Crown Transfer Station 2

Odour Management Plan

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1 Introduction

1.1 Report Objectives

This Odour Management Plan (OMP) supports a bespoke permit application by Crown Waste Management Limited (the Operator) at Crown Waste Transfer 2, Pool Road Industrial Estate, Pool Road, Nuneaton, CV10 9AE (the Site).

This OMP is part of the Environment Risk assessment (ERA) report (referenced: K4554-BLP-R-ENV-00008) for the Site and as such should be read in conjunction with the ERA. Reference has been made to Environment Agency (Agency) guidance[1].

1.2 Site Location and Access

The Site is located 1.5km west of Nuneaton and is centred on an approximate National Grid Reference of SP 34686 92298 and is located within Pool Road Industrial Estate which comprises predominantly industrial businesses.

The Site occupies 0.3 hectares of land, with the main concreted yard area where waste materials are stored and processed covering around 0.2 hectares. The site operates as a satellite of the permitted Waste Transfer Station (WTS1) operated within Pool Road Industrial Estate by the Operator under existent permit reference EPR/EP3192FU. The proposed site (WTS2) currently operates under storing and treating waste exemptions and this application is for a bespoke permit for a household, commercial and industrial waste transfer station.

The Site will store baled plastic, cardboard, wood, soils & stones, general mixed waste, metal, green waste, and plasterboard. The Site also provides skip and vehicle storage. The proposed treatment activities will be limited to treatment of construction and demolition wastes to produce a saleable aggregate via a hopper, screener and picking station.

The site is accessed via an existing gated access off Pool Road. Existing fencing will be repaired (where necessary), utilised and maintained. The northwest corner of the Site is bounded with Lego Concrete Blocks with corrugated fencing. The internal fencing between the two previous separate yards has been removed. A mixture of 3m high solid profiled sheeting screen fences and palisade fences are installed around the remaining site. A notice board will be provided at the site gate with the permit details and the Agency's contact details.

No new buildings will be constructed onsite, and waste will be weighed in and sorted at the permitted WTS1 prior to storage at the Site.

Surface water runs from north to south and is directed to a drain towards an interceptor and silt trap before existing via foul sewer. Kerbing, minimum height > 0.1 m, will be installed around the permitted of the Site to create a sealed system.

[1] Control and monitor emissions for your environmental permit - GOV.UK (www.gov.uk)

The Site Layout is shown on drawing reference 4554/4/003.

2 Odour Source Term Characterisation

2.1 Odour Source

2.1.1 Onsite Odour Emissions

Waste will be weighed in, registered and checked at the permitted WTS1. Incoming waste from the permitted WTS1 will be delivered in wagons with sheeted bodies through the entrance gate and deposited in the appropriate storage area along the site. The nature of the waste accepted at the Site will be mainly consisting of a non-hazardous, non-bio waste producing a low risk of odour emissions. Treatment consisting of separating and screening of construction and demolition wastes are unlikely to be odorous.

Table 1 summarises the potentially odorous wastes to be accepted at Site. This material has the potential to generate odours from the following if not manged correctly:

- Odours from stored wastes (prior to transfer); and
- Odours during loading and unloading.

Waste Stream	Storage	Maximum Storage Time	EWC Code	EWC Description	Odour Potential (High, Medium, Low)
Green / Bio Waste	Concrete Bay	1 day	20 01 08	biodegradable kitchen and canteen waste	High – contains biodegradable and putrescible material
			20 02 01	Biodegradable waste (garden and park)	Medium – contains biodegradable and putrescible material
Quarantine Skip	14 Yard Skip	48 hours	-	-	High – contains biodegradable and putrescible material

Table 1. Potentially Odorous Wastes

Table 2 summarises the potentially odorous wastes that are not currently accepted at Site but may be accepted in small discrete loads. Any wastes listed in the permit but not included in Table 1 or 2 are not considered to have a significant odour potential.

Waste Stream	Storage	Maximum Storage Time	EWC Code	EWC Description	Odour Potential (High, Medium, Low)
Small Discrete Loads	Concrete Bay	1 week	02 01 03	Plant-tissue waste	High – contains biodegradable and putrescible material
			02 01 07	Waste from forestry	
			02 02 03	Material unsuitable for consumption or processing	
			02 03 04	Material unsuitable for consumption or processing	
			02 05 01	Material unsuitable for consumption or processing	

Waste Stream	Storage	Maximum Storage Time	EWC Code	EWC Description	Odour Potential (High, Medium, Low)
			02 06 01	Materials unsuitable for consumption or processing	
			02 07 04	Materials unsuitable for consumption or processing	
			17 05 06	Dredging spoil other than those mentioned in 17 05 05	
			19 05 01	Non-composted fraction of municipal and similar wastes	
			19 05 02	Non-composted fraction of animal and vegetable waste	
			19 05 03	Off-specification compost	
			20 03 01	Mixed municipal waste	Low – potential for incidental biodegradable and putrescible material to be present

Table 2. Other Odorous Waste

2.1.1.1 Green Waste

Green waste is delivered to the Site during the day by road-going waste vehicles. The vehicle will be weighed in, registered and checked at the permitted WTS1, the driver is asked if the waste has been collected on the same day or if the waste has been left in the vehicle overnight.

If the collection has been completed during that day it will be transferred to Crown Waste Transfer 2 and tipped in the green/bio waste bay.

If the vehicle has waste from the previous day it is asked to leave site or park up and wait till the outbound collection vehicle arrives at which time the load is allowed to be tipped and re-loaded immediately onto the outbound collection vehicle. The customer is informed immediately if the waste is malodorous.

Depositing the waste in the bay has the potential to expose any potentially odorous waste to atmosphere. Care will therefore be taken to deposit fresh loads of waste in a controlled manner. All Green waste is removed from Site by the end of the working day.

A number of control measures are in operation at the Site to minimise odour. The control measures are provided in Section 3.

2.1.1.2 Small Discrete Loads

The Site is currently permitted to accept the odorous waste types listed in Table 2 which have an odour potential due to the biodegradable and putrescible content of this material. These wastes are however not currently accepted at Site.

If discrete loads of the types of waste in Table 2 are accepted at Site, they will be stored in discrete load storage bay.

2.1.1.3 Other Waste

Other waste will be deposited onsite directly onto the impermeable yard surface that is designated for that waste stream prior to removal offsite. Only construction and demolition waste will be treated via a hopper, screener and picking station to produce saleable aggregate prior to removal from Site. These wastes are considered to have a low potential for odour generation and will not be considered further in this report.

2.1.2 Offsite Odour Emissions

The site is neighboured by two other open yards and a number of commercial / industrial buildings. These activities have potential to generate their own odour emissions.

3 Odour Management and Control

3.1 Waste Acceptance

Control of incoming wastes will be managed according to the Operator's waste acceptance procedures. The waste acceptance protocols aim to identify non-permitted waste which will be rejected and redirected to the customer, to an appropriate permitted disposal facility or temporarily stored in a closed and lockable 14-yard quarantine skip.

All vehicles delivering waste to the Site will be under the control of Site staff, all of whom have been trained in the procedures for the receipt and rejection of waste. Wastes are inspected by the driver of the collecting vehicle as far as is possible before collection and again by Site operatives prior to the load being tipped to ensure that the waste delivered conforms with the description on the Waste Transfer Note and can be accepted onsite. Until this is done the waste is not tipped

Waste is received on-site on a load-by load basis. Waste will only be brought to the Site after it has been weighed in, registered and checked at the permitted WTS1. Wagons with sheeted bodies will enter the Site via the entrance gateway, tip the waste in the designated area and leave by the exit gateway as shown on the Site Layout Plan.

Records of received wastes will be made and retained in accordance with the Duty of Care. The following records will be retained for each load of waste delivered:

- Date and time of delivery;
- Vehicle details (registration);
- Description (including any associated strong odours);
- Origin (if known); and,
- Quantity.

3.1.1 Waste Rejection

Wastes delivered to the Site that is not within its permit or that is identified as malodorous will be rejected and redirected to the customer, to an appropriate permitted disposal facility or temporarily stored in a closed and lockable 14-yard quarantine skip. A record will be made of wastes found not to be permitted. This may include:

- Nature and quantity of waste load;
- Name and address of waste producer / waste carrier;
- Waste carrier registration number;
- Vehicle registration number; and
- Date and time of load rejection.

All non-permitted waste and / or malodorous waste will be transported offsite at the end of the working day. The Agency shall be informed.

3.1.2 Quarantine

The Chartered Institute of Wastes Management (CIWM) and the Waste Resources Action Programme (WRAP) commissioned a review[2] that considered the odour generation potential of stored residual municipal waste. The review reports typical odours that may be generated from residual municipal waste include those linked to microbial decomposition of the organic fraction and those associated with packaging materials and household products such as detergents. In general, typical odour compounds are reported to include:

- VOC's including chloro-organics;
- Hydrogen sulphide (rotten eggs);
- Mercaptans (rotten vegetation e.g. cabbage); and,
- Amines (fishy smell).

Additionally, it has been reported that alkanes, alkybenzenes and terpenes have been responsible for undesirable odours from kerbside waste containers[3].

Any waste considered to have the above odour compounds will either be rejected at the weighbridge and returned to the origin site if possible or will be segregated and transferred to the quarantine skip. The quarantined waste is removed off-site within 48 hours or by the end of the working day for malodorous waste. The odour suppressant system will be deployed whilst the malodorous quarantined waste is on-site.

3.1.3 Storage and housekeeping

Waste management policies will be in place to ensure that wastes of a biodegradable nature which bring potential for odours are to be stored within the correct area and stored onsite for a maximum of 24 hours to prevent decomposition type odours.

To minimise odour good housekeeping and inspection procedures will be maintained. This includes the removal of all waste from the tipping floor at the end of each operating day and the cleaning of these areas. Cleaning and disinfection of all surfaces that come into contact with waste (including containers) on a regular basis. The quarantine skip will be cleaned using a pressure hose on a regular basis to ensure that lingering odours are eliminated.

3.1.4 Monitoring

Olfactory monitoring will be undertaken by the Site Manager, the time and location of these checks will be recorded in the Site Diary. Odour is also monitored continuously by the

[2] Scoping Study of Potential Health Effects of Fortnightly Residual waste Collection and Related Changes to Domestic Waste Systems, Final Report, July 2009

[3] Statheropoulos M., Agapiou A., Pallis G. (2005) A study of volatile organic compounds evolved in urban waste disposal bins. Atmospheric Environment 39:4639–4645

operatives in the course of their duties. Any odours detected which have potential to be registered offsite will have the source identified and removed from site immediately. Any such events and the remedial actions taken will be recorded in the Site Diary.

The Operator has a complaints procedure in place. If an odour complaint is made then a complaint form will be filled out and a note made in the Site Diary. All complaints will be dealt with promptly and any appropriate remedial action will be taken and documented.

3.1.5 Odour Suppression System

The Site has an odour suppression system known as a Quattro 4-in-1 Effective Defence to minimise odour. Odour neutralisers can be added to the suppression system if required. A pacific nozzle line system is fixed around the green waste storage bay and the numerous other attachments allows for direct application to other areas of Site if necessary. The datasheet is attached as Appendix B.

During adverse weather conditions i.e. strong winds waste management operations will cease to prevent potential odour emissions. During periods of high temperatures, the site manager will consider spraying the green waste with odour suppressants.

3.1.6 Drainage

Surface water runs from north to south and is directed to a drain towards an interceptor and silt trap before existing via foul sewer. The drainage system will be regularly inspected, maintained and repaired as necessary. It will be cleaned when deemed necessary.

In the unlikely event that odour should become an issue as a result of the on Site drainage system, a full review of the infrastructure will be conducted and cleaning and inspection frequencies adjusted accordingly.

3.1.7 Regular Review of Control Measures

The above procedures will be reviewed on a regular basis. The control measures will be reviewed as a matter of course if:

- A complaint is received;
- An accident occurs on site resulting in odour emissions;
- If new plant is brought onsite;
- If new working procedures are planned; and, If additional wastes are to be accepted onsite.

4 Odour Pathway Characterisation

4.1 Overview

The principle mechanism for the transit of odorous emissions from Site operations to adjacent sensitive receptors is via ambient air. The distance and direction that these emissions will be carried is determined by the following factors:

- Source Related Pathways;
- Meteorological Conditions; and
- Topography.

4.2 Meteorological Conditions

4.2.1 Wind Direction

The prevailing wind direction will determine which receptors will be affected and at what frequency. The main controlling factor in determining the pathway of odour is the ambient meteorological conditions. This is fundamental to the transportation of odour to sensitive receptors.

4.2.2 Wind Velocity

Wind velocity will affect the distance an odour emission will travel. Conversely, increased wind speed could also beneficially improve dispersal. Those receptors closest to the installation are still at the highest risk of a potential negative impact however.

Meteorological data from Nuneaton[4] is expected to provide representative meteorological data for the area. The windrose reproduced as Figure 1 indicates a wind direction from the prevailing south-south-east.

[4] Nuneaton Wind Forecast, Warwickshire CV11 4 - WillyWeather

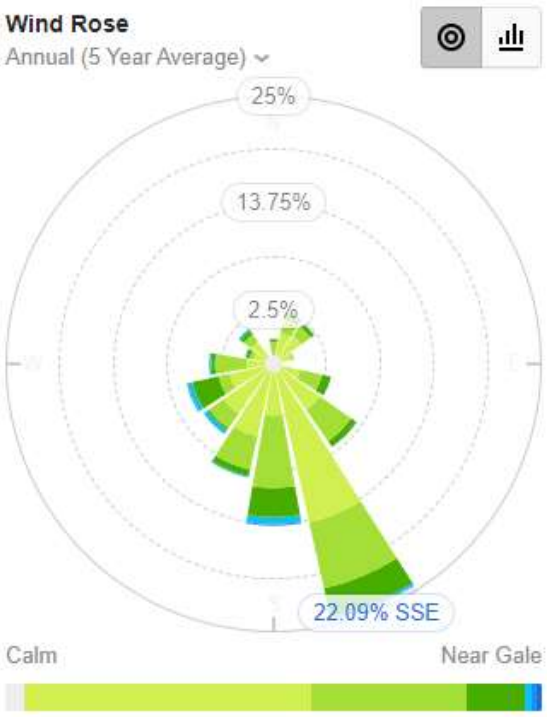


Image 1. Windrose Nuneaton

4.2.3 Air Temperature

Warm air may carry odours upwards by convection for their dispersal away from the Site. However, warm weather will encourage the onset of biodegradation of exposed or temporarily stored wastes and therefore increase odour potential.

4.2.4 Adverse Weather Conditions

Unusual weather conditions may increase the risk of odour emissions from the Site. Site staff will be vigilant to unusual trends in the meteorological data or forecasts which may indicate strong winds or extremes of temperature which may cause a potential problem. The types of weather conditions that may impact on odour generation and emissions and appropriate contingency actions are detailed in section 6 below.

4.3 Sensitive Receptors

The nearest sensitive receptors to the Site are identified in drawing reference 4554/4/001A, attached as Appendix A. The distance of these receptors to the Site boundary, their direction relative to the Site and the frequency the wind blows in the direction of the receptor is detailed in Table 3. Distance has been measured from the Site boundary.

Number	Receptor	Description	Distance from Site	Direction from Site	Freq. of Prevailing Wind
1	Bar Pool Brook	Watercourse	<10	N	13.6
2	Ennell Road / Arrow Road	Road	96	N	13.6
3	Properties off Willow Road	Residential	140	N	13.6
4	Holly Stitches Dell	Local Wildlife Site	151	N	13.6
5	Coastal and Floodplain Grazing Marsh	Protected Habitats	<10	NNW to NE	22.1 to 7.2
6	Arleigh Internation / Midland Chandlers Head Office	Commercial	51	NNE	9.8
7	Unamed Pond	Waterbody	132	NNE	9.8
8	Tuttle Hill	Road	362	NNE	9.8
9	Residential Properties off Corrib Road	Residential	128	E	5.5
10	Coventry Canal	Watercourse	195	ESE	2.5
11	Pool Road Industrial Estate	Commercial / Industrial	<10	E to W	5.5 to 0.7
12	Railway Line	Railway	187	SE	3.6
13	Playing Fields	Recreational	248	SE	3.6
14	MacIntyre's Discovery Academy	School	355	SE	3.6
15	Allotment Gardens	Recreational	168	S	2.1
16	Properties off Vernons Lane / Black - A - Tree Road	Residential	227	S	2.1
17	Pool Road	Road	<10	S	2.1
18	Hilary Road	Road	155	WSW	1.8
19	Properties off Hilary Road / Mapel Road	Residential	166	WSW	1.8
20	Whittleford Park and Barpool Valley	Local Wildlife Site	110	NW	8.6
21	Judkins Quarry Complex – HWRC & Bio-Waste Facility	Industrial	485	NE	7.2

Table 3. Sensitive Receptors within 500m

The Nature and Heritage Conservation Screen (EPR/KB3703LA/A001) identified two Local Wildlife Sites (LWS), Holly Stiches Dell and Whittleford Park and Barpool Valley. It also identified the protected habitat coastal and floodplain grazing marsh. No European Site, Ramsar Site or Site of Special Scientific Interest (SSSI) were identified. The Screen is attached to the ERA.

A review of Magic Maps[5] showed other priority habitats within 500m including Deciduous Woodland and Woodland. These habitats are features of the two LWS and will be considered as part of the LWS in this report.

[5] Magic Map Application (defra.gov.uk)

5 Odour Risk Assessment

5.1 Risk Assessments

The risk potential to each receptor as identified in Section 4 and shown on drawing referenced 4554/4/001A from odour generated at the Site is presented in Table 4 below. This table evaluates the nuisance to sensitive receptors from odour emissions and the control measures to be implemented at the Site in order to minimise this risk, producing a revised residual risk to receptors.

Table 4. Odour Risk Assessment and Action Plan

Hazard / Pathway	Receptor				Probability of Exposure	Unmitigated Consequence	Initial Risk	Risk Management	Mitigated Risk
	No.	Dist.	Direc.	Freq.					
Odour through the air: from wastes received and Site operations	1	<10	N	13.6	High – close to Site, frequently downwind	Low – not a nuisance to watercourses	Low	The waste acceptance protocols aim to identify non-permitted waste and malodourous waste which will be rejected and redirected to the customer, to an appropriate permitted disposal facility or temporarily stored in a closed and lockable 14-yard quarantine skip.. All wastes are stored outside within bays on concrete hard standing with sealed drainage systems. Routine cleansing of the Site is undertaken as required. In addition, staff will be instructed to ensure that all external areas of the Site are clear of any litter or other wastes. Regular olfactory monitoring will be conducted. The Site has onsite odour suppression system which can be utilised to reduce evaporative odour generation within the storage bays if required. Drainage infrastructure is inspected, maintained and repaired as necessary. All events or complaints received associated with odour will be documented in accordance with the Sites Complaint Procedure.	Low
	2	96	N	13.6	High – close to Site, frequently downwind	Low – road transient nuisance	Medium		
	3	140	N	13.6	High – close to Site, frequently downwind	High – nuisance to residents	High		
	4	151	N	13.6	Medium – proximity to Site, frequently downwind	Low – not a nuisance to habitats	Low		
	5	<10	NNW - NE	22.1 - 7.2	High – close to Site, frequently downwind	Low – not a nuisance to habitats	Low		
	6	51	NNE	9.8	Medium – close to Site, infrequently downwind	High – nuisance to workers	Medium		
	7	132	NNE	9.8	Medium – close to Site, infrequently downwind	Low – not a nuisance to waterbody	Low		
	8	362	NNE	9.8	Low – distant to Site, infrequently downwind	Low – road transient nuisance	Low		
	9	128	E	5.5	Medium – close to Site, occasionally downwind	High – nuisance to residents	Medium		
	10	195	ESE	2.5	Medium – proximity to Site, occasionally downwind	Low – not a nuisance to watercourses	Low		
	11	<10	E - W	5.5 - 0.7	Medium – close to Site, occasionally downwind	High – nuisance to workers	Medium		
	12	187	SE	3.6	Medium – proximity to Site, occasionally downwind	Low – railway transient nuisance	Low		
	13	248	SE	3.6	Medium – proximity to Site, occasionally downwind	Medium – open space nuisance to users	Medium		
	14	355	SE	3.6	Low – distant to Site, occasionally downwind	High – nuisance to students	Medium		
	15	168	S	2.1	Medium – proximity to Site, occasionally downwind	Medium – open space nuisance to users	Medium		
	16	227	S	2.1	Medium – proximity to Site, occasionally downwind	High – nuisance to residents	Medium		
	17	<10	S	2.1	Medium – close to Site, occasionally downwind	Low – road transient nuisance	Low		
	18	155	WSW	1.8	Medium – proximity to Site, occasionally downwind	Low – road transient nuisance	Low		
	19	166	WSW	1.8	Medium – proximity to Site, occasionally downwind	High – nuisance to residents	Medium		
	20	110	NW	8.6	Medium - proximity to Site, infrequently downwind	Low – not a nuisance to habitats	Low		
	21	485	NE	7.2	Low – distant to Site, infrequently downwind	High – nuisance to workers	Medium		

6 Community Engagement, Reporting & Contingencies

6.1 Overview

Prevention will be viewed as the most effective means of controlling odour before an impact occurs. The Source → Pathway → Receptor model determined above allows for the identification of the critical control points where odour can arise, how it can travel to a receptor and the likely impact.

The performance of an OMP will ultimately be judged by the impact of the Site on the receptors. Should complaints be received, a procedure will be in place to effectively deal with the issue in a sensitive, efficient and auditable manner.

The controls are detailed in previous sections of this report. The management of those controls will be based on the on-going monitoring regime on Site. The monitoring regime can work as an early warning system against potential problems (e.g. meteorological monitoring) or a diagnostic tool to establish the cause of an odour event (e.g. perimeter monitoring).

6.2 Monitoring

6.2.1 Olfactory

The Site is monitored daily for odours by the Site Manager and the time and location of these checks will be recorded in the Site Diary. Due to the potential for de-sensitisation to odours, odour monitoring will only be carried out by personnel who do not regularly work at the Site. These personnel will be the most suitable to detect any fugitive odour outside the Site.

Off-Site olfactory monitoring will also be carried out with reference to the protocol in Appendix 1 of the Agency H4 Odour Management Guidance[6]. All Site operatives will be responsible for reporting any odour problems as soon as practicable to the Site Manager or the next level of management if the manager is not available.

The following locations will be targeted for odour monitoring by the nominated Site personnel:

- Continuous monitoring of vehicles;
- Point of waste deposition;
- Green waste, and quarantine storage areas; and
- Downwind of the Site, just outside the Site boundary.

The following information will be recorded during each round of monitoring:

[6] Environmental permitting: H4 odour management - GOV.UK (www.gov.uk)

- Name and job position of assessor;
- Nature of any problem identified including location / source, date, time, duration, prevailing weather conditions and likely cause;
- On-Site activities and operational condition at the time of the monitoring visit (this should include any abnormal events detailed in Section 6.5 below);
- Records of the likely source of any odour even if it is not from the Site; and
- Details on the corrective action taken, realistic timeframes for remedial works and any subsequent changes to monitoring and operational procedures.

The Site Manager will be informed immediately of any findings of odour attributed to the Site and will authorise remedial measures to be taken.

6.2.2 Complaints

Any complaints received at the Site or via the Regulatory bodies including the Agency and Local Authority, will be recorded in the Site Diary. This will instigate further olfactory monitoring at the location of the complaint and on Site to determine the extent of the odour and whether the odour suppressant system should be employed. Where possible, as much information and detail about the complaint will be recorded, whether this is from the relevant authority or complaint direct to Site. This information will assist in the investigation and determining the source of the odour e.g. differentiating between potential off-Site odours.

All complaints and queries will be logged in accordance with the Operator's Environmental Management System (EMS) as soon as is practicably possible. All complaints logged will be subject to investigation and complainants responded to within 48 hours of receipt, where possible.

In the event that a substantiated odour complaint is received arising from the Site, additional monitoring will be undertaken at the nearest sensitive receptors to determine any off-Site odour emissions.

Complaints regarding odour from the Site will be investigated in accordance with the protocol, and appropriate records maintained which may include:

- Complaints received including name and contact details of complainant (if known), and complainants description of the odour;
- Nature of problem including date, time, duration, prevailing weather conditions and cause of the problem;
- Onsite activities and operational condition at the time of the complaint;
- Records of the likely source of the odour even if it is clearly not from the Site; and,
- Details on the corrective action taken, and any subsequent changes to monitoring and operational procedures.

The Agency will be informed by the operator of the complaint and the operator will confirm to the best of its knowledge the information described above.

The operator will ensure that the complainant has all the relevant contact details of the Site (i.e. the Site Manager) and the officer responsible at the Agency. The operator will be in regular contact with the complainant and the Agency whilst the cause of the odour is being investigated and remediated.

An evaluation of the effectiveness of the techniques used will be carried out on completion of any remedial measures or if the complaints persist. Records of the above will be retained by Site for future reference.

6.3 Means of Contact

The Site will be readily contactable to outside organisations and to members of the public. The Site signage board (placed in a readily visible location) will contain the necessary contact details for both the Site operations and the Agency. The company website also contains the necessary contact details for each individual Site.

Crown Waste Management | Crown Skips | Cheap Skip Hire

Any complaints received directly to Site will be notified to the Agency. Should an off-Site issue arise, therefore, the complainant has a readily available means of getting in touch with the Operator.

6.4 Complaints Investigation

As part of each odour complaint received, these will be objectively assessed against the wider environment to ensure that the source of the emission is traced back to the correct source. As discussed earlier in this OMP, it is essential that the source is correctly identified in order that mitigating measures can be applied effectively and correctly. The complaint will also be assessed against previous records to place the nature of the complaint into context.

6.5 Abnormal Events

6.5.1 Temperature Inversion

The conditions that can facilitate a temperature inversion (warm odorous air trapped beneath a layer of cold air under still conditions) can be predicted by simple regard to weather forecasts. If such conditions look possible, particular scrutiny will be given to on-Site practices and waste will be transferred from the Site. Olfactory monitoring (detailed in Section 6.2 above) will focus on the down-wind boundaries of the Site to monitor for the early signs of low level odour movement.

6.5.2 Strong Winds

Daily visual inspection of the Site infrastructure will be undertaken and recorded. Additional inspection for damage resulting from high wind events will also be undertaken and contingency actions identified below considered should high wind conditions result in escape of significant odours. The odour suppression system may be employed to limit the potential for any odour emissions.

6.5.3 Snow / Ice

Severe cold weather may result in disruption to waste deliveries and removal of materials from Site. Disruption to collection rounds may result in waste delivered to Site that has been stored at the point of production for longer than anticipated. However the corresponding colder temperatures are likely to compensate for the increased storage time and result in waste with similar odour generation potential as would normally be expected. Inability to remove waste from Site as a result of severe weather conditions is likely to coincide with the inability to deliver waste to the Site. As a result the most likely scenario is a short term need to store waste.

6.5.4 Hot Conditions

The warmer the waste the greater the potential to generate odour therefore an increase in ambient air temperature may result in increased odour from incoming wastes and wastes stored outside. Daily inspections will be undertaken of the waste to ensure waste delivered to the Site is removed as soon as practical and stockpiles of waste are kept to an operational minimum. During prolonged periods of hot weather inspection frequency will be increased, the surface area of stored waste will be kept to a minimum. Olfactory monitoring will be undertaken daily as detailed in Section 6.2.

6.5.5 Implementation of Contingency Plan and / or Emergency Plan

Should unscheduled maintenance be required, for example during emergency situations, Site staff will implement measures to clear stored wastes and divert incoming wastes as required and the Site Manager will notify the Agency.

Table 5. Contingency Plan

Issue	Period	Contingency Plan
Actions for waste deliveries Site not available as the delivery location e.g. complete power failure / structural failure, storage capacity full	1 day	Direct delivery to alternative facility
	Up to 72 hours	Direct delivery to alternative facility
	1 week	Direct delivery to alternative facility
	1 month	Direct delivery to alternative facility
	3 months or longer	Identify alternative long term delivery point – potentially temporary transfer station
Actions for waste already on Site Site not available as the delivery location e.g. complete power failure / structural failure, storage capacity full.	1 day	Monitor situation
	Up to 72 hours	Removed stored waste to alternative facility
	1 week	Direct delivery to alternative facility
	1 month	Direct delivery to alternative facility

Issue	Period	Contingency Plan
	3 months or longer	Identify alternative long term delivery point – potentially temporary transfer station

The Contingency Plan and Emergency Plan will be reviewed following any incident where they have had to be followed. They will be updated as necessary with any lessons learned.

6.6 Records and Review

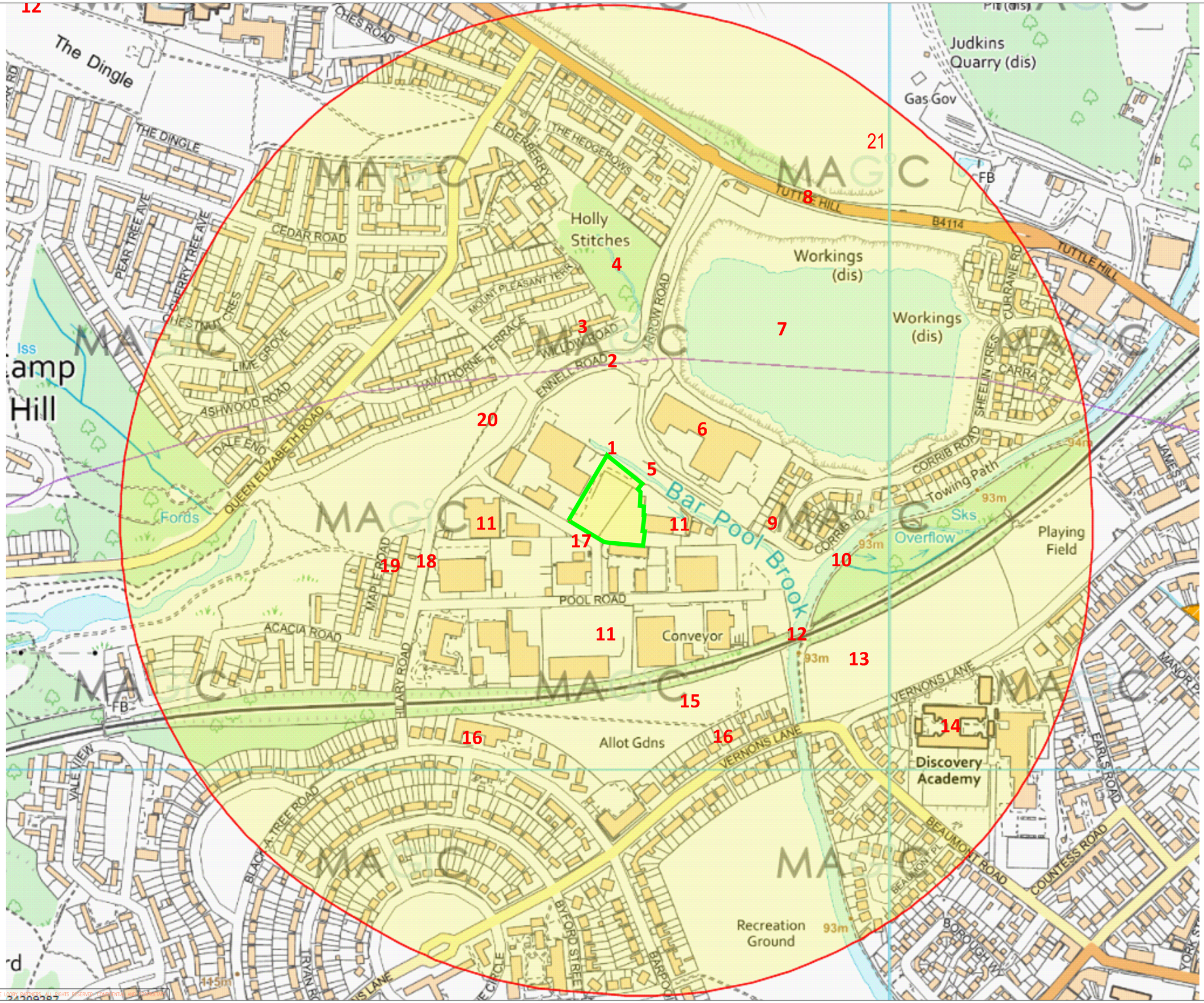
A daily record relating to the management and monitoring of odour will be maintained. It will include the following details:

- The results of inspections and olfactory monitoring carried out by installation personnel;
- Weather conditions including atmospheric pressure, wind speed and wind direction;
- Problems including date, time, duration, prevailing weather conditions and cause of the problem;
- Complaints received including address of complainant; and
- Details of the corrective action taken, and any subsequent changes to operational procedures.

The OMP will be reviewed on an annual basis with the scheduled review of the EMS or with every major decrease, or alteration to the odour generated at Site (i.e. a change to odour source term, pathways or receptors).

Appendix A – Drawings

A1



GENERAL NOTES

NOTES:

1. ALL DIMENSIONS IN MILLIMETRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM.

2. DO NOT SCALE FROM THIS DRAWING.

3. ANY ANOMALIES IDENTIFIED WITH THE DETAILS SHOWN ON THIS DRAWING ARE TO BE BROUGHT TO THE ATTENTION OF BYRNE LOOBY PRIOR TO CONSTRUCTION WORKS COMMENCING.

LEGEND:

- **Permit Boundary**
- **500m Buffer Zone**
- (1) **Receptor Marker**

No.	Date	Description	By	Chk	App.

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CLIENT

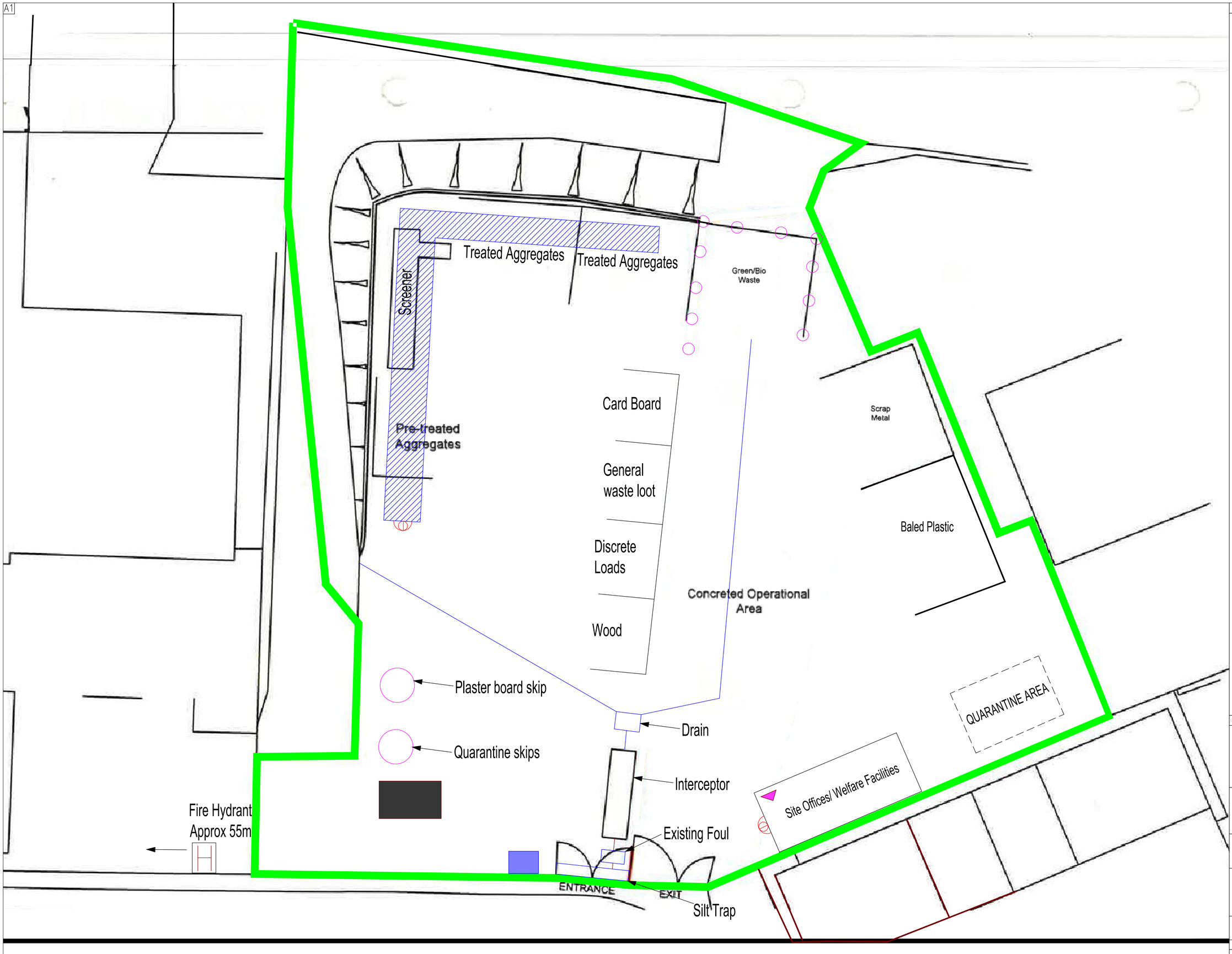
PROJECT: Crown Transfer Station 2

DRAWING TITLE: Receptor Plan

STATUS: FOR CONSTRUCTION

Date: 21/04/22	Scale: N/A	Drawn: JM	Chk: MR	Appr: JB
Project No.: 4554	Drg. No.: 4554.4.001			Rev.: 00

A1



GENERAL NOTES

NOTES:

1. ALL DIMENSIONS IN MILLIMETRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM.

2. DO NOT SCALE FROM THIS DRAWING.

3. ANY ANOMALIES IDENTIFIED WITH THE DETAILS SHOWN ON THIS DRAWING ARE TO BE BROUGHT TO THE ATTENTION OF BYRNE LOOBY PRIOR TO CONSTRUCTION WORKS COMMENCING.

LEGEND:

- Permit Boundary
- Picking Station
- Drainage Pipe
- Spray Bar Motorised Odour Neutraliser
- Fire Extinguisher
- Approximate Location Of Fire Hydrant
- Mains Water Supply
- Fuel Tank
- Quarantine Area
- Spill Kit

Rev	Date	Description	By	Chk	App

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CLIENT

PROJECT
Crown Transfer Station 2

DRAWING TITLE
Site Layout Plan

STATUS
FOR CONSTRUCTION

Date: 21/04/22	Scale: N/A	Drawn: JM	Chk: MR	App: JB

Project No:	Drg. No:	Rev:
4554	4554.4.003	00

Appendix B – Quattro 4-in-1 Effective Defense Datasheet

quattro

4-in-1 effective defence

ASE 'quattro' combines 4 effective spray methods to make an all-round effective defence against dust and odour. The quattro unit consists of:

Rainmaker
Extends to a height of 3m, 3 powerful jet nozzles throw mist up to 20m.
Applications: Stationary dust suppression.

Handheld Jet Wash
Lance for controlled spraying area.
Applications: Direct application to problem areas (ideal for applying chemical additives direct to source.)

Rear Spray Bar
Measuring 1.6m in diameter with 10 powerful jet nozzles.
Applications: Damping down roads and tracks.

Nozzle-line attachment
Detatchable 10m manifold and T-Section to run 2 X 50m of 2m spaced flexible nozzle-line.
Applications: Boundary suppression system.

Suitable for: Odour, Dust, Disinfection

APPLICATIONS

- Demolition
- Ground Remediation
- Bulk Materials Handling
- Waste Transfer and Landfill
- Crushing and Screening
- Construction
- Mining and Quarrying
- Aggregates
- Disinfection Services
- Manufacturing

TECHNICAL SPECIFICATION

Droplet size (µm) - 50-100 microns
Nozzles (pcs) - Rainmaker (3), Rear Spray Bar (10)
Rainmaker - Extendable 3m mast with 3 high-pressure nozzles
Jetwash - 7m stowed hose with lance
Bowser - Road towable trailer with 1125l tank
Nozzleline - 2 x 50m flexible nozzleline, 2m spaced, 10m manifold fitted with quick release fitting for ease of use
Coupling - Available in 40mm eye or 50mm ball hitch
Spray Bar - Custom spray bar with 10 high pressure nozzles on rear chasis
Power supply - Yanmar L100 engine

All equipment selectable via a simple diverter valve

AVAILABLE TO PURCHASE OR HIRE

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