending operations which are not being conducted using best practice controls.
    - Logging findings of the above in the site diary, and in the reporting template within he relevant appendix of the Environmental Permit.

4.4 Monitoring Locations



Appendix A Daily Report Sheet

Daily Report Sheet

Site Manager		Date		Completed by	

	Location 1	Location 2	Location 3	Location 4
Start Time				
Wind Speed (m/s)				
Wind Direction				
Odour Intensity				
Odour Extent				
Visible Dust Soiling (Y/N)				
Additional notes including site operations				
Actions Required?				

Appendix B Heathrow Asphalt Dust Suppression System

This shows a similar system to the proposed dust suppression installation

Appendix C Gully Cleaners and Jetters to be used