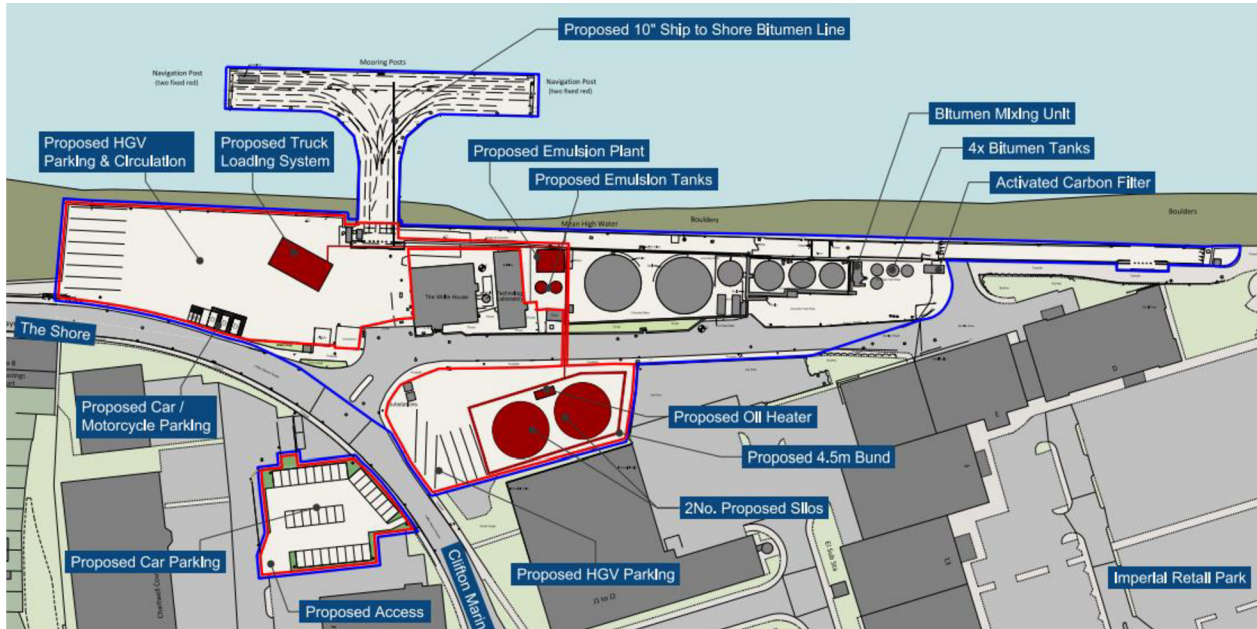


Imperial Wharf, Clifton Marine Parade, Gravesend, Kent, DA11 0DY



Odour Management Plan for Discharging Condition 9

784-B029584
27th February 2024

PRESENTED TO

George Massingham
PDE Consulting Limited
6 Forbes Business Centre
Kempson Way
Bury St Edmunds
Suffolk
IP32 7AR

PRESENTED BY

NALO, Tetra Tech
3 Sovereign Square,
Sovereign Street,
Leeds,
LS1 4ER

P: +44 (0) 113 278 7111
E: NALO.UK@tetratech.com
tetratecheurope.com

DOCUMENT CONTROL

Document:	Odour Management Plan
Project:	Imperial Wharf, Gravesend, DA11 0DY
Client:	PDE Consulting Limited
Job Number:	784-B029584
File Origin:	\\ds-dc-vm-101\Data\Projects

Issue:	1	Status:	First Issue
Date:	15 th February 2024		
Prepared by: Donald Towler-Tinlin	Checked by: Matthew Smith		Approved By: Nigel Mann

Issue:	2	Status:	Second Issue
Date:	27 th February 2024		
Prepared by: Donald Towler-Tinlin Senior Environmental Consultant		Checked by: Matthew Smith Associate Environmental Consultant	Approved By: Nigel Mann Director

Minor amendments following comments.

Issue:		Status:	
Date:			
Prepared by:		Checked by:	Approved By:
Description of revision:			

EXECUTIVE SUMMARY

This odour management plan (the OMP) has been produced to support the discharge of the pre-commencement/pre-operational planning conditions (Condition 9) for the installation of two additional bitumen tanks, load out gantry, a bitumen emulsion plant and alternative car parking at Imperial Wharf, Clifton Marine Parade, Gravesend, Kent, DA11 0DY.

The odour control measures, odour monitoring plan, odour action plan, odour complaints reporting, and complaint action procedures are included in the OMP in order to prevent unacceptable odour impacts on the community.

TABLE OF CONTENTS

1.0 INTRODUCTION	7
1.1 Site Location	8
1.2 Existing Buildings and Infrastructure and the Proposed Development.....	9
1.3 Maintenance and Review of the OMP	13
1.4 Relevant Sector Guidance on which this OMP is Based	13
1.5 Report Structure	14
2.0 RECEPTORS	15
2.1 Receptor List.....	15
2.2 Wind Rose and Source of Weather Data.....	17
3.0 SOURCES OF ODOUR	20
3.1 Overview of Odourous Processes and Emissions	20
4.0 CONTROL MEASURES AND PROCESS MONITORING	21
4.1 Odour Control Measures.....	21
4.2 Odour Process Monitoring	21
4.2.1 Proactive Odour Monitoring.....	21
4.3 Daily Routine Check.....	23
4.4 Odour Trigger Levels	23
5.0 ODOUR REPORTING.....	24
5.1 Complaints Reporting.....	24
5.2 Community Engagement.....	25
6.0 ABNORMAL EVENTS	26
7.0 CONCLUSIONS	27

LIST OF TABLES

Table 2-1. Receptors List.....	16
Table 4-1. Odour Intensity Scale (after IAQM Guidance on the assessment of odour for planning, July 2018)	22
Table 4-2. Odour Trigger Levels	23
Table 6-1. Abnormal Events.....	26

LIST OF FIGURES

Figure 1-1. Site Location.....	9
Figure 1-2. Existing Plant.....	11
Figure 1-3. Indicative Site Boundary.....	12
Figure 1-4. Site Layout of Two Proposed Bitumen Tanks/Silos	13
Figure 2-1. Receptor Locations	15
Figure 2-2. London City Airport Meteorological Data/Windrose 2017 to 2019	18
Figure 4-1 Odour Monitoring Locations	22

APPENDICES

APPENDIX A – ODOUR ASSESSMENT REPORT FORM.....	28
APPENDIX B – ODOUR COMPLAINT REPORT FORM	29
APPENDIX C - REPORT TERMS & CONDITIONS	30

ACRONYMS/ABBREVIATIONS

Acronyms/Abbreviations	Definition
CCTV	The Closed-Circuit Television
DEFRA	Department for Environment Food & Rural Affairs
EA	The Environment Agency
EP	The Environmental Protection
IAQM	The Institute of Air Quality Management
GBC	Gravesham Borough Council
LA	Local Authority
LPA	The Local Planning Authority
NGR	The United Kingdom National Grid Reference
ODT	The Odour Detection Threshold
OMP	The Odour Management Plan
OU _E	Odour Unit. An odour unit is a measure of the concentration of a mixture of odorous compounds. It is determined by means of olfactometry. Odour unit values are determined by a standard method given in BSEN13725; 2003 on olfactometry. An odour unit as defined by the CEN standard is 1 OU _E . 1 OU _E /m ³ is the point of detection. Reference: H4 Odour Management, The Environment Agency, March 2011
OU _E /m ³	Odour Unit per cubic meter of gas/air

1.0 INTRODUCTION

This report presents an odour management plan (the OMP) which was produced to support the discharge of pre-commencement/pre-operational planning conditions (Condition 9) for the installation of two additional bitumen tanks, load out gantry, a bitumen emulsion plant and alternative car parking, at Imperial Wharf, Clifton Marine Parade, Gravesend, Kent, DA11 0DY.

Condition 9 requires the submission of an odour management plan prior to commissioning and operation of the plant and states the following:

“Prior to commissioning and operation of the new plant the applicant is required to draft and submit an odour management plan for the prevention, identification and resolution of odour impacts on the community, to the LPA for approval. It is expected that the plan includes the following as a minimum, or words to affect the same outcome:

(a) Suitable and sufficient techniques taken from the Defra Process Guidance Note 6/42 (13) for the Bitumen Processes with particular reference to sections 5.1 and 5.8 to 5.11.

(b) Measures to ensure that once the site becomes operational there are no visible airborne emissions from any part of the plant at any time.

(c) There shall be no offensive odour beyond the site boundary, as perceived by GBC.

(d) Monitoring to identify the origin of a visible emission shall be undertaken using one or more of a variety of a number of indicative techniques.

(e) The plant shall be installed and operated in accordance with supplier recommendations, so as to minimise the release of odour.

(f) Visual checks of all locations that are potentially the source of leaks especially airborne emissions. The time, location and result of the checks, along with weather conditions such as indicative wind direction and strength, shall be recorded. The aim being to prevent any visible air borne emission from any part of the plant. For unmanned sites other suitable checks shall be implemented e.g. suitable CCTV should be installed so as to carry out daily visual checks remotely.

(g) Where there are problems that, in the opinion of the Council, may be attributable to the installation, such as local complaints of visual emissions or odour being detected beyond the site boundary, operations shall cease immediately and operator shall investigate the source of the odour emissions in order to find out which part of their operation is the cause.

(h) While problems are ongoing, a visual check shall continue to be made at least once per day, by the operator. Once the source of the emission is known, corrective action shall be taken without delay.

(i) Where it is installed any odour arrestment equipment shall be inspected at least once a day to verify correct operation and to identify any malfunctions. Depending upon the type of any arrestment plant used this inspection shall include the identification of any leaks in air handling equipment and ductwork. The operator shall keep records of inspections, tests and monitoring:

- *Records shall be kept on site and made available for the regulator to examine;*
 - *Records shall be kept by the operator for at least two years.*
- (j) In the case of abnormal emissions, malfunction or breakdown leading to abnormal emissions the operator shall:*
- *Investigate the source of the odour emissions and undertake remedial action immediately;*
 - *Cease operation of the site immediately;*
 - *Promptly record the events and actions taken; and*
 - *Inform the regulator without delay.”*

1.1 SITE LOCATION

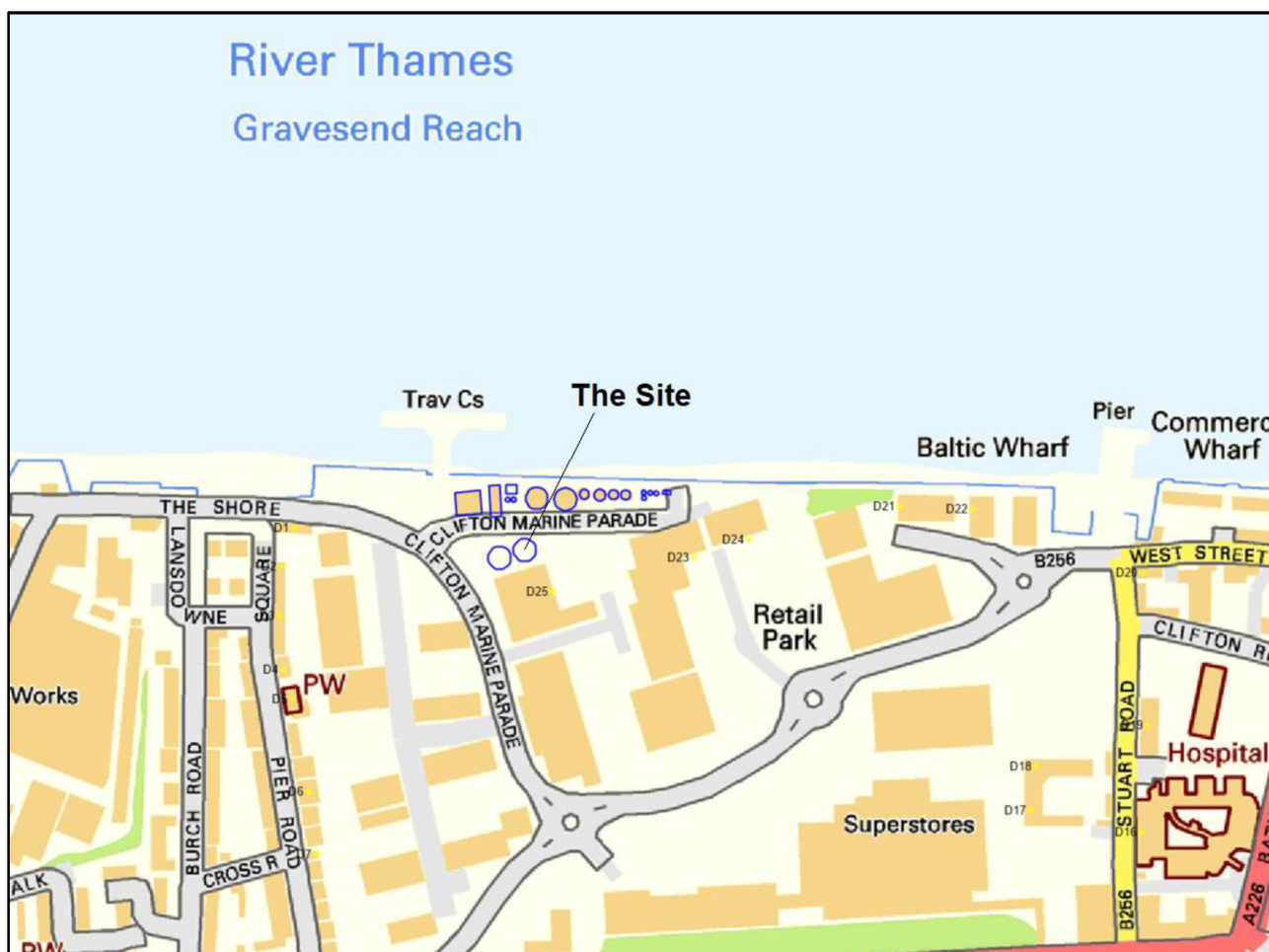
The River Thames is to the immediate north/north-west/north-east of the proposed development site. On the landward side, the area immediately surrounding Imperial Wharf is characterised as relatively low rise industrial and retail sheds.

The nearest receptors to the development site are commercial/retail, including Halfords, Carpetright and Pets at Home to the south/south-east (and therefore predominately upwind) of the site.

The nearest residential receptors are located on Pier Road to the west of the development site at a distance of approximately 80 metres from the proposed truck loading system.

The United Kingdom National Grid Reference (NGR) of the site is approximately 563880, 174480. Reference should be made to **Figure 1-1** for a map of the proposed development site and surrounding area.

Figure 1-1. Site Location



1.2 EXISTING BUILDINGS AND INFRASTRUCTURE AND THE PROPOSED DEVELOPMENT

Existing Development

The Site including the wider bitumen storage facility and wharfage are under the control of the Applicant. The Site and associated land have a long history associated with industrial development.

Historically, the Site was home to the Imperial Paper Mills, which operated from the early 1900's until the mid-1980s to process paper pulp into newsprint. Imperial Wharf was used as an ancillary wharf in connection with the paper manufacture, although the extent of its use is not known.

The Imperial Paper Mills site, including the wharf/jetty, was acquired by TBF Thompson following closure of the paper mills, during the 1980's, and part of the site was temporarily used for the manufacture of asphalt pending its redevelopment.

Planning permission was granted in 1989 for three units of offices on the site and details of their siting and design were approved in 1993 in accordance with planning permission reference 19930609, but the development was never implemented.

Planning application reference GR/2001/906 was submitted in 2001 for the continued use of land for the open storage of aggregates in connection with the wharf activities at Imperial Wharf. The application was subsequently refused on 07 March 2002.

Planning application reference 20040373 was submitted to GBC seeking the construction of 270 flats each with car parking space and a café/bar/restaurant and home owners mooring berths on the old Imperial Paper Mills jetty. Planning permission was subsequently refused and dismissed on appeal in February 2007. The application was refused on the grounds that it did not conform to the local plan and would have resulted in the loss of active employment land and the displacement of jobs.

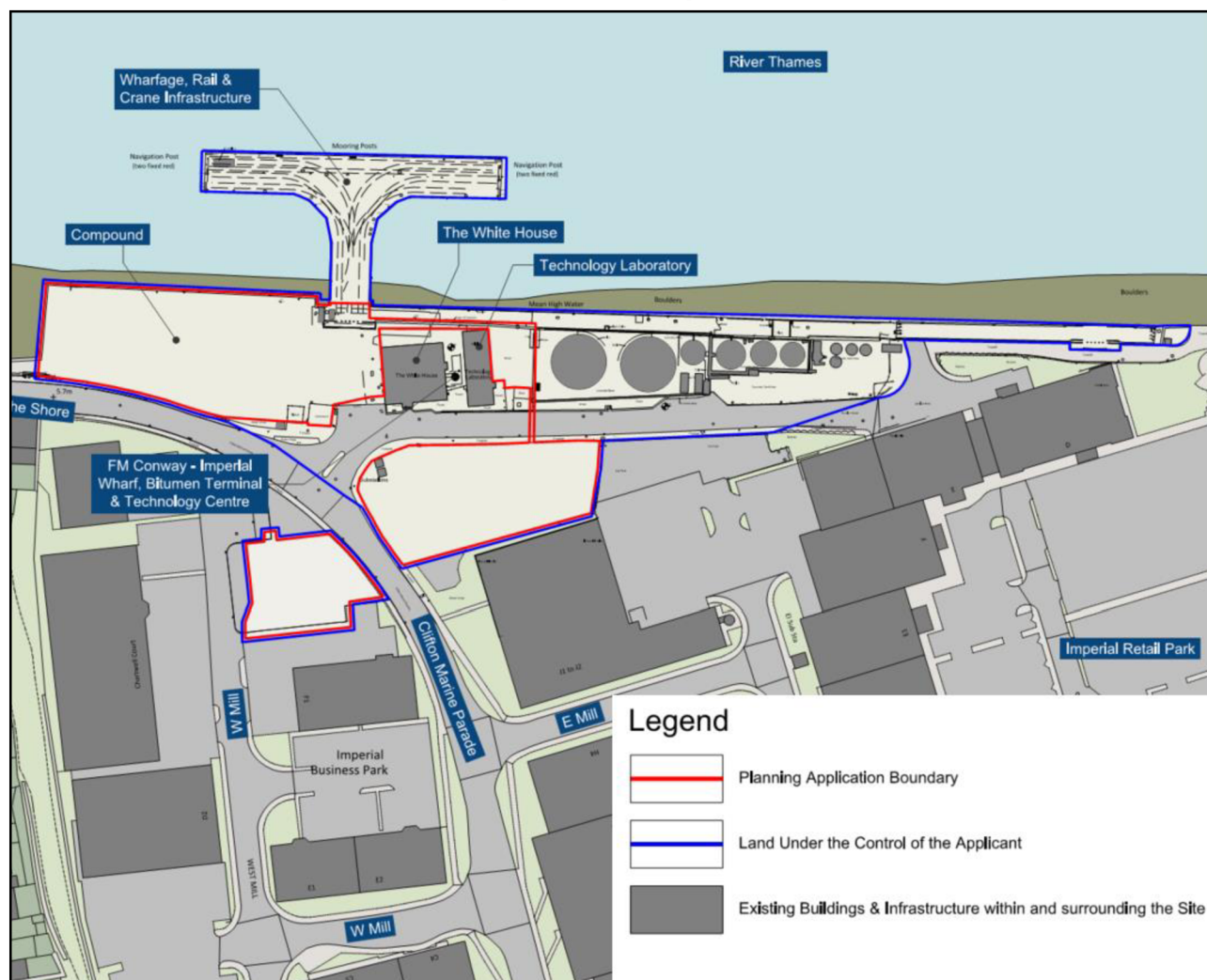
Planning permission reference 20160800 was approved by GBC on 29th June 2018 to enable retrospective permission for the retention of four additional bitumen storage tanks and ancillary equipment including an activated carbon filter unit, mixing plant and enclosed retaining bund wall.

Currently, the existing bitumen terminal, comprising the deep-water jetty and six bitumen tanks, imports highway grade bitumen from continental Europe in ship cargoes of up to 4,000 tonnes. Unloading typically takes between 9 and 15 hours. The bitumen is pumped ashore by the ship's own on-board pumps. At all times, the bitumen is either within the ship's hold, within the insulated and heated storage tanks and/or is being pumped to the lorry tanker loadout facility, before leaving the site. On site, the bitumen is conveyed within sealed and insulated steel pipework via a manned control room. At all stages, the average temperature of the bitumen is controlled (maintained around 160 degrees Celsius).

The transfer of bitumen to and from both the existing tanks and the proposed additional tanks will be by pumping through sealed, insulated pipework. The air displaced when filling any tank would be captured and passed through an in-line activated carbon filter to control the odour.

The existing plant is shown in **Figure 1-2**, below.

Figure 1-2. Existing Plant



Proposed Development

The proposed development includes the installation of two additional bitumen tanks, load out gantry, a bitumen emulsion plant and alternative car parking. The planning application boundaries are shown in the red lines in **Figure 1-3**. The site layout of the proposed two large bitumen tanks/silos is presented in **Figure 1-4**.

Figure 1-3. Indicative Site Boundary

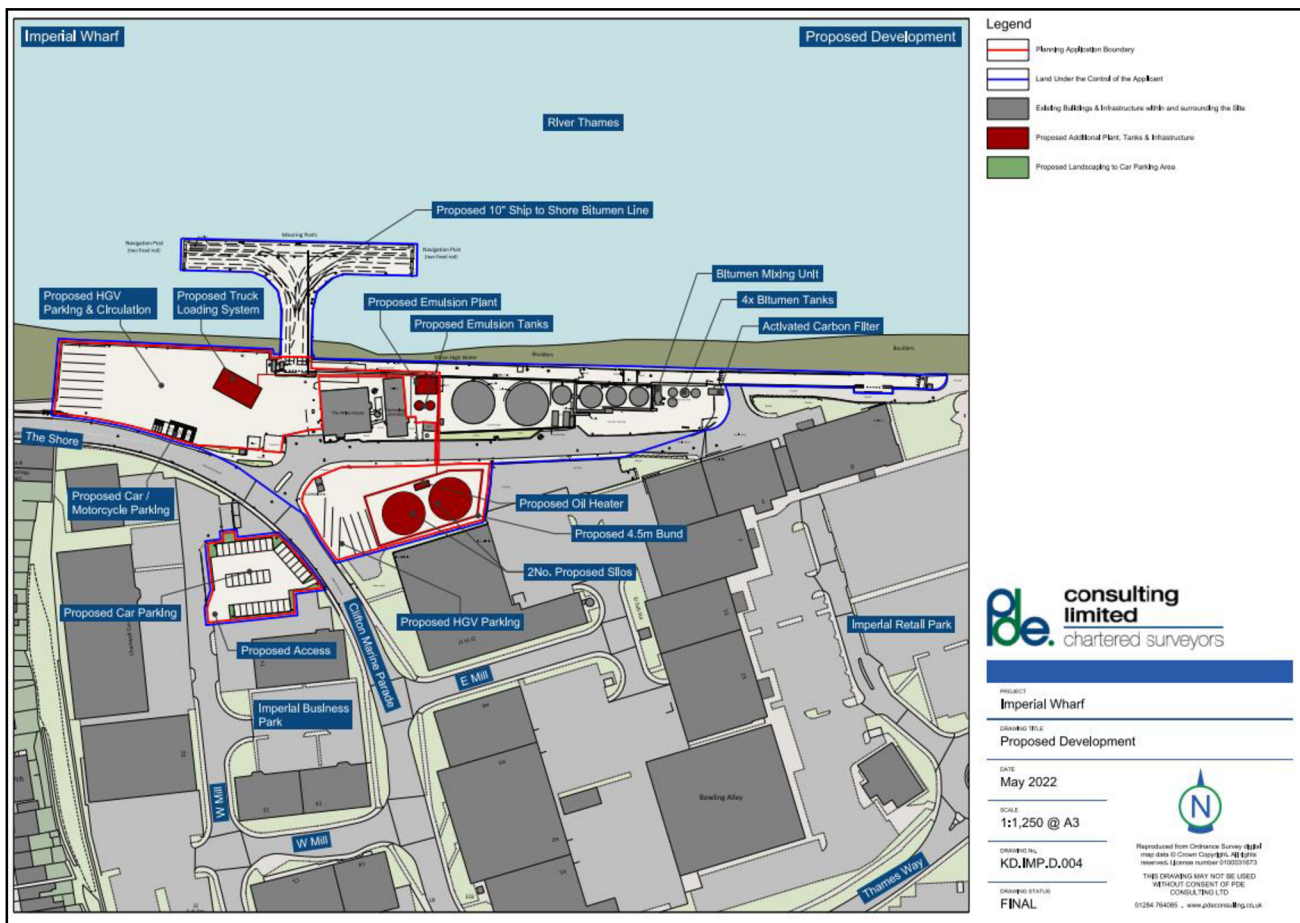
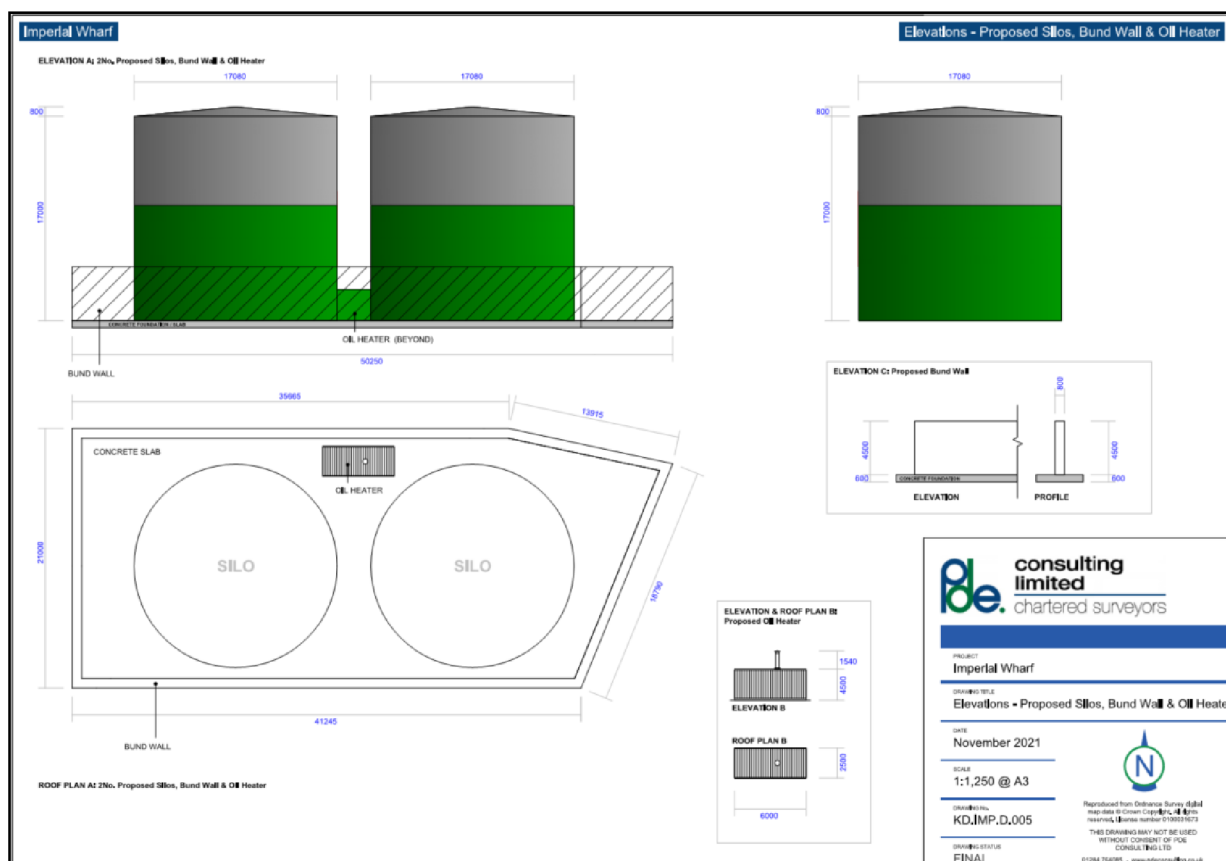


Figure 1-4. Site Layout of Two Proposed Bitumen Tanks/Silos



1.3 MAINTENANCE AND REVIEW OF THE OMP

The site manager is responsible for managing odour on site and providing the training for all staff. This includes the following tasks:

- The site manager is responsible for the OMP and ensuring people are trained;
- The OMP is stored in the site office;
- The OMP will be reviewed annually;
- The site manager provides training to new staff in order to implement the OMP; and
- All staff will be trained annually, and the site manager will deliver the training.

1.4 RELEVANT SECTOR GUIDANCE ON WHICH THIS OMP IS BASED

This OMP is based on following guidance:

- Defra's Process Guidance Note 6/42(13) - Statutory guidance for bitumen processes, December 2013;
- Guidance on the assessment of odour for planning, IAQM, July 2018; and,
- H4 Odour Management, How to comply with your environmental permit, the Environment Agency March 2011.

1.5 REPORT STRUCTURE

It is recognised in the response from EP (dated 28th June 2023), in respect of the planning application for the development, that the Defra Process Guidance Note 6/42 (13) for the Bitumen Processes is not strictly relevant to the proposed development, so this should only be used as a guide, rather than a strict set of rules that the proposed development should adhere to.

An OMP has been produced using an example of the EA provided template titled 'Odour Management Plan Template Final V2(002).docx', which will include following elements:

- Site descriptions;
- Receptors;
- Sources of odour and site process;
- Control measures and process monitoring;
- Odour reporting; and
- Abnormal event.

The relevant best available techniques to control odour and a monitoring program has been detailed within the OMP.

2.0 RECEPTORS

2.1 RECEPTOR LIST

The sensitive receptors identified for the purposes of this OMP are detailed in **Table 2-1** and illustrated further in **Figure 2-1**.

It should be noted that these do not represent an exhaustive list of all receptors within the vicinity of the Site, rather they are the worst-case representative locations within and adjacent to the site.

Figure 2-1. Receptor Locations

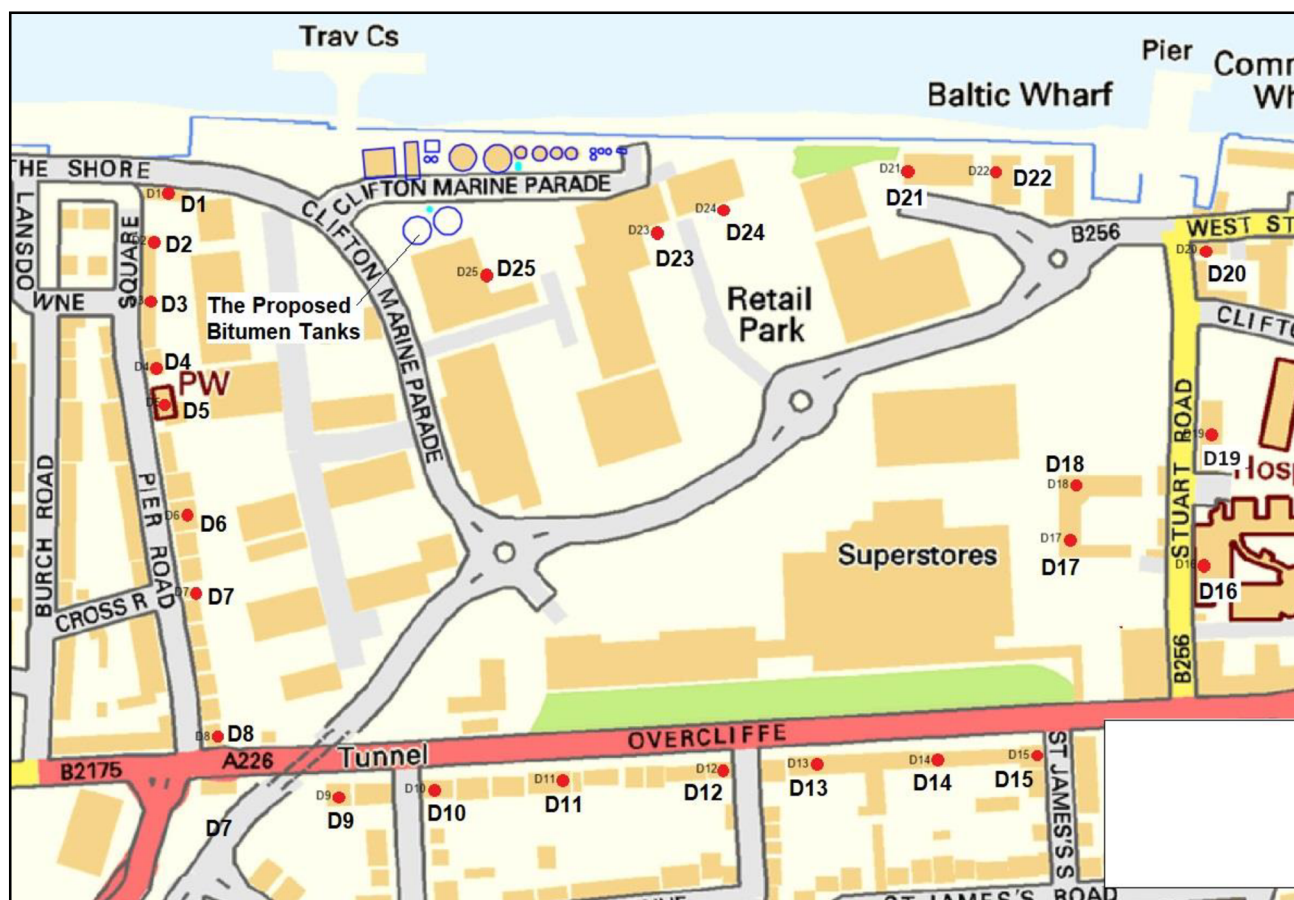


Table 2-1. Receptors List

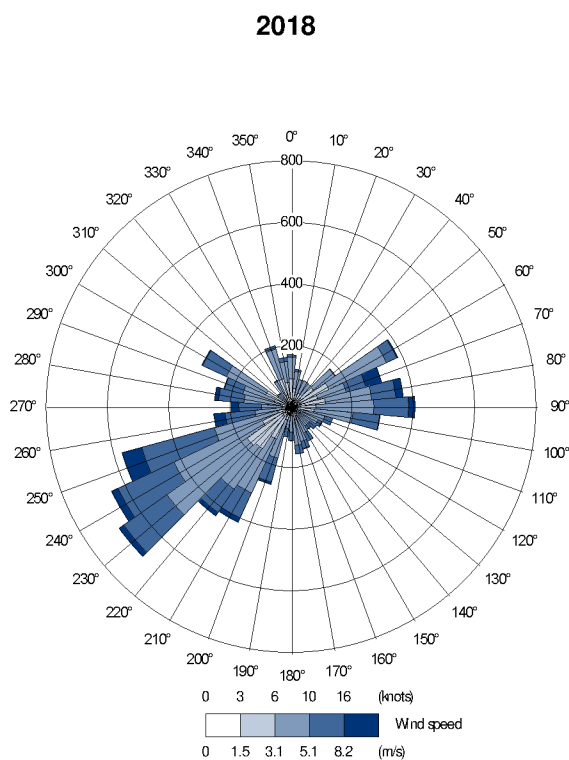
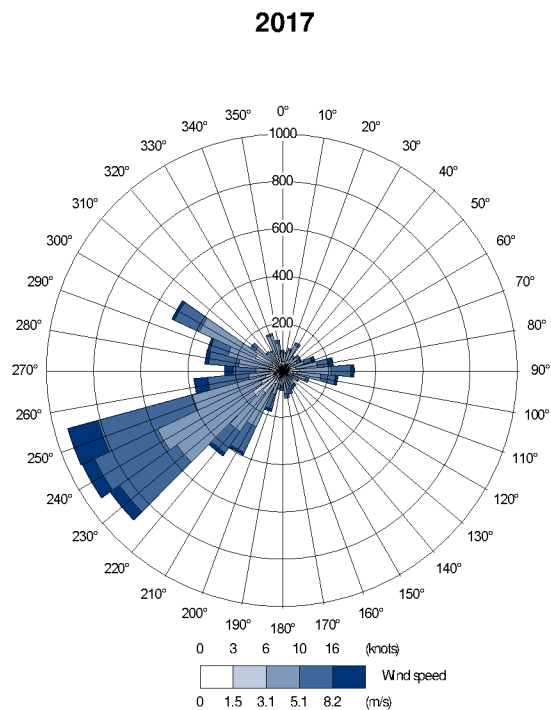
Site ID	Sensitive Receptor	UK NGR (m)		Land use e.g. house, school, hospital, commercial	Direction from site (North, South, East, West)	Approximate distance to site boundary (m)	Sensitivity to odour
		X	Y				
D1	Unit 1 Ellandaye House, The Shore	563795	174458	Residential	West	30	High
D2	52 Pier Road	563786	174429	Residential	West	50	High
D3	46 Pier Road	563784	174393	Residential	West	90	High
D4	40 Pier Road	563787	174353	Residential	Southwest	90	High
D5	Full Gospel Church, 32 Pier Road	563794	174331	Residential	Southwest	100	High
D6	24 Pier Road	563806	174262	Residential	Southwest	145	High
D7	16 Pier Road	563812	174215	Residential	Southwest	190	High
D8	1 Pier Road	563824	174127	Residential	Southwest	270	High
D9	36 Overcliffe	563898	174091	Residential	South	300	High
D10	33 Overcliffe	563956	174095	Residential	South	300	High
D11	26 Overcliffe	564034	174101	Residential	South	320	High
D12	18 Overcliffe	564133	174107	Residential	South	360	High
D13	15 Overcliffe	564189	174111	Residential	South	400	High
D14	10 Overcliffe	564263	174113	Residential	Southeast	460	High
D15	Flat 10, Pioneer Court, Overcliffe	564324	174116	Residential	Southeast	510	High
D16	Gravesham Community Hospital	564426	174232	Hospital	Southeast	490	High
D17	23 Fairfield Square, Stuart Road	564343	174248	Residential	Southeast	410	High
D18	53 Fairfield Square, Stuart Road	564347	174281	Residential	Southeast	400	High
D19	11 Stuart Road	564430	174311	Residential	Southeast	470	High
D20	Flat 67, the Maltings, Clifton Road	564426	174424	Residential	East	440	High
D21	Flat 1, Baltic Wharf, Clifton Marine Parade	564245	174474	Residential	East	260	High
D22	Flat 43, Baltic Wharf, Clifton Marine Parade	564300	174472	Residential	East	310	High
D23	Halfords (commercial/retail premises)	564092	174436	Commercial	Southeast	120	Medium
D24	Carpentryright (commercial/retail premises)	564133	174449	Commercial	Southeast	150	Medium
D25	ITAB Shop (commercial/retail premises)	563988	174410	Commercial	South	30	Medium

2.2 WIND ROSE AND SOURCE OF WEATHER DATA

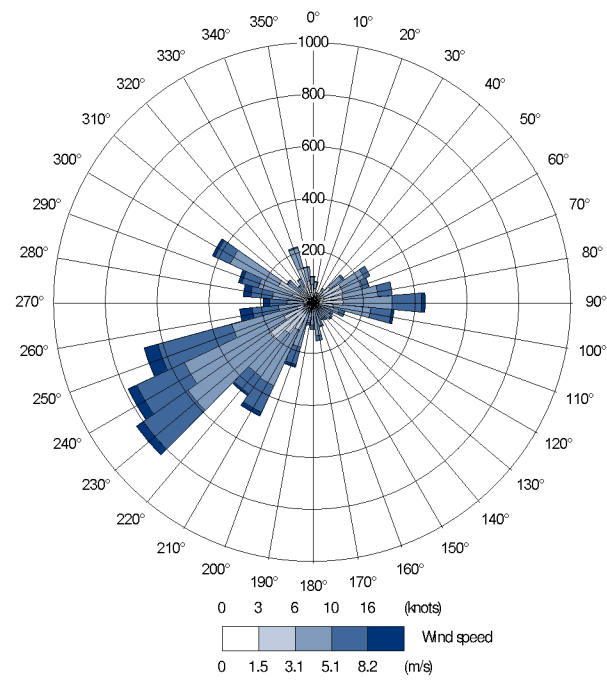
The 3-year meteorological data (2016, 2017 and 2018) from London City Airport weather station is presented in **Figure 2-2**.

It can be seen that the predominant wind direction is from southwest and west-southwest. Potential odour release will be mainly blown away from the site towards the River Thames.

Figure 2-2. London City Airport Meteorological Data/Windrose 2017 to 2019



2019



3.0 SOURCES OF ODOUR

3.1 OVERVIEW OF ODOUROUS PROCESSES AND EMISSIONS

The transfer of bitumen to and from both the existing tanks and the proposed additional tanks will be by pumping through sealed, insulated pipework. The air displaced when filling any tank will be captured and passed through an in-line activated carbon filter to control the odour. Most of the odour will be removed by the filter, however, it is likely there will be small amount of residual odour being released.

Another potential odour release source is the filling of lorry tanks when odorous air from the lorry tank is being displaced by the bitumen.

Therefore, the odour management plan considers the odour releases from two odour sources as follows:

- (1) Residual odour from the carbon filter; and
- (2) Odour release from filling the bitumen lorry tankers.

4.0 CONTROL MEASURES AND PROCESS MONITORING

4.1 ODOUR CONTROL MEASURES

The following odour control and mitigation measures will be used to reduce the odour emissions at different process stages.

Maintenance and Cleaning of Activated Carbon Filter

- The carbon filter unit/odour arrestment equipment will be inspected at least once a day to verify correct operation and to identify any malfunctions; and
- To regularly control, maintain and exchange the activated carbon filter according to manufacturer's operation manual.

Loading into the trucks

- Prevent overfilling the trucks; and
- Cleaning up immediately in case of any spilling.

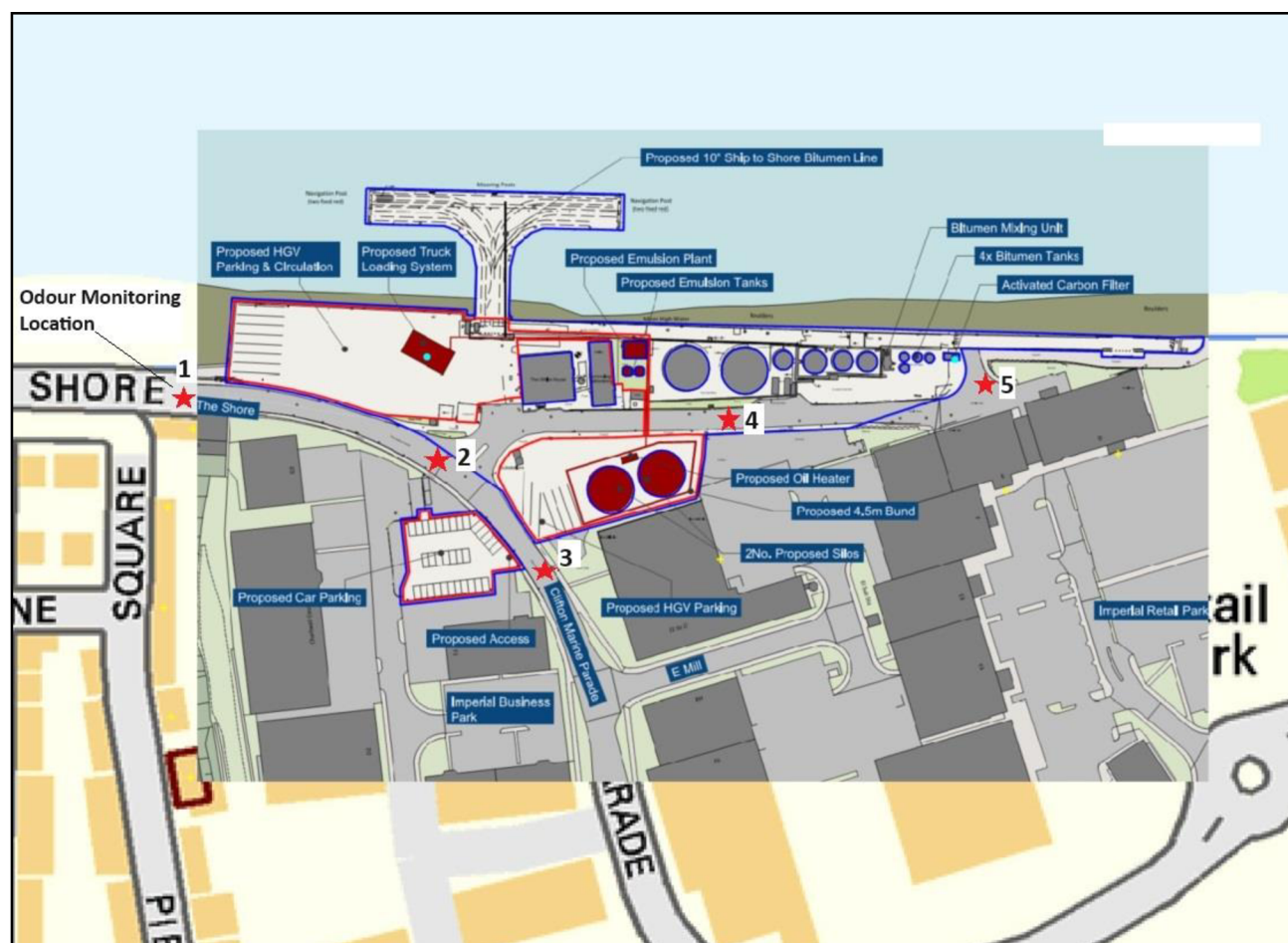
4.2 ODOUR PROCESS MONITORING

4.2.1 Proactive Odour Monitoring

Olfactory monitoring (odour sniffing) will be undertaken at the site boundary and nearby receptor locations by site managers (or office staff/operatives not involved directly in operations e.g. drivers to avoid adaptation to the odour). This will be carried out daily between 09:00 and 12:00.

Odour sniffing will identify whether odour is detectable or how 'strong' odour is at odour monitoring locations presented in **Figure 4-1**. The Site Odour Assessment Report Form (Appendix A) will be completed.

The 'Odour Intensity Scale' in **Table 4-1** will be used to describe the detected magnitude of an odour (odour strength).

Figure 4-1 Odour Monitoring Locations

Table 4-1. Odour Intensity Scale (after IAQM Guidance on the assessment of odour for planning, July 2018)

Odour Strength	Intensity Level	Comments
No odour/not perceptible	0	No odour when compared to the clean site
<i>The Odour Detection Threshold (ODT) of $1 \text{ ou}_\text{e} \cdot \text{m}^{-3}$ is somewhere between 0 and 1</i>		
Slight/very weak	1	There is probably some doubt as to whether the odour is actually present
Slight/weak	2	The odour is present but cannot be described using precise words or terms
Distinct	3	The odour character is barely recognisable
<i>VDI 3940 says that the recognition threshold intensity is generally 3-10 times higher than the ODT (i.e. $3-10 \text{ ou}_\text{e} \cdot \text{m}^{-3}$)</i>		
Strong	4	The odour character is easily recognisable
Very strong	5	The odour is offensive. Exposure to this level would be considered undesirable
Extremely strong	6	The odour is offensive. An instinctive reaction would be to mitigate against further exposure

The odour sniffing frequency may require increasing for the following reason:

- In the event that a complaint is received on site, Odour Complaint Report Form (Appendix B) will be completed.

4.3 DAILY ROUTINE CHECK

Daily visual checks of all locations that are potentially the source of odour emissions will form part of normal operating procedures of the site, which will include checks for visible emissions which would potentially give rise to adverse odour.

4.4 ODOUR TRIGGER LEVELS

The 'traffic light' criteria for odour trigger levels shown in **Table 4-2** will be used by on site monitoring operatives during the odour monitoring.

Table 4-2. Odour Trigger Levels

Trigger Level	Criteria	Actions to be taken
Green	No odour detected beyond the boundary	No further action needed.
Amber	Odour detected 50 m outside of the site boundary	Check meteorological conditions (e.g. temperature above 20°C, wind blowing direction, calm conditions). Check equipment and carry out maintenance if required. Confirm that odour control measures in this OMP are adopted.
Red	In the event of complaint; or, Odour continually detected 150 m outside of the site boundary	Complaints procedure as below (investigate, corrective treatment feedback to complainant). If issues continue for 2 days, cease operations.

If the odour monitoring has identified any elevated levels of outside of the site boundary or any odour complaints have been received from the public, it means that the actions in **Table 4-2** will be undertaken accordingly.

The Site manager (or designated responsible person) will be following the actions listed in the 'Odour complaint Report Form', for example, the time of the complaints received, weather conditions (temperature, wind direction, wind speed), and site activities to identify the potential odour sources, for example, the carbon filter and the bitumen lorry tanker filling activities.

5.0 ODOUR REPORTING

5.1 COMPLAINTS REPORTING

There will be an odour complaint report form for recording odour complaints, which will be completed by the site manager (or designated responsible person).

The Odour Complaint Report Form is presented in Appendix B.

If an odour complaint is received, a complaint procedure will be implemented. The complaints procedure applies to all complaints, feedback and requests made by third parties regarding the site operational activities, environmental, health and safety performance or quality of service/product.

All complaints from third parties including external customers and potential customers who visit the site and notice a strong odour, statutory authorities, statutory consultees and members of the general public will be forwarded to the site manager (or designated responsible person) to action and will be recorded onto an incident reports database within 72 hours. The site manager or designated responsible person will fill in and follow the actions listed in the 'Odour Complaint Report Form'.

The site manager (or designated responsible person) will ensure the following tasks are completed if a complaint is received:

- The complaint is investigated to identify the cause. If necessary, this may involve direct communication with the complainant.
- In the event of elevated levels of odour being detected, the presence of 'abnormal' on-site activity is assessed and, if necessary, preventative action is taken that will prevent a reoccurrence of the same problem. These actions must be documented.
- Check equipment and carry out maintenance if required.
- The Complainant will be contacted and given information on the investigations conducted and actions taken, as appropriate.
- All complaints are reported to the Compliance Director and discussed at site meetings.
- If the investigation indicates that the complaint has not been justified this will be clearly recorded. All complaints will be logged.

Complaints Timescales

The timescales associated with the complaints procedure are as follows:

- Investigate complaint – the same day as complaint received.
- The implementation of the Corrective (including treatment) and preventative measures proposed – within 1 to 2 working days.
- Following the implementation of the corrective (including treatment) and preventative measures, odour sniffing will be carried out at the site boundary to confirm the measures are working.

- Olfactory monitoring by site staff (odour sniffing) will be undertaken at the site boundary and nearby receptor locations.

Feedback to Complainant

The site operation team recognises that offering credible reassurance and demonstrating that complaints are taken seriously can be advantageous. The site manager or designated responsible person will discuss complaint investigation findings and the associated corrective and preventative actions which have been implemented directly with the complainant.

Escalating Complaints

If complaints are received daily from multiple complainants over the period of 2 days and the site manager has undertaken an investigation which substantiates that the site is the source of the odour nuisance problem, they will hold an emergency meeting to discuss and agree on the ceasing of operations until the problem can be rectified. The LPA of Gravesham Borough Council will be informed of this decision. However, the robust measures outlined in this OMP should prevent this from being necessary. OMP review and improvement are covered in Section 1.

5.2 COMMUNITY ENGAGEMENT

The site operation team is committed to achieving an open and transparent relationship with the local community. Site personnel will attend meetings with the Local Authority as necessary in order to be informed of any concerns which community members may have and to communicate the measures detailed in this management plan to address these concerns. This will help to prevent odour complaints in the first instance.

There is a complaints option as an online service on the FM Conway website (<https://app.fmconway.co.uk/complaints>). Additionally, contact details are provided on the company website including an email address and phone number for general enquiries. The site operation team welcome correspondence using these methods of communication.

Whilst undertaking odour surveys and monitoring, consideration will be given to the potential opportunity for community engagement, for example, speaking to the nearby residents about any odour issues, where appropriate.

6.0 ABNORMAL EVENTS

Any accidents (or incidents), for example, equipment breakdown and staff absences, could result in potential odour releases.

It should be noted that the site is operational 24-hours a day, therefore, unless the site is required to shutdown for any reason, it is unlikely that any event could occur outside of normal operating hours. However, should an emergency occur outside of normal operating hours, a nominated representative will be on site within two hours of notification.

Should an emergency occur outside of normal operating hours, the nominated representative will contact their operatives and managers by phone, as appropriate. The nominated representative will identify whether emergency services are required to attend a site emergency and will contact them directly if necessary.

Table 6-1. Abnormal Events

Sensitive Receptor	Sensitive Receptor
Breakdown of Process Equipment and Plant	The breakdown of the carbon filter unit may cause elevated levels of odour to be created due to the build-up of waste or the failure of control equipment. However, if this is to occur unexpectedly, the following contingency measures would be implemented to reduce the impact on the environment: - Where possible, spare parts will be held on site to undertake repairs as soon as possible. If spare parts need to be outsourced, this will be the responsibility of the Site Manager and if required, specialist contractors will be contacted to undertake any complex repair work. - Once the issue has been resolved, start-up of equipment will be undertaken gradually by trained personnel to ensure optimal performance of equipment prior to full commencement of activities.
Staffing Issues	Human error and accidents may cause elevated levels of odour to be created either through the stopping or breakdown of the process or the failure of control equipment. In order to reduce the risk of odour nuisance occurring as a result of staff absence and the robust procedures not being adhered to, the site management team will assign responsible persons and deputies in the case of staff absence.

7.0 CONCLUSIONS

This odour management plan (the OMP) has been produced to support the discharge of the pre-commencement/pre-operational planning condition (Condition 9) for the installation of two additional bitumen tanks, load out gantry, a bitumen emulsion plant and alternative car parking at Imperial Wharf, Clifton Marine Parade, Gravesend, Kent, DA11 0DY.

The odour management plan includes:

- Potential odour sources at the Installation and nearby receptor sensitivity to our have been assessed in accordance with (1) Defra's '*Process Guidance Note 6/42(13) - Statutory guidance for bitumen processes*', December 2013 and (2) '*H4 Odour Management, How to comply with your environmental permit*', the Environment Agency March 2011;
- Discussions of odour control measures installed on the site to ensure that no offensive odour beyond the site boundary;
- The active carbon filter unit installed and operated in accordance with supplier recommendations, so as to minimise the release of odour;
- Daily odour sniffing monitoring of at the site boundary and nearby receptor locations;
- Daily visual checks of all locations that are potentially the source of leaks especially odour emissions;
- Odour trigger levels and associated actions to be taken;
- Odour complaints reporting and complaint action procedures; and
- Maintenance and review of the OMP.

The odour control measures, odour monitoring plan, odour action plan, odour complaints reporting, and complaint action procedures are included in the OMP in order to reduce odour impacts on the community. As such, Condition 9 can be discharged.

APPENDIX A – ODOUR ASSESSMENT REPORT FORM

Form 1 – Odour Assessment/Sniffing Test Report

Date and Time	
Weather conditions	
Wind direction	
Assessor	

Location	Time		Odour				
	Start	Finish	Y/N	Intensity	Extent	Description	Source
1 – on The Shore adjacent to the western site boundary							
2 – at the junction of The Shore and Clifton Marine Parade							
3 – on Clifton Marine Parade next to the new car park							
4 – on Clifton Marine Parade adjacent to 2No. Proposed Silos							
5 – at the end of Clifton Marine Parade adjacent to the carbon filter							

Where odour is present, classify the intensity as follows:

0: no odour

1: slight/very weak

2: slight /weak

3: distinct

4: strong

5: very strong

6: Extremely strong

Where odour is present, classify the extent of the odour:

I – intermittent P - Persistent

APPENDIX B – ODOUR COMPLAINT REPORT FORM

Odour Complaint Report Form		
Time and date of complaint:	Name and address of complainant:	
Telephone number of complainant:		
Date of odour:		
Time of odour:		
Location of odour, if not at above address:		
Weather conditions (i.e., dry, rain, fog, snow):		
Temperature (very warm, warm, mild, cold or degrees if known):		
Wind strength (none, light, steady, strong, gusting):		
Wind direction (eg from NE):		
Complainant's description of odour:		
o What does it smell like?		
o Intensity (see below):		
o Duration (time):		
o Constant or intermittent in this period:		
o Does the complainant have any other comments about the odour?		
Are there any other complaints relating to the installation, or to that location? (either previously or relating to the same exposure):		
Any other relevant information:		
Do you accept that odour likely to be from your activities?		
What was happening on site at the time the odour occurred?		
Operating conditions at time the odour occurred (eg flow rate, pressure at inlet and pressure at outlet):		
Actions taken:		
Form completed by:	Date	Signed

Intensity

- | | | |
|--------------------|------------------|--------------------------|
| 0 No odour | 3 Distinct odour | 5 Very strong odour |
| 1 Very faint odour | 4 Strong odour | 6 Extremely strong odour |
| 2 Faint odour | | |

APPENDIX C - REPORT TERMS & CONDITIONS

This Report has been prepared using reasonable skill and care for the sole benefit of PDE Consulting Limited ("the Client") for the proposed uses stated in the report by Tetra Tech Limited ("Tetra Tech"). Tetra Tech exclude all liability for any other uses and to any other party. The report must not be relied on or reproduced in whole or in part by any other party without the copyright holder's permission.

No liability is accepted, or warranty given for; unconfirmed data, third party documents and information supplied to Tetra Tech or for the performance, reliability, standing etc. of any products, services, organisations or companies referred to in this report. Tetra Tech does not purport to provide specialist legal, tax or accounting advice.

The report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections. Environmental conditions can vary, and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times. No investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any monitoring or survey work undertaken as part of the commission will have been subject to limitations, including for example timescale, seasonal and weather-related conditions. Actual environmental conditions are typically more complex and variable than the investigative, predictive and modelling approaches indicate in practice, and the output of such approaches cannot be relied upon as a comprehensive or accurate indicator of future conditions. The "shelf life" of the Report will be determined by a number of factors including; its original purpose, the Client's instructions, passage of time, advances in technology and techniques, changes in legislation etc. and therefore may require future re-assessment.

The whole of the report must be read as other sections of the report may contain information which puts into context the findings in any executive summary.

The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. Tetra Tech accept no liability for issues with performance arising from such factors.