Odour Management Plan

RAM Utility Solutions Ltd, Pitt Street, Widnes

Client: RAM Utility Solutions Ltd

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1.0 INTRODUCTION

1.1 Background

1.1.1 Redmore Environmental Ltd was commissioned by RAM Utility Solutions Ltd to produce an Odour Management Plan (OMP) to control potential impacts associated with a proposed new Waste Transfer Facility (WTF) at the existing head office and depot operated by the company on land off Pitt Street, Widnes.

1.1.2 The purpose of this OMP is to:

- Establish the likely sources of odour arising from waste transfer operations at the facility;
- Set out the procedures followed at the site in order to prevent or minimise odour emissions; and,
- Formalise the procedures for dealing with any odour complaints.

1.1.3 In accordance with Environment Agency (EA) guidance H4: Odour Management[1], this OMP has been designed to:

- Employ appropriate methods, including monitoring and contingencies, to control and minimise odour pollution;
- Prevent unacceptable odour pollution at all times; and,
- Reduce the risk of odour releasing incidents or accidents by anticipating them and planning accordingly.

1.1.4 This OMP has considered sources, releases and impacts, and used these to identify opportunities for odour management.

1.2 Site Location and Context

1.2.1 The proposed WTF is located at the existing head office and depot operated by RAM Utility Solutions on land off Pitt Street, Widnes, at National Grid Reference (NGR): 351135,

[1] H4: Odour Management, EA, 2011.

384440. Reference should be made to Figure 1 for a map of the site and surrounding area.

1.2.2 The proposals comprise the installation of a new WTF at the site. This will be used to dewater and agglomerate non-hazardous waste materials collected by RAM Utility Solutions as part of commercial drainage and confined space clearance operations, prior to bulk transfer offsite to suitable disposal facilities.

1.2.3 The WTF will include the following infrastructure:

- Concrete transfer bays; and,
- A silt interceptor.

1.2.4 Reference should be made to Figure 2 for a layout plan of the proposed WTF.

1.2.5 The operation of the WTF may result in odour emissions from a number of activities. These have the potential to cause adverse effects at sensitive locations in the vicinity of the site. As such, suitable measures to ensure impacts are effectively controlled have been formalised within this OMP.

2.0 PROCESS DESCRIPTION

2.1 Introduction

2.1.1 The proposed waste transfer process is briefly summarised in the following Sections.

2.2 Management

2.2.1 The overall management responsibility for the WTF will lie with RAM Utility Solutions Ltd. Day to day management will be undertaken by an appointed Site Manager who will deal specifically with the operation of the facility.

2.3 Waste Transfer Process

2.3.1 The WTF will be used to dewater and agglomerate non-hazardous waste materials collected by RAM Utility Solutions as part of commercial drainage and confined space clearance operations, prior to bulk transfer offsite to suitable disposal facilities.

2.3.2 The maximum quantity of waste materials that will be stored on site at any one time prior to transfer will not exceed 250t. A summary of the material types that will be accepted by the facility and associated European Waste Codes (EWCs) is provided as follows:

- 17 05 04 - Soil and stones other than those mentioned in 17 05 03;
- 17 05 06 - Dredging spoil other than those mentioned in 17 05 05;
- 20 03 03 - Street cleaning residues;
- 20 03 04 - Septic tank sludge; and,
- 20 03 06 - Waste from sewage cleaning.

2.3.3 Waste materials will be delivered to the facility in tankers which form part of the existing RAM Utility Solutions fleet. Following arrival, the tankers will enter the central section of the main yard and reverse into the transfer bays located in the south-east corner of the site. The waste will be then unloaded and inspected by a site operative in order to identify any evidence of contamination, highly odorous materials or wastes which are not permitted for acceptance at the facility. In the event that any non-compliant waste is identified, the material will be loaded back onto the delivery vehicle and transferred off-site for disposal at a suitable facility.

2.3.4 Following inspection and acceptance, the waste will remain stockpiled within the transfer bays for a period of approximately 1 to 2-weeks. During this interval, natural gravity driven dewatering of the material will occur.

2.3.5 All water which drains from the waste will flow via the concrete base of the transfer bays to a silt interceptor featuring a permeable cover. This will be used to capture residual solids within the runoff and ensure that only desilted water is transferred to the public sewer via the outfall pipe.

2.3.6 The level of solids within the silt interceptor will be monitored daily. When it is identified that the level is approaching the base of the outfall pipe, the solids will be removed using a RAM Utility Solutions tanker and redeposited in the waste transfer bays.

2.3.7 Following completion of dewatering, the material will be periodically removed from the bays using a front-end loading shovel or similar and transferred into bulk haulage vehicles for onward transportation to a suitable waste disposal facility.

2.3.8 Reference should be made to Figure 2 for a site layout drawing.

3.0 ODOUR MANAGEMENT PLAN

3.1 Overview

3.1.1 The OMP for the WTF follows and addresses the various activities which have the potential to create odour. The following steps were undertaken in order to produce the OMP:

- Identification of odour sources;
- Formalisation of odour control measures;
- Consideration of site location and sensitive locations potentially affected by odour emissions;
- Risk assessment of potential issues and identification of control measures;
- Production of an odour monitoring procedure;
- Formalisation of facility monitoring procedures;
- Production of emergency operating procedures and odour control measures;
- Production of a complaints handling procedure; and,
- Production of an OMP modification procedure.

3.1.2 The results are detailed in the following Sections.

3.2 Sources

3.2.1 Potential odour sources were identified based on review of the activities that will be undertaken at the site. These are summarised Table 1.

Table 1 Odour Sources

Source		Source Description	Emission Characteristics
1	Waste delivery	Odours generated by waste materials during unloading	Fugitive emissions
2	Waste storage	Odours generated by waste materials during storage within the transfer bays	Fugitive emissions
3	Silt interceptor	Odours generated by residual solids within the silt interceptor	Fugitive emissions

Source		Source Description	Emission Characteristics
4	Waste loading and transfer off-site	Odours generated by waste materials during loading into the bulk transportation vehicles and transfer off-site	Fugitive emissions

3.3 Odour Control Measures

3.3.1 Appropriate measures will be employed at the facility in order to control and minimise odour pollution. These have been determined with reference to relevant best practice guidance and are summarised in Table 2.

Table 2 Odour Control Measures

Source		Control Measures
1	Waste delivery	During unloading, all reasonable measures will be undertaken to reduce the drop height of materials in order to minimise disturbance and the associated potential for odour emissions Where practicable, wastes will be tipped as bulk loads to reduce material separation and the overall emitting surface area that is exposed to atmosphere Any spillages which occur during unloading will be cleared immediately by a site operative Following completion of unloading, wastes will be inspected by a site operative in order to identify any evidence of highly odourous materials or wastes which are not permitted for acceptance at the facility. In the event that any non-compliant or highly odourous waste is identified, the material will be loaded back onto the delivery vehicle and transferred off-site for disposal at a suitable facility Full training in the use of relevant unloading equipment will be provided to all staff in order to ensure that the correct procedures are adhered to at all times Regular checks of tipping operations will be undertaken by a site operative. Should this indicate that the stated control measures are not being utilised, further training will be provided in relation to the use of equipment and the unloading operation Odour Monitoring will be undertaken daily in order to ensure impacts do not occur as a result of emissions from waste delivery operations. Reference should be made to Section 3.7 for full details of the monitoring procedure

Source		Control Measures
2	Waste storage	The transfer bays will feature concrete retaining walls on three sides in order to provide partial containment of materials during storage. A minimum gap of 0.5m will be maintained between the top of stockpiled waste and the upper edge of the retaining walls at all times to reduce the potential for surface wind stripping of odours Stockpiles within the transfer bays will be inspected daily by a site operative in order to assess the overall condition of materials. Should the findings indicate an increased potential for odour emissions, wastes will be covered using protective sheeting and removed from the facility at the earliest practicable opportunity Wastes within the transfer bays will remain static at all times other than when material unloading and loading is taking place in order to limit disturbance and the associated potential for odour emissions Odour Monitoring will be undertaken daily in order to ensure impacts do not occur as a result of emissions from waste storage operations. Reference should be made to Section 3.7 for full details of the monitoring procedure
3	Silt interceptor	The level of solids within the silt interceptor will be monitored daily. When it is identified that the level is approaching the base of the outfall pipe, the solids will be removed using a RAM Utility Solutions tanker and redeposited in the waste transfer bays The interceptor will be completely emptied during each event in order to minimise the frequency of removals as far as practicable Any spillages which occur during removal of solids from the interceptor will be cleared immediately by a site operative Odour Monitoring will be undertaken daily in order to ensure impacts do not occur as a result of emissions from residual solids within the silt interceptor. Reference should be made to Section 3.7 for full details of the monitoring procedure
4	Waste loading and transfer off-site	During loading, all reasonable measures will be undertaken to reduce the drop height of materials in order to minimise disturbance and the associated potential for odour emissions Any spillages which occur during loading will be cleared immediately by a site operative Full training in the use of relevant unloading equipment will be provided to all staff in order to ensure that the correct procedures are adhered to at all times Regular checks of loading operations will be undertaken by a site operative. Should this indicate that the stated control measures are not being utilised, further training will be provided in relation to the use of equipment and the unloading operation Odour Monitoring will be undertaken daily in order to ensure impacts do not occur as a result of emissions from loading operations. Reference should be made to Section 3.7 for full details of the monitoring procedure

3.4 Location

3.4.1 The proposed WTS is located on the outskirts of Widnes. Land-use in the immediate surrounding area comprises a mixture of commercial and industrial. The closest residential properties to the site are situated approximately 100m to the south of the boundary on Waterloo Road.

3.4.2 A desk-top study was undertaken in order to identify any sensitive receptor locations in the vicinity of the facility that required specific consideration during the risk assessment. These are summarised in Table 3.

Table 3 Sensitive Receptors

Receptor		NGR (m)		Distance from WTF (m)	Direction from WTF
		X	Y		
R1	Commercial - Milton Street	351077.9	384421.7	50	West
R2	Commercial - Pitt Street	351086.4	384447.8	40	North-west
R3	Commercial - Pitt Street	351134.9	384455	12	North
R4	Commercial - Pitt Street	351162.6	384466.9	30	North-east
R5	Commercial - Pitt Street	351197.2	384458.4	60	North-east
R6	Commercial - Milton Street	351157.5	384438.7	15	East
R7	Commercial - Milton Street	351140.8	384408.9	15	South
R8	Residential - Waterloo Road	351164.2	384320.3	110	South
R9	Residential - Waterloo Road	351137.5	384318.4	100	South
R10	Residential - Waterloo Road	351103.4	384309.4	120	South

3.4.3 Reference should be made to Figure 3 for a graphical representation of the identified receptors.

3.5 Prevailing Meteorological Conditions

3.5.1 The potential for odour to impact at sensitive locations depends significantly on the meteorology, particularly wind direction, during emissions. In order to consider prevailing conditions at the site review of historical weather data was undertaken. The closest

observation station to the WTF is Liverpool John Lennon Airport at NGR: 343488, 381791, which is approximately 7.9km west-south-west of the boundary. It is considered that conditions are likely to be reasonably similar over a distance of this magnitude and the information is a suitable source of data for an assessment of this nature.

3.5.2 Meteorological data was obtained from Liverpool John Lennon Airport meteorological station over the period 1st January 2015 to 31st December 2019 (inclusive). The frequency of wind from the twelve sectors which best describe the directions which may cause impacts in the vicinity of site is shown in Table 4. Reference should be made to Figure 4 for a wind rose of the meteorological data.

Table 4 Wind Frequency Data

Wind Direction (°)	Frequency of Wind (%)
345 - 15	3.31
15 - 45	2.52
45 - 75	5.56
75 - 105	6.05
105 - 135	7.46
135 - 165	12.12
165 - 195	10.24
195 - 225	8.71
225 - 255	10.31
255 - 285	12.92
285 - 315	13.20
315 - 345	5.88
Sub-Total	98.27
Calms	0.61
Missing/Incomplete	1.12

3.5.3 All meteorological data used in the assessment was provided by Atmospheric Dispersion Modelling Ltd, which is an established distributor of meteorological data within the UK.

3.5.4 As shown in Table 4, the prevailing wind direction at the facility is from the north-west, with significant frequencies from the west and south-east. Winds from the north and east are relatively infrequent, which is indicative of conditions throughout the UK.

3.6 Risk Assessment

3.6.1 The Risk Assessment has been undertaken in accordance with the general principles of EA document 'Horizontal Guidance Note H1: Environmental Risk Assessment for Permits' and associated annexes. This included consideration of the following:

- Receptor - what is at risk? What do I wish to protect?
- Source - what is the agent or process with potential to cause harm?
- Harm - what are the harmful consequences if things go wrong?
- Pathway - how might the receptor come into contact with the source?
- Probability of exposure - how likely is this contact?
- Consequence - how severe will the consequences be if this occurs?
- Magnitude of risk - what is the overall magnitude of the risk? and,
- Justification for magnitude - on what did I base my judgement?

3.6.2 Based on the Risk Assessment outcomes potential mitigation and control options were identified.

3.6.3 Further explanation for the key assessment areas is provided below.

Receptor

3.6.4 The first step was to consider how the activity could harm the environment. This involved identifying 'receptors' that may be affected and included people, property, and the natural and physical environment.

Probability of Exposure

3.6.5 The probability of exposure was defined based on the likelihood of exposure of the specific receptor to the identified source. This depended on several factors, such as:

- Distance between source and receptor;

- Dispersion potential of emission;
- Duration of emission; and,
- Frequency of emission.

Harm

3.6.6 The severity of harm from a risk depends on:

- How much a person or part of the environment is exposed; and,
- How sensitive a person or part of the environment is.

3.6.7 Some parts of the environment can be very sensitive. For example, serious health effects can occur if humans are exposed to certain chemicals for only short periods of time.

Magnitude of Risk

3.6.8 The level of risk is a combination of:

- How likely a problem is to occur; and,
- How serious the harm might be.

3.6.9 Risk is highest where both the likelihood of a problem is high and the potential harm is severe. Risk is lowest where a problem is unlikely to occur and the harm that might result is not serious.

Assessment

3.6.10 The risk assessment of potential odour impact is provided in Table 5.

Table 5 Odour Risk Assessment

Data and Information				Control Measures	Judgement			
Receptor	**Source**	**Harm**	**Pathway**		**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**
What is at risk? What do I wish to protect?	**What is the agent or process with potential to cause harm?**	**What are the harmful consequences if things go wrong?**	**How might the receptor come into contact with the source?**		**How likely is this contact?**	**How severe will the consequence be if this occurs?**	**What is the overall magnitude of the risk?**	**On what did I base my judgement?**
Residential, commercial and industrial properties in the vicinity of the site	Waste delivery	Loss of amenity	Wind-blown emissions	All reasonable measures will be undertaken to minimise the disturbance of materials during unloading and the associated potential for odour emissions Full training in the use of unloading equipment will be provided to all staff Odour Monitoring will be undertaken daily in order to ensure impacts do not occur as a result of emissions from waste delivery operations	**Low** due to the limited frequency and duration of unloading operations, as well as the stated control measures	**Medium** if odour can be detected regularly at the receptor locations	**Low**	The limited frequency and duration of unloading operations and proposed control measures are considered to result in **low** risk of odour impact occurring

Data and Information				Control Measures	Judgement			
Receptor	**Source**	**Harm**	**Pathway**		**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**
What is at risk? What do I wish to protect?	**What is the agent or process with potential to cause harm?**	**What are the harmful consequences if things go wrong?**	**How might the receptor come into contact with the source?**		**How likely is this contact?**	**How severe will the consequence be if this occurs?**	**What is the overall magnitude of the risk?**	**On what did I base my judgement?**
Residential, commercial and industrial properties in the vicinity of the site	Waste storage	Loss of amenity	Wind-blown emissions	The quantity of waste stored within the bays will not exceed 250t The bays will feature concrete retaining walls in order to provide partial containment of materials The height of stockpiles will be limited to minimise the potential for surface wind stripping of odours Any waste which is identified as odourous will be covered using protective sheeting and removed from the facility at the earliest opportunity	**Low** due to containment of emissions within the building	**Medium** if odour can be detected for extended periods at the receptor locations	**Low**	The limited quantity of materials that will be stored within the bays and proposed control measures are considered to result in **low** risk of odour impact occurring

Data and Information				Control Measures	Judgement			
Receptor	**Source**	**Harm**	**Pathway**		**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**
What is at risk? What do I wish to protect?	**What is the agent or process with potential to cause harm?**	**What are the harmful consequences if things go wrong?**	**How might the receptor come into contact with the source?**		**How likely is this contact?**	**How severe will the consequence be if this occurs?**	**What is the overall magnitude of the risk?**	**On what did I base my judgement?**
Residential, commercial and industrial properties in the vicinity of the site	Silt interceptor	Loss of amenity	Wind-blown emissions	The level of solids within the silt interceptor will be monitored daily The interceptor will be completely emptied during each event in order to minimise the frequency of removals as far as practicable Any spillages which occur during removal of solids from the interceptor will be cleared immediately by a site operative	**Low** due to limited quantity of solids within the interceptor, partial containment of materials and the stated control measures	**Medium** if odour can be detected for extended periods at the receptor locations	**Low**	The limited quantity of solids within the interceptor and the proposed control measures are considered to result in **low** risk of odour impact occurring

Data and Information				Control Measures	Judgement			
Receptor	**Source**	**Harm**	**Pathway**		**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Justification for magnitude**
What is at risk? What do I wish to protect?	**What is the agent or process with potential to cause harm?**	**What are the harmful consequences if things go wrong?**	**How might the receptor come into contact with the source?**		**How likely is this contact?**	**How severe will the consequence be if this occurs?**	**What is the overall magnitude of the risk?**	**On what did I base my judgement?**
Residential, commercial and industrial properties in the vicinity of the site	Waste loading and transfer off-site	Loss of amenity	Wind-blown emissions	All reasonable measures will be undertaken to minimise the disturbance of materials during loading and the associated potential for odour emissions Full training in the use of loading equipment will be provided to all staff Odour Monitoring will be undertaken daily in order to ensure impacts do not occur as a result of emissions from waste delivery operations	**Low** due to the limited frequency and duration of loading operations, as well as the stated control measures	**Medium** if odour can be detected regularly at the receptor locations	**Low**	The limited frequency and duration of loading operations and proposed control measures are considered to result in **low** risk of odour impact occurring

3.6.11 As indicated in Table 5, the magnitude of risk as a result of odour emissions from the identified sources was **low** in all cases.

3.7 Odour Monitoring Procedure

3.7.1 In order to ensure significant odour impacts do not occur as a result of normal operations periodic monitoring will be undertaken in accordance with the following methodology.

Procedure

3.7.2 Sniff testing is a common form of odour monitoring that can be undertaken for relatively low cost with little formal training. While a number of factors need to be taken into account in order to minimise inconsistencies, it can provide good evidence of odour conditions in the vicinity of specific activities.

3.7.3 Sniff testing will be undertaken by a member of the Operations or Management Team at four separate locations at the boundary of the WTF on a daily basis or following receipt of a complaint. This will allow any issues to be quickly identified and will also provide an evidence base of odour emissions for verification of any off-site impacts.

3.7.4 A summary of the proposed monitoring locations is provided in Table 6. Reference should be made to Figure 5 for a visual representation of the positions.

Table 6 Odour Monitoring Locations

Monitoring Location		Approximate NGR (m)	
		X	Y
M1	North-west corner	351125	384440
M2	North-east corner	351140	384445
M3	South-west corner	351130	384420
M4	South-east corner	351145	384425

3.7.5 The assessor will stand at the first monitoring position for three minutes and record any odour experienced. Notes on odour frequency, intensity, duration and offensiveness are recorded, as well as the prevailing meteorological conditions. The test will then be then

repeated at each remaining monitoring point around the site to determine the extent of odour impact. The results will be analysed in association with operating conditions during the survey in order to consider the most significant odour sources, how these may affect sensitive receptors around the facility and help inform any necessary mitigation.

3.7.6 The following parameters will be scored at each monitoring location during each survey:

- Odour detectability / intensity;
- Odour duration and pervasiveness;
- Character of odour;
- Odour offensiveness; and,
- Meteorological conditions.

3.7.7 Categories for the recording of odour intensity and extent are summarised in Table 7.

Table 7 Odour Intensity Scoring System

Category	Intensity Description
0	No odour
1	Very faint odour
2	Faint odour
3	Distinct odour
4	Strong odour
5	Very strong odour
6	Extremely strong odour

3.7.8 The offensiveness of any odour will be recorded in accordance with the categories shown in Table 8.

Table 8 Odour Offensiveness Scoring System

Category	Offensiveness Description
1	Less offensive
2	Moderately offensive

Category	Offensiveness Description
3	Most offensive

3.7.9 Meteorological conditions during the survey, including wind speed and direction, cloud cover, temperature and precipitation will be noted, as well as assessor name, process conditions and details of any deliveries received.

3.7.10 Where practicable, the daily surveys will be undertaken by the same member of the Operations or Management Team, except on occasions of unavailability of staff. In these circumstances, an alternative assessor will be nominated. Consideration will be provided to the sensitivity of the individual nominated to undertake the monitoring, with anyone with a poor sense of smell excluded and an alternative member of staff identified. If required by the EA, the odour sensitivity of the assessor will be determined through testing in accordance with BS EN 13725:2003 at a UKAS accredited laboratory.

Reporting

3.7.11 The survey results will be logged using the form provided in Appendix 1. It is noted that the assessor may suffer from olfactory fatigue due to constant exposure to odour from the facility. However, it is considered that the information gathered during the survey may still be used to provide an indication of odour impacts within the vicinity of the site and identify variations in recorded odour levels.

Remedial Actions

3.7.12 Should the monitoring indicate that there is the potential for detection of moderately or most offensive odours and/or pervasive odours which have an intensity score of 3 or above, potential sources will be investigated and suitable measures implemented to ensure emissions do not cause adverse effects at any sensitive location in the vicinity of the site. These may include removal or covering of material, changes to operational procedures, implementation of additional control measures or other appropriate actions deemed necessary by the Site Manager. A summary of corrective actions and contingency measures that are applicable to the identified sources at the facility is provided in the following Section.

3.7.13 Any remedial measures will be recorded using the form provided in Appendix 1.

3.8 Corrective Actions and Contingency Measures

3.8.1 Should the results of the odour monitoring indicate that there is the potential for significant odour impacts in the vicinity of the site there may be the requirement for implementation of contingency measures at the facility. In addition, corrective actions may need to be taken if the scheduled monitoring and work demonstrates system failure or a compromised level of odour control.

3.8.2 A summary of the contingency measures that are applicable to the operations at the facility is provided in Table 9.

Table 9 Contingency Measures

Scenario	Process Area / Source	Contingency Measures	Backstop Measures
Detection of moderately or most offensive odours and/or pervasive odours which have an intensity of 3 or above	Applicable to all process areas / sources	Within 1-hour of detection of moderately or most offensive odours, or pervasive odours which have an intensity of 3 or above, a full investigation will be undertaken to identify potential sources. This will initially focus on process areas and sources within the immediate vicinity of the relevant monitoring location(s) and if required, progressively extend to the rest of the facility Following identification of potential sources, contingency measures will be considered and if required implemented at the site. These may include: • Containment of materials • Removal of materials from process areas or the site, if appropriate • Repair work to restore process area/ source containment • Changes to automated and manual processes • Cleaning of process areas Further monitoring and inspection will be undertaken within 1-hour of implementation	The following backstop measures will be considered and if required utilised should the stated corrective actions fail to restore control: • Diversion of waiting deliveries to an alternative facility • Diversion of pending deliveries to an alternative facility • Suspension of operations • Instruction of emergency waste material collections Further monitoring and inspection will be undertaken within 1-hour of implementation of the relevant measure(s) in order to determine whether normal operations can be re-established

Scenario	Process Area / Source	Contingency Measures	Backstop Measures
		of the relevant measure(s) in order to ascertain whether control has been restored. Should this process indicate that there is still the potential for significant odour impacts, backstop measures will be considered and if required utilised	

3.9 Abnormal / Emergency Scenarios

3.9.1 There is the potential for increased odour emissions during certain abnormal and emergency scenarios. The relevant actions to limit impacts during these situations are outlined in Table 10.

Table 10 Abnormal and Emergency Response Scenario

Scenario	Operator Response
Failure of site infrastructure	In the very unlikely event that damage is caused to the structure of the waste transfer bays, there may be an increased potential for fugitive odour emissions. As such, appropriate repair work will be undertaken by site engineers or a specialist contractor as a matter of urgency In the event of prolonged failure of site infrastructure, a review of operations will be undertaken and if appropriate specific activities will be suspended until the relevant remedial work has been undertaken
Fire and/or explosions	A fire on site may lead to exposure of odourous materials to atmosphere, as well as emissions of odorous combustion products Any fire would be extinguished as a matter of urgency by the emergency services. This would reduce the duration of any odour effect as far as practicable Any odorous materials released by fire would be cleaned by a site operative or specialist contractor. If any infrastructure is damaged this would be repaired or replaced as a matter of urgency
Staff unavailability due to industrial action, sickness etc	Staff unavailability may affect facility operations. If this was the case emergency cover would be arranged to ensure the process was not disturbed
Extreme weather events such as prolonged rainfall, lightning strikes, flood etc	The risk of additional odour emissions due to extreme weather events is not considered significant

3.10 Odour Complaint Procedure

3.10.1 Full details of any complaints received direct to the site will be provided to the EA in accordance with requirements specified in the Environmental Permit for the facility.

3.10.2 Any received odour complaints will be dealt with by the Site Manager, or an alternative member of the Management Team in the first instance.

3.10.3 The first stage of the procedure will involve collection of basic details in regards the event, either directly from the complainant or from the EA officer reporting the incident. This will take place within 24-hours of a complaint being received and will include acquisition of the following information which will be recorded on the form included at Appendix 1 of the OMP:

- The name and address of the complainant;
- The date and time of odour detection;
- A description of the odour detected including details of the character and intensity; and,
- The duration and pervasiveness of the odour.

3.10.4 The following additional information will then be recorded on the form by the member of the team assigned to the complaint:

- The activities taking place at the time of the complaint;
- The operating conditions at the time of the complaint; and,
- The prevailing meteorological conditions.

3.10.5 After details of the complaint have been compiled, the cause(s) will be investigated. The specific procedures will depend on the nature of the incident and details provided by the EA and/or complainant. However, in most cases the process will involve identification of contributory odour sources and consideration of the following elements:

- The effectiveness of process controls;
- The effectiveness of containment measures;
- The performance of treatment systems; and,
- The effectiveness of dispersion methods.

3.10.6 Where an investigation identifies an odour issue, remedial action will promptly be implemented. The exact measures will be determined based on the odour source and the likelihood of incident reoccurrence.

3.10.7 Details of any actions undertaken in response to complaints will be recorded on the form included at Appendix 1. In addition, the OMP will be reviewed following receipt of any complaint in order to ensure that the control measures employed at the site are appropriate. Any changes made to the OMP will be recorded on the relevant form included at Appendix 1.

3.11 Odour Diary

3.11.1 All sniff testing results and associated reporting forms will be filed within an Odour Diary. This will form a permanent record of odour issues associated with the site and can be used should investigation of complaints or other concerns be necessary. Details of any received complaints and associated remedial actions will also be archived. The Odour Diary will be kept on-site at all times and will be available for inspection by the EA upon request.

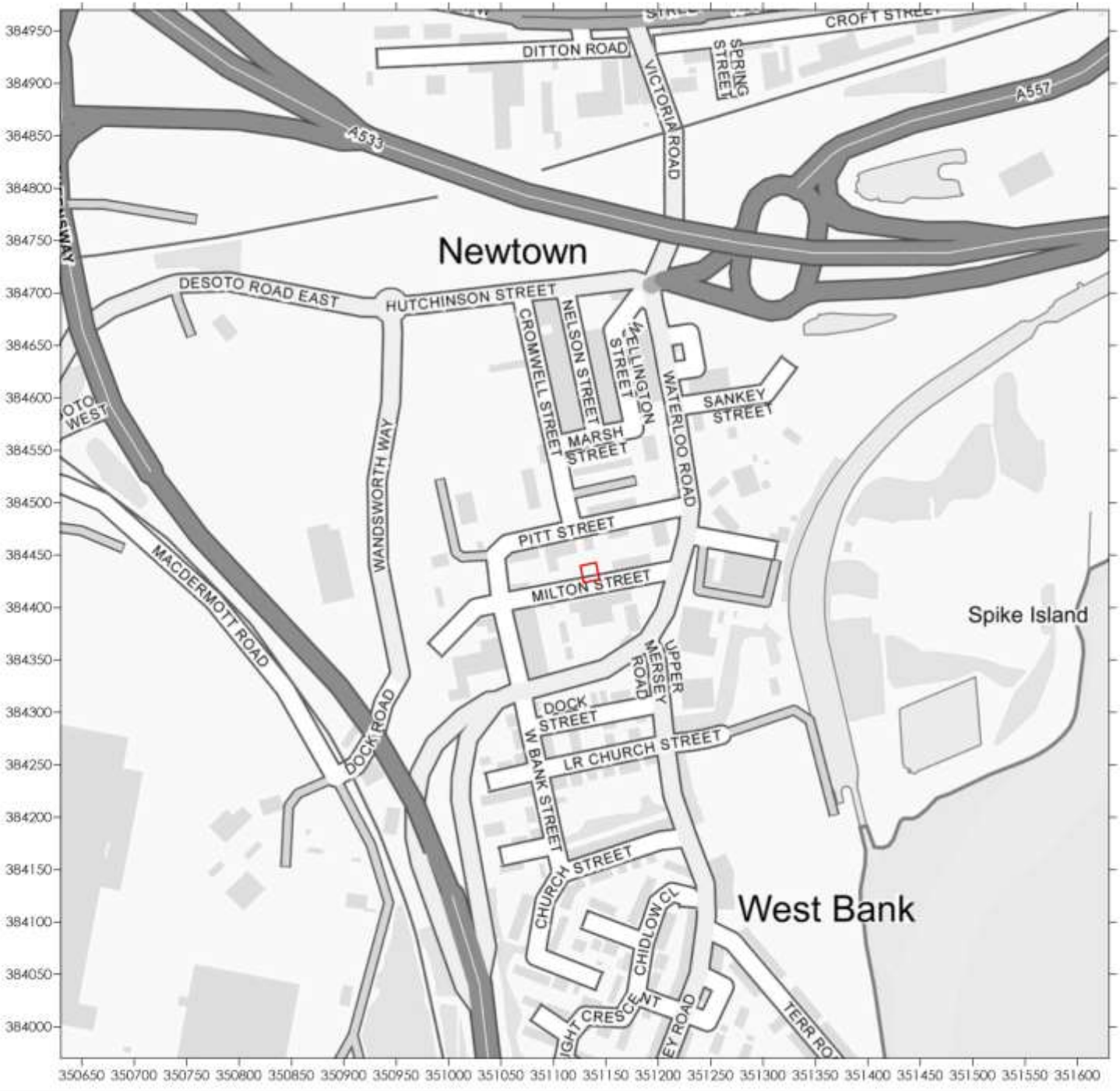
3.12 Odour Plan Review Procedure

3.12.1 The OMP shall be reviewed at least once every 12-months or as soon as practicable after a complaint (whichever is the earlier) and changes recorded in the format shown in Appendix 1.

4.0 ABBREVIATIONS

DEFRA	Department for Environment, Food and Rural Affairs
EA	Environment Agency
NGR	National Grid Reference
OMP	Odour Management Plan
WTF	Waste Transfer Facility

Figures



Legend

Waste Transfer Facility

Title
Figure 1 - Site Location

Project
Odour Management Plan
RAM Safety Solutions UK Ltd,
Pitt Street, Widnes

Project Reference
4482

Client
RAM Utility Solutions Ltd

Redmore environmental
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Legend

Title
Figure 1 - Site Layout

Project
Odour Management Plan
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Pitt Street, Widnes

Project Reference
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RAM Utility Solutions Ltd

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Legend

Waste Transfer Facility

Sensitive Receptor

Title
Figure 3 - Sensitive Receptor Locations

Project
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Pitt Street, Widnes

Project Reference
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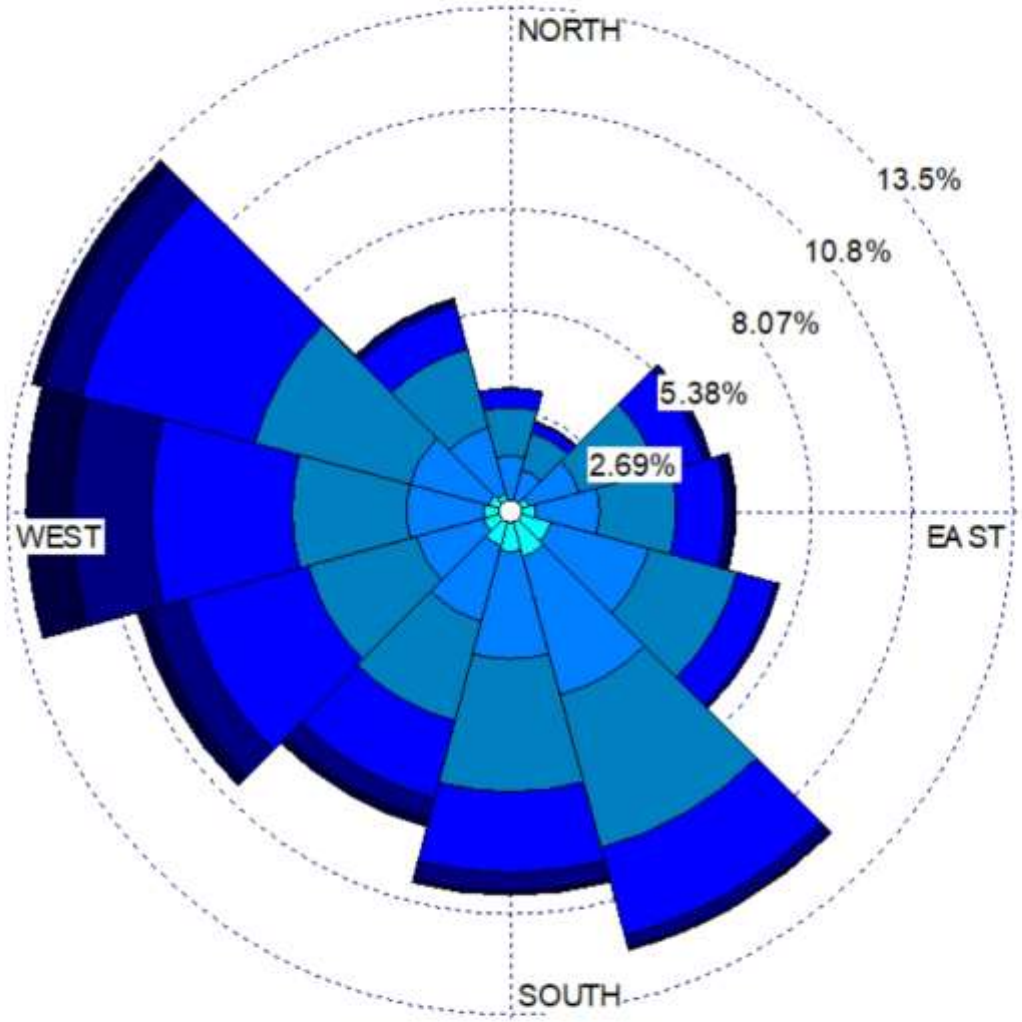

Legend

WIND SPEED (m/s)

- >= 11.10
- 8.80 - 11.10
- 5.70 - 8.80
- 3.60 - 5.70
- 2.10 - 3.60
- 0.50 - 2.10

Calms: 0.61%

Title
Figure 4 - Wind Rose of 2015 to 2019 Liverpool John Lennon Airport Meteorological Data

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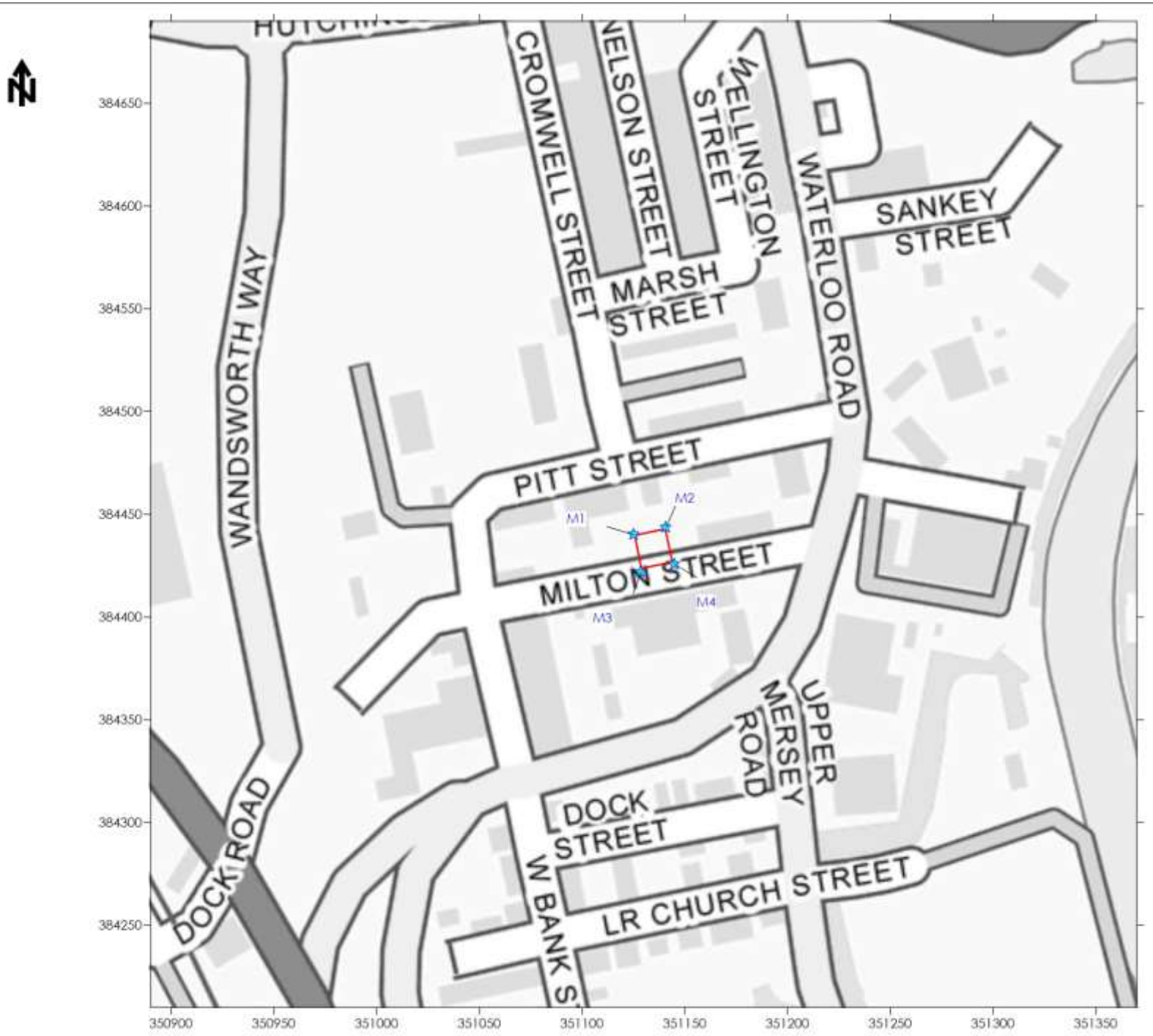

Legend

- Waste Transfer Facility
- Monitoring Location

Title
Figure 5 - Odour Monitoring Locations

Project
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Pitt Street, Widnes

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Appendix 1 - Reporting Forms

REPORTING FORM: ODOUR 1 - AMBIENT SNIFF TESTING

NOTE: This form should be used for recording results from ambient sniff testing surveys. All fields should be completed in full.

Reporting of odour level on (date):.....

Table 1 Ambient Sniff Testing Monitoring Results

Parameter	Sniff Testing Monitoring Results			
	Location 1	Location 2	Location 3	Location 4
Time of test				
Description of location				
Weather conditions (e.g dry, rain etc)				
Temperature (°C)				
Wind strength (e.g light, strong, gusting etc)				
Wind direction (e.g from NE)				
Odour Intensity (1 to 6)				
Duration of test				
Pervasiveness during test				
Potential odour sources				

Monitoring undertaken by:

Additional observations from monitoring personnel during testing:

Details of any required amendments to Odour Management Plan or site operation:

Signed:

Date:

REPORTING FORM: ODOUR 2 - COMPLAINT REPORTING FORM

NOTE: This form should be used for recording details of any odour complaints.

Reporting of odour complaint on (date):

Name, telephone number and address of complainant:

Details of complaint:

Date, time and duration of odour:

Description of odour including character, intensity, duration and pervasiveness:

Meteorological conditions during incident:

Potential sources or activities that could give rise to odour during incident:

Operating conditions at time of incident:

Date and time of complaint follow up call:

Action taken:

Details of any required amendments to Odour Management Plan or site operation:

Signed:

REPORTING FORM: ODOUR 3 - ODOUR MANAGEMENT PLAN AMENDMENT FORM

NOTE: This form should be used for recording details of any amendments to the Odour Management Plan. All fields should be completed in full.

Date of Review	Detail of Amendment	Signature