PARRY'S QUARRY LANDFILL, ALLTAMI, FLINTSHIRE

Environmental Permit Application

Operating Techniques and Management Plan

Prepared for: Mold Investments Limited

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APPENDICES

1.0 Introduction

Mold Investments Limited (Mold) has instructed SLR Consulting Limited (SLR) to prepare an Environmental Permit (EP) application for the Parry's Quarry Landfill and associated Waste Transfer station (WTS) in Alltami, Flintshire under the Environmental Permitting (England and Wales) Regulations 2016 (as amended).

This Operating Techniques and Management Plan (OTMP) document sets out best practice for operating the site, based on legislation and best available techniques in the industry.

The OTMP will be reviewed and updated on an annual basis or because of any of the following activities (list not exhaustive):

- The issue of an EP variation by Natural Resources Wales (NRW);
- A material change to the operational process;
- A substantiated complaint; or
- Any changes in legislation or guidance documents applicable to the facility.

This OTMP document is supplemented by the following documents submitted in the 2019 EP application:

- Non-Technical Summary (NTS);
- Drawings:
    - Drawing ESID1: Site Location
    - Drawing ESID2: Installation Site Layout
    - Drawing ESID3: Environmental Site Setting
    - Drawing ESID4: Cultural and Natural Heritage
    - Drawing ESID5: Phasing Plan and Cell Layout
    - Drawing ESID6: Cross Sections, Pre-Settlement and Post Settlement Contours
    - Drawing ESID7: Restoration
    - Drawing ESID8: Engineering Details
    - Drawing ESID9: Environmental Monitoring
    - Drawing ESID10: Superficial Deposits Geology
    - Drawing ESID11: Bedrock Geology
    - Drawing ESID12: Local Hydrology
    - Drawing ESID13: Gas Management Plan
    - Drawing ESID14: Leachate Management Plan
- Environmental Setting and Installation Design Report (ESID);
- Environmental Risk Assessment (ERA);
- Stability Risk Assessment (SRA);
- Hydrogeological Risk Assessment (HRA);
- Landfill Gas Risk Assessment (LFGRA);
- Odour Risk Assessment (ORA) and Management Plan (OMP); and

- Noise Assessment Report (NAR).

1.1 Report Structure

This report describes the operating techniques that will be implemented at the facility to ensure compliance with the conditions of the EP.

Sections 1 and 2 for the introduction, management techniques and information are applicable to both the landfill and the WTS. Following this, the document is divided into the sections shown below for ease of use:

- Section A: Landfill Operations; and
- Section B: WTS Operations.

Both sections A and B include operating and management techniques based on the following categories:

- Accident Management;
- Operations; and
- Emissions and Monitoring.

1.2 Site Setting

The site is situated within the existing Parry's Quarry in Alltami, Flintshire and bounded by the A494 to the south, A55 to the north and Pinfold Road to the west. The National Grid Reference (NGR) for the entrance to the site is SJ 27478 66278.

The remaining land use immediately surrounding the proposed site is predominately agricultural land, with scattered residential and commercial / industrial premises. Access to the site will be via Pinfold lane. The site's location is illustrated on Drawing ESID1, and the site layout on Drawing ESID2.

All surrounding land uses and receptors within 1km are identified on Drawing ESID3 and all cultural and natural heritage is illustrated on Drawing ESID4.

A summary of the site's immediate surrounding land uses is identified in Table 1-1 below.

Table 1-1
Surrounding Land Uses

Boundary	Description
North	Ewloe Wood House and commercial/industrial properties are located adjacent to the northern boundary beyond which lies the A55 and a service station (eastbound on the A55) including a petrol station, hotel and restaurant. Also, to the north of the site beyond the immediate surrounding is the residential conurbation of Northop Hall and the Northop Hall Country House Hotel. The outskirts of Northop Hall are located approximately 600m to the north.
East	To the east of the site is the westbound A55 Service Station, including an unnamed residential property, beyond which lies the A55 and agricultural land. The small town of Ewloe Green and the larger conurbation of Ewloe are located 550m and 1km respectively to the east.
South	Adjacent to the south of the site is an area of small woodland beyond which lies the A494. Beyond the A494 is a large building supply merchant and other commercial/industrial premises. The further surrounding land is predominately agricultural land with scattered residential buildings (farm houses) including Parrys Cottage and the Pottery Cottages.

Boundary	Description
	A further large commercial / industrial estate is located within 1km to the south. The south eastern edge of the site encompasses part of multi designated Buckley Claypits and Commons Site of Special Scientific Interest (SSSI) / Deeside and Buckley Newt Site Special Area of Conservation (SAC).
West	Pinfold Lane is located immediately to the west. A disused quarry is located off Pinfold Lane, beyond which lies predominately agricultural land and scattered residential/agricultural buildings, including Pinfold Cottage and Alltami House. The town of Alltami is located approximately 640m to the southwest. Also adjacent to the west and southwest of the site is numerous commercial/industrial premises.

2.0 Management System

2.1 Operating Techniques and Management Plan

Mold Investments Limited (Mold) will operate their own management system in the form of this OTMP which will ensure that:

- The risks that the activities pose to the environment are identified;
- The measures that are required to minimise the risks are identified;
- The activities are managed in accordance with the management system;
- Performance against the management system is audited at regular intervals; and
- The EP is complied with.

Consequently, operational procedures for the management of the site, detailed within this OTMP, will ensure that all appropriate pollution prevention and control techniques are delivered reliably and on an integrated basis.

The OTMP assists in maintaining compliance with regulatory requirements and managing environmental impacts.

2.2 Management Structure and Responsibilities

The Site Manager will be responsible for day to day operations and compliance with the EP.

Whenever the site is open to receive wastes, dispatch wastes or carry out any of the waste management operations, it will be supervised by at least one member of staff who is suitably trained and fully conversant with the requirements of the permit relating to:

- Waste acceptance and control procedures;
- Operational controls;
- Maintenance;
- Record-keeping;
- Emergency action plans; and
- Notifications to NRW.

2.3 Technical Competence and Training

The waste management activities undertaken at the site will be under the overall control of a technically competent person who holds a relevant Certificate of Technical Competence (COTC) under the Waste Management Industry Training and Advisory Board (WAMITAB) scheme.

The site will be managed by sufficient staff, competent to operate the site. The management system will deliver the following:

- All staff will have clearly defined roles and responsibilities;
- Records will be maintained of the skills required for each post;
- Records will be maintained of the training and relevant qualifications undertaken by staff to meet the requirement of each post; and
- Operations will be governed by standard operating instructions.

All staff employed at the site will benefit from a training programme, which ensures their professional and technical development.

An assessment of training needs will be carried out to identify the posts for which specific environmental awareness training is needed, and the scope and level of such training. The assessment of training needs will be reviewed on an annual basis.

The training programme will ensure that relevant staff are aware of the following:

- Regulatory implications of the EP for the site and their specific work activity;
- All potential environmental effects from operations under normal and abnormal circumstances;
- The need to report deviations from the EP; and
- Prevention of accidental emissions and action to be taken should accidental emissions occur.

Records of training needs and training received are maintained.

2.4 Site Security

To prevent unauthorised access, a number of site security measures are already in place at the site including:

- Fencing along the site boundary;
- CCTV; and
- A gate located at the entrance to the site which will be locked when the site is closed.

The site will be inspected at the commencement of each working day. Any defects or damage which compromises the integrity of the enclosure will be made secure by temporary repair by the end of the working day. Permanent repairs will be affected as soon as practicable.

All inspections, any defects, damage or repairs will be recorded in the site diary.

2.4.1 Site Identification Board

A site identification board which is easily readable from outside the entrance during hours of daylight will be provided at or near the main site entrance.

The identification board will be inspected at least once per week. In the event of damage or defect that significantly affects the legibility of the board it will be repaired or replaced within a timescale agreed with NRW.

The board will display the following information:

- Site name and address;
- Permit holder;
- Permit number;
- Emergency contact name and telephone number;
- NRW national telephone numbers; and
- Days and hours the site is open to receive waste.

2.5 Display of Environmental Permit

A copy of the EP will be kept available for reference by all staff and contractors whose work may have an impact on the environment.

2.6 Managing Documentation and Records

Controls will be in place to ensure that all documents are issued, revised and maintained in a consistent fashion.

The documents that will be included within the scope of the controls are as follows:

- Policies;
- Responsibilities;
- Targets;
- Maintenance records;
- Procedures;
- Monitoring records;
- Results of audits;
- Results of reviews;
- Complaints and incident records; and
- Training records.

Records will be made and kept up to date on a daily basis to reflect deliveries, on-site treatment and dispatches. All records relating to waste acceptance will be maintained and kept readily available at head office for a minimum of two years after the waste has been removed off-site.

2.7 Reporting Non-Compliance and Taking Corrective Action

Procedures will ensure appropriate corrective action is taken in response to problems identified at the site. The procedures will ensure that non-conformances are reported, investigated and rectified, and that failures and weaknesses are prevented. The following aspects will be considered:

- Actual or potential non-compliance;
- System failure discovered at internal audit;
- Suppliers or subcontractors breaking the agreed operating rules;
- Incidents, accidents, and emergencies;
- Malfunction, breakdown or failure of plant;
- Other operational system failure; and
- Complaints.

The action taken in response to the non-conformance may include:

- Obtaining additional information on the nature and extent of the non-conformance;
- Discussing and testing alternative solutions;
- Modifying procedures and responsibilities;
- Seeking approval for additional resources and training; and
- Contacting suppliers and contractors (as applicable).

2.8 Auditing and Legal Compliance

There will be a formalised internal auditing procedure to ensure the facility is audited at defined intervals and that the progress of corrective and preventative action is monitored.

2.9 Monitoring, Measuring and Reviewing Environmental Performance

A formalised management structure will review environmental performance, and ensure any necessary actions are taken.

2.10 Operational Control, Preventative Maintenance and Calibration

The management system will complement operational procedures to ensure effective control of site operations, the use of approved suppliers and contract services, the maintenance of operational equipment and the calibration of monitoring equipment.

All plant and equipment will be subject to a programme of planned preventative maintenance which will follow the inspection and maintenance schedule recommended by the manufacturer.

2.11 Design and Construction Quality Assurance

All relevant elements of the site which are not already constructed will be designed in accordance with recognised standards, methodologies and practices.

The design process will use a risk-based approach and will be appropriately documented using drawings, specifications and method statements to provide an adequate audit trail.

Construction Quality Assurance (CQA) plans will govern all construction activities necessary in the future. These CQA plans will be prepared by competent and suitably qualified persons.

A competent and suitably qualified person will supervise the construction activities.

3.0 Information

All relevant notifications and submissions to NRW regarding the site will be made in writing and quote the EP reference number and the name of the EP holder.

Records will be maintained for at least 6 years, however in the case of off-site environmental effects, and matters which affect the condition of land and groundwater, the records are to be kept until permit surrender. Duty of Care records will be kept for a minimum of 2 years.

3.1 Reporting and Notifications

3.1.1 Changes in Technically Competent Persons

NRW will be informed in writing of any changes in the technically competent management of the site and the name of any incoming person, together with evidence that such person has the required technical competence.

3.1.2 Waste Types and Quantities

A summary report of waste types and quantities accepted and removed from the site for each quarter, will be submitted to NRW within 1 month of the end of the quarter unless otherwise required by the EP conditions.

3.1.3 Relevant Convictions

NRW will be notified of the following events:

- Mold Investments Limited being convicted of any relevant offence; and
- Any appeal against a conviction for a relevant offence and the results of such an appeal.

3.1.4 Notification of Change of Operator's or Holder's Details

NRW will be notified of the following:

- Any change in the operator's trading name, registered name or registered office address; and
- Any steps taken with a view to the company going into administration, entering into a company voluntary arrangement or being wound up.

3.1.5 Adverse Effects

NRW must be notified without delay following the detection of the following:

- Any malfunction, breakdown or failure of equipment or techniques;
- Any accident;
- Fugitive emissions which have caused, is causing or may cause significant pollution; and
- Any significant adverse environmental and health effect.

SECTION A: Landfill Operations

4.0 Landfill Classification

4.1 Introduction

The landfill operations comprise restoring the quarry void using non-hazardous and inert wastes within fully engineered containment cells.

The site will be restored by importing approximately 2,050,133m^3 (2,460,161 tonnes[1]) of non-hazardous and inert waste material over an estimated 8-year period to enable satisfactory restoration.

This will equate to 320,000 tonnes per annum (tpa).

4.1.1 Listed Activity

The landfill will be listed under the Environmental Permitting (England and Wales) Regulations (EPR) 2016 as follows:

- **EPR Schedule 1 Reference:** Section 5.2 Disposal of waste by landfill, Part A (1), a) ii) the disposal of waste in a landfill with a total capacity of more than 25,000 tonnes.
- **Waste Framework Directive Annex I and II Operations:** D5 - Specially engineered landfill (Landfill for non-hazardous waste and landfill restoration).

4.1.2 Directly Associated Activities

The following Directly Associated Activities (DAA's) will be required for the landfill:

- Leachate storage tanks;
- Storage of fuel for operation of plant and equipment; and
- Flaring of landfill gas for disposal in an appliance.

4.2 Waste Types and Quantities

Drawing ESID6 illustrates the design of the landfill and the location of each phase. There are to be eight landfilled cells at the proposed Parry's Quarry landfill site; Cells 1, 2, 3, 4, 5, 6, 7 and 8. These cells will ultimately occupy a surface area of 9.8ha.

One of these cells, Cell 6, is designated as the cell that will accept 'biodegradable' wastes. It is anticipated that all other cells at the site will essentially accept commercial and industrial wastes that are anticipated to contain significantly lower concentrations of biodegradable material.

The landfill will accept a variety of waste streams, which will be split into the following 3 categories:

- Inert Waste (as defined in the Landfill Directive) – which will be deposited into Phases 1, 2, 3, 4, 5, 7 and 8;
- Non-Hazardous Non-Biodegradable Waste – which will be deposited into Phases 1, 2, 3, 4, 5, 7 and 8; and
- Non-Hazardous Biodegradable Waste – only deposited into Phase 6.

The full waste list is included as Appendix 01 to the Waste Acceptance Procedure (WAP). Table 3-1 below details the phase by phase quantities:

[1] Based on a conversion rate of 1.2tonnes/m^3

Table 4-1
Landfill Phase Quantities Summary

Parry's Quarry - Phase by Phase Quantities										
Description	**Unit**	**Phase**								**Total**
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
Basal Area Lined	m^2	7,144	5,865	5,872	3,975	5,181	4,989	7,416	5,818	46,260
Side Slope Area Lined	m^2	10,763	5,363	4,673	6,700	7,288	5,810	7,212	8,557	56,366
Total Area (Basal + Side Slope)	m^2	17,907	11,228	10,545	10,675	12,469	10,799	14,628	14,375	102,626
Void Space	m^3	139,718	166,522	179,398	131,333	176,234	264,717	374,358	617,853	2,050,133
Temporary Cap Area	m^2	12,156	13,387	12,988	10,779	9,438	13,107	18,160	-	90,015
Permanent Cap Area	m^2	6,079	4,576	5,098	5,762	11,762	14,073	17,265	38,940	103,555
Tonnage Input at 1.2t/m^3	tonnes	167,662	199,826	215,278	157,600	211,481	317,660	449,230	741,424	2,460,161

4.2.1 Wastes for Restoration

The waste types accepted for restoration are detailed in Appendix 01 to the WAP.

5.0 Waste Acceptance

The site is operated in accordance with Mold's WAP included as Appendix 02 to this OTMP.

The procedure contains processes and requirements related to the following:

- Level 1 basic characterisation testing;
- Level 2 compliance testing;
- Level 3 on-site verification of wastes;
- Weighbridge procedure;
- Quarantine and rejection procedures; and
- Record Keeping.

6.0 Engineered Containment System

The installation has been designed on the principle of engineered containment, to contain, and manage, leachate and landfill gas produced by the degradation of the waste, and thereby minimise any adverse effects on the surrounding environment.

The engineering specifications are detailed within the ESID report submitted as part of the original environmental permit application in 2019 (Ref: 416.07238.00001/ESID).

7.0 Waste Deposit and Emplacement

7.1 Introduction

This section describes the techniques and measures that are employed at the installation during waste deposit and emplacement to ensure that impacts on the environment are minimised.

7.2 Management and Operational Techniques

7.2.1 Vehicle Movements

It is the responsibility of the Site Manager to organise the working area in such a manner to allow the safe movement and discharge of vehicles and plant.

Appropriate signage is used to direct traffic to the operational area.

7.2.2 Selection, Inspection and Deposit of Initial Layer of Waste

Only selected waste which excludes large, bulky or sharp items is used to form the initial lift of waste in each cell immediately above the liner system.

Vehicles delivering selected waste are required to deposit their load at least 5 metres from the edge of the tipping face.

The selected waste is subject to a minimal amount of compaction and a tracked machine is used for this purpose. The selected waste is used to form a 'buffer' layer no less than 2 metres in depth.

The waste is deposited from the access road in front of the mobile landfilling plant to create an operating surface. The leading edge of the tipping face will not be compacted or ramped down but is left in a near vertical state.

Mobile plant operates only on the waste surface. Under no circumstances will mobile plant be permitted to operate on the basal containment system and leachate drainage system.

Daily cover for the top of the first layer of waste is kept to a minimum and will comprise fine soils, so as not to hinder vehicle movements on the operational area. The face and flanks of the initial layer of waste are not covered to avoid fouling and clogging of the leachate drainage blanket.

Selection and placement of the first layer of waste is carried out under the supervision of a suitably trained and qualified member of staff, whose role is to:

- Visually inspect all waste to be used in the initial layer immediately following discharge;
- Identify any unsuitable materials, which may comprise large bulky or sharp items and ensure that such items are segregated and not placed in the initial waste lift;
- Observe the compaction and spreading activities to ensure that there is no damage to the lining system;
- Advise the Site Manager in the event of damage being observed; and
- Ensure that waste deposit operations cease immediately in the event of any damage occurring.

The Site Manager is responsible for investigating any damage, and for liaising with the independent Construction Quality Assurance engineer and NRW to ensure that appropriate remedial action is taken.

7.2.3 Selection and Inspection of Final Layer of Waste

To prevent damage to the final capping system, only selected waste (comprising inert waste or similar – quarry waste and trommel fines) which excludes large and bulky or sharp items are used to form the final lift of waste in each cell immediately below the final capping layer.

Selection and placement of the final layer of waste is carried out under the supervision of a suitably trained and qualified member of staff, whose role is to:

- Visually inspect all waste to be used in the final layer immediately following discharge; and
- Identify any unsuitable materials, which may comprise large bulky or sharp items and ensure such items are segregated and not placed in the final waste lift.

7.2.4 Handling and Compaction Plant

The following items of mobile plant are held on site and are used for the handling and compaction of waste:

- Compactor;
- Bulldozer/Tracked loading shovel;
- Dump Trucks; and
- Other plant as appropriate for the works e.g. 360° excavator.

All operatives undergo training appropriate to their role and the equipment to be used to ensure effective handling, compaction and covering procedures are adopted.

7.2.5 General Waste Discharge and Emplacement Procedure

Wastes accepted for disposal are directed to the appropriate landfill cell and working area by a series of signs or by verbal instructions. Each landfill cell is subdivided into smaller working areas.

On instructions from operatives in the disposal area, and where possible, waste delivery vehicles will reverse to the disposal face. The load is then discharged, and the driver will inspect the vehicle for any loose waste caught up within or on it. If necessary and safe to do so, the vehicle will be cleaned by the driver and will then be returned to the haul road.

The deposited load is subjected to a thorough inspection by the site plant operatives as the waste is spread, to ensure that the waste is permitted for disposal. Any unauthorised loads are dealt with as described in Section 4.

After placement of the initial layer of waste, subsequent lifts are deposited in layers not exceeding 3.5metres in height. Compaction is achieved by spreading the waste in thin layers and by repeated passes of the landfill compactor. The surface of the waste is graded to shed surface water and to prevent "ponding".

Waste may either be deposited at the base of the working face and pushed up in thin layers or deposited on top of the working face and pushed down in thin layers. This latter method is the preferred method as it allows difficult waste to be deposited ahead of the working face.

Suitable edge protection, i.e. safety bunds, will be used if the edge of a cell, ramp or other area presents a hazard to vehicles and plant.

7.2.6 Handling and Disposal of Bulky Low-Density Waste

All bulky low-density items are crushed or flattened prior to burial, and the handling is subject to the relevant Method Statement. This will avoid the presence of sub surface cavities which may give rise to unstable ground conditions during filling and eventually differential settlement of the restored surface.

7.2.7 Compaction

All deposited waste is suitably compacted. Deposition only takes place at a rate at which the compactor can adequately cope. Each layer of waste is generally compacted by 3-4 passes of the compaction equipment, to generally achieve a layer of waste thickness no more than one metre.

7.2.8 Communication

The operatives at the active landfilling areas are in either direct radio or mobile telephone contact with the installation control office. This enables instructions to be given regarding particular loads of waste and to ensure appropriate precautions are taken during the disposal process.

7.2.9 Records

The site diary is used to record any incidents that occur during the waste discharge and emplacement process.

7.2.10 Application of Daily Cover

By the end of the working day a quantity of cover is applied to the top, working flanks and working faces of the operational area (except the initial layer), sufficient to ensure that:

- Windblown litter and debris are minimised;
- Vermin is discouraged from entering the waste mass;
- Scavenging is discouraged;
- Cover assists in odour control.

Daily cover is progressively applied to the waste surface. This is derived from suitable imported or on site materials and may include:

- Inert materials including soils and hardcore.

A stockpile of cover materials is maintained, as necessary, in the vicinity of the working face, in order to ensure that exposed waste can be covered at the end of each working day.

7.2.11 Temporary Capping

Due to the nature of the landform to be created, it is necessary to leave parts of some cells uncapped until landfilling has progressed sufficiently in neighbouring cells to enable final levels to be achieved. Under these circumstances temporary capping of the exposed wastes may be considered to minimise leachate generation and odour emissions (from Cell 6) in the cells concerned.

Temporary capping comprises a layer of clay materials, a minimum of 300 mm thick or alternatively, a layer of lapped sheets of plastic membrane, weighted down by tyres, sand bags or small mounds of soil or clay.

Temporary capping is installed at gradients sufficient to shed surface water from the landfill and to prevent water from ponding on the operational area. Care is taken to prevent such surface water from infiltrating the landfilled wastes and to ensure that it is conducted to the surface water drainage system.

The temporary cap is removed before waste disposal is reactivated to prevent perching of leachate or the development of failure planes.

8.0 Leachate Management

A Leachate Management Plan, Ref: 416.07238.00001, has been prepared and is included as Section 11 of this EP application.

The LMP describes how leachate will be managed across the proposed site during both operational and the post closure periods and includes the following information:

- An outline description of the proposed landfill cells, their leachate collection point numbers and distribution;
- An assessment of the likely volumes of leachate generation, over time, for all currently proposed cells at the Parry's Landfill site;
- An assessment of the required operational maximum and long-term leachate abstraction rate from each cell and from the site as a whole;
- An assessment and outline specification of the pumping systems required to achieve the abstraction rates required;
- An assessment of the capacity of disposal arrangements available for the site to accommodate the additional leachate generation volumes from the proposed cells; and
- An outline of the management techniques that may be required to minimise the risk posed by leachate contained within the site of exceeding assessment limits or otherwise escaping from containment.

9.0 Leachate Monitoring

9.1 Introduction

The leachate monitoring system will manage the following:

- Determination of the head of leachate and quality of leachate in each cell;
- Determination of the stage of waste decomposition;
- Determination of the appropriate leachate management measures;
- Ensure that the assessment criteria and compliance limits are not exceeded; and
- Identify when relevant completion criteria are satisfied.

9.2 Location Design and Construction of Monitoring Points

The design and construction of the leachate monitoring points are illustrated on Drawing ESID14 – Leachate Management Plan.

9.3 Emission Limits and Monitoring Requirements

9.3.1 Leachate Level Monitoring

The leachate level monitoring schedule is detailed in Table 5.1 of the HRA included as Section 8 of the EP application.

9.3.2 Leachate Quality Monitoring

The leachate quality monitoring schedule is detailed in Table 5.2 of the HRA included as Section 8 of the EP application.

The leachate monitoring programme and results are subject to annual review by Mold throughout the operational and post-closure aftercare period of the installation. Sampling frequencies and determinands may therefore be modified and adjusted as appropriate, with additional determinands being considered to reflect the deposit of certain waste streams at the site.

If stable conditions are present (leachate levels or quality) the frequency and/or number of determinands may be reduced in consultation with the EA.

9.3.3 Leachate Depth Limits

The leachate depth assessment and compliance limits are detailed in Table 5.3 of the HRA included as Section 8 of the EP application.

9.4 Contingency Action Plan

Should leachate level compliance limits be breached, a contingency action plan is presented below:

- Advise landfill site management within 24 hours;
- Confirm by repeat measurement;
- Advise NRW within 48 hours;
- Review existing monitoring information;

- Check and confirm efficiency and operation of the leachate extraction system within 2 weeks;
- Review site management and operations, and implement actions to prevent future breach of compliance limit e.g. increased abstraction or the installation of additional leachate wells; and
- If levels cannot be reduced to below compliant limits:
    - Review the assumptions incorporated into the site conceptual model;
    - Review existing HRA; and
    - If risks are unacceptable, set in place procedures for implementing corrective measures in consultation with or as required by the NRW.

9.5 Monitoring Methodology

Monitoring is carried out by a suitable person, in accordance with the procedure outlined below and the Working Instructions:

9.5.1 Pre-Monitoring Checks

Prior to undertaking leachate monitoring, checks are carried out to determine:

- The number of samples and analytical requirements;
- The size, type and number of bottles that are required, and any fixative or preservative requirements;
- That all equipment is clean and in good working order;
- That all necessary equipment is available including keys; and
- Bailers and dip tapes used for leachate sampling are marked 'leachate only' and will not be used for any other purpose.

9.5.2 On-Site Records

A record will be made of the following which can be accessed electronically from the site:

- Name of technician;
- Date of sampling;
- Sampling equipment and method used;
- On-site weather conditions;
- Observations including vegetation die-back, leachate outbreaks, surface water ponding;
- Damage to manhole/headworks of leachate extraction and monitoring points;
- The specific reference number of the leachate extraction/monitoring point and the number of the top ring; and
- Depth to top of leachate and depth to the base of the extraction/monitoring point.

9.5.3 Monitoring Procedure

The following procedures will be implemented when monitoring is required:

- An electronic dip tape or equivalent monitoring method (transducer) will be used to record the depth to the top of the leachate, and the depth to the base of the extraction/monitoring point from the top of the cover;

- Samples of leachate will be obtained from the pumping lines;
- The sampling equipment will be flushed out between sample locations;
- Those sample bottles not containing preservative will be flushed out with the sample; and
- Other than for bottles containing fixative, the sample bottle will be filled to the brim to exclude air, the top secured firmly, and will be clearly labelled with the location code and date.

9.6 Data Management and Reporting

The leachate level will be recorded as level in mAOD, and depth of leachate above the sumps. Should leachate depths be referenced against a fixed segment of leachate shaft, segments will be numbered sequentially, and numbers will be recorded and checked against the previous month's records. In the event of any discrepancy, clarification is obtained from the Site Manager.

The Site Manager will be informed by the monitoring technician of any results in excess of the trigger levels or any problems recorded as part of the visual inspection.

The leachate level and quality monitoring results will be entered into a database, and the data will be submitted to NRW for review at an agreed frequency. Copies of the leachate quality data will be made available at the landfill electronically or hard copy and kept on file.

Results and analysis of the data will also be included within an annual environmental monitoring report, which will be submitted to NRW.

9.7 Quality Assurance

Suitably trained personnel will undertake leachate monitoring.

A UKAS accredited laboratory will carry out leachate quality analysis of samples.

A major ion balance will be undertaken routinely and reported by the analytical laboratory as part of laboratory quality control procedures.

Monitoring equipment will be serviced and maintained in line with the manufacturers' recommendations.

Copies of field logs will be provided when required and maintained on a central server.

Should any of the leachate monitoring points become damaged to such an extent that the leachate levels cannot be recorded, they are either repaired or replaced if practicable. The nature and location of any replacement, as well as the methods to be used, would be approved by NRW prior to any works being undertaken.

10.0 Surface Water Management

10.1 Introduction

This surface water management plan controls the collection and disposal of surface water to prevent pollution of the environment and downstream flooding. By controlling waters from precipitation and surface run-off from entering the waste body, the system also serves to minimise the production of leachate.

10.2 Control Strategies

The control strategies that are adopted to effectively manage surface water at the installation can be summarised as follows:

- Temporary segregation of landfill cell basal drainage before the cell floor is fully covered with waste;
- Provision of temporary capping to areas of waste that will not be permanently capped or landfilled for prolonged period of time;
- Early installation of permanent cap wherever possible and practical;
- Formation of a 'domed' final landfill profile to encourage run-off from capped areas away from active landfilling; and
- Provision of drainage ditches, contour drains etc to prevent ponding of surface water on the landfill surface and cap.

Surface water will be protected wherever possible from the risk of contamination from leachate by various method including the following;

- Locating leachate management infrastructure such as pipework and storage facilities as far from surface water management features as possible and practicable;
- Proving secondary containment where risk assessment shows it to be required, in particular this will include the installation of secondary containment (bunding) to leachate storage tanks; and
- Maintaining enough 'free-board' between the leading toe of any waste batter and any external retaining bund to reduce the risk of leachate seepages running directly off uncapped waste flanks into surface water features or uncontained areas.

10.3 Operational and Management Procedures

10.3.1 Engineered Drainage Systems

Hard surfaced areas will incorporate the following:

- Main installation access road; and
- Installation control area (weighbridge area).

Hard surfaced areas are subject to an inspection and maintenance programme, which will ensure the continued integrity of the surface.

10.3.2 Surface Water Sumps and Segregation Bunds

Within the main operating areas, a series of temporary sumps and bunds are employed to gather incident rainfall. A temporary bund is placed around active landfilling areas to prevent incident rainfall draining from the unprepared areas of the installation from coming into contact with waste.

10.3.3 Contour Drains

Depending upon the gradient of the perimeter drains, it may be necessary to construct drains within the restoration profile across the contour lines to intercept run off and divert it away from low points on the perimeter of the installation towards the surface water lagoon.

10.3.4 Surface Water Treatment and Discharge

Surface water is treated and discharged from the site as follows:

- Surface water arising from perched water collected in the landfill cell (before waste deposition), on the hard-surfaced access roads, external waste transfer area, site offices and car parking area is discharged to surface water (Alltami Brook) via a discharge consent for trade effluent issued and regulated by NRW (Ref; CG0392101).
- Surface water runoff from restored areas of the installation, and areas which have not been subject to landfilling, is discharged via perimeter drains to the surface water management lagoon.

Surface water, which has been in contact with waste is treated as leachate and disposed of in accordance with the principles contained in Section 7.

10.3.5 Progressive Restoration

In addition to the above mitigating measures, the site will be progressively restored. The revegetation of the proposed landfill will significantly reduce the rate of runoff.

10.3.6 System Monitoring/Inspection and Maintenance

Surface water is checked each time the perimeter gas and groundwater monitoring boreholes are monitored. Site operatives/monitoring technicians make observations, and report evidence of contamination, excessive sedimentation or any other factors that may compromise the efficiency of the system to the Site Manager or the Deputy prior to leaving the site.

The checks carried out by the technicians are supplemented during the operational phase by routine weekly checks by operational personnel.

To maintain the effectiveness of the surface water system, appropriate action will be taken within 7 days of defects being observed to remove any obstructions to flow. This may involve the regrading of drainage ditches.

10.3.7 Action Plan

In the event of suspected or confirmed contamination of surface water, contingency measures are put in place, if necessary, to remove the contaminated water by pumping from the perimeter ditch for offsite disposal. Sandbags or other similar equipment are maintained at the installation for the purpose of blocking the ditch. The suspected contamination will be confirmed by analysis, and the necessary actions agreed with NRW.

The maintenance and monitoring procedures and action plan outlined above have been maintained during the pre-operational phase and will continue to be during the operational and aftercare phases of the installation.

11.0 Surface Water Monitoring

11.1 Monitoring Locations

The surface water monitoring locations are illustrated on Drawing ESID9.

11.2 Monitoring Requirements

The surface water monitoring schedule is detailed in Table 5.7 of the HRA included as Section 8 of the EP application.

The surface water monitoring programme and results are subject to annual review by Mold throughout the operational and post-closure aftercare period of the installation unless otherwise agreed with the EA. Sampling frequencies and determinands are reviewed and will be modified and adjusted as appropriate.

11.3 Contingency Action Plan

If surface water composition limits contained within Section 8 of the discharge consent (Ref: CG0392101) are exceeded at the designated monitoring locations, the various actions that will be taken are detailed below:

- Advise site management;
- Advise NRW;
- Confirm by repeat sampling and analysis;
- Review existing monitoring information; and
- Review site management and operations and implement actions to prevent future failure of a composition limit.

11.4 Monitoring Methodology

Monitoring is carried out by the monitoring technician, in accordance with the procedure outlined below.

11.4.1 Pre-Monitoring Checks

Prior to undertaking surface water monitoring, checks are carried out to determine:

- The number of samples and analytical requirements;
- The size, type and number of bottles that are required, and any fixative or preservative requirements;
- That all equipment is clean and in good working order; and
- That all necessary equipment is available including keys.

11.4.2 On-Site Records

A record is made of the following:

- Name of technician;
- Date of sampling;
- Sampling equipment and method used;
- On-site weather conditions; and

- Observations including vegetation die-back, leachate outbreaks, surface water ponding, damage to security fencing, or accumulations of windblown litter.

11.4.3 Monitoring Procedure

- Samples of surface water are obtained using a stainless-steel bucket or sampling can, or by directly filling the sample bottle;
- Those sample bottles not containing preservative are flushed out with the sample;
- Other than for bottles containing fixative, the sample bottles are filled to the brim to exclude air, the top is secured firmly, and it is clearly labelled with the location code and date; and
- Samples are transferred immediately to cool boxes containing ice packs and taken to the laboratory at the earliest opportunity.

11.5 Data Management and Reporting

Comparison of monitoring data with assessment levels are carried out each time monitoring data are collected. The monitoring frequency is increased if there appears to be a trend, which could lead to the compliance levels being breached, or when there is a rapidly rising trend towards this point. When an adverse trend or breach of an assessment level is indicated by the monitoring results, appropriate contingency actions will be implemented.

The surface water quality monitoring results are entered into a database, and the data is submitted to NRW for review on an agreed frequency.

Results and analysis of the data will also be included within an annual environmental monitoring report, which is submitted to NRW.

11.6 Quality Assurance

11.6.1 Monitoring and Analysis

Suitably trained personnel undertake surface water monitoring.

A UKAS accredited laboratory carries out surface water quality analysis of samples.

Monitoring equipment is serviced and maintained in line with the manufacturers' recommendations.

Monitoring equipment is cleaned following each monitoring exercise.

12.0 Groundwater Monitoring

12.1 Monitoring Locations

The groundwater water monitoring locations are illustrated on Drawing ESID9.

12.2 Emission Limits and Monitoring Requirements

12.2.1 Groundwater Level Monitoring

The groundwater level monitoring schedule is detailed in Table 5.4 of the HRA included as Section 8 of the EP application.

12.2.2 Groundwater Quality Monitoring

The groundwater quality monitoring schedule is detailed in Table 5.5 of the HRA included as Section 8 of the EP application.

12.2.3 Groundwater Quality Assessment Levels and Limits

The groundwater quality assessment levels and compliance limits are detailed in Table 5.6 of the HRA included as Section 8 of the EP application.

The groundwater monitoring programme and results are subject to regular review by Mold throughout the operational and post-closure aftercare period of the installation. Sampling frequencies and determinands are modified and adjusted as appropriate, with additional determinands being considered to reflect the deposit of certain waste streams at the site.

If stable conditions are present, the frequency and/or number of determinands may be reduced in consultation with NRW.

12.3 Contingency Action Plan

If assessment levels or compliance limits are exceeded in the designated monitoring boreholes, the various actions that are taken are detailed below:

- Advise site management;
- Advise NRW;
- Confirm by repeat sampling and analysis;
- Review existing monitoring information;
- Review site management and operations, and implement actions to prevent future failure of an assessment level or compliance limit;
- Review the assumptions incorporated into the conceptual site model;
- Review existing hydrogeological risk assessment, control and trigger levels (This should include a re-evaluation of whether the baseline conditions have changed since the last hydrogeological risk assessment); and
- If risks are unacceptable set in place procedures for implementing corrective measures in consultation with or required by NRW.

12.4 Monitoring Methodology

Monitoring is carried out by a suitable person, in accordance with the procedure outlined below.

12.4.1 Pre-Monitoring Checks

Prior to undertaking groundwater monitoring, checks will be carried out to determine:

- The number of samples and analytical requirements;
- The size, type and number of bottles that will be required, and any fixative or preservative requirements;
- That all equipment will be clean and in good working order; and
- That all necessary equipment will be available including keys.

12.4.2 On-Site Records

A record will be made of the following:

- Name of technician;
- Date of sampling;
- Sampling equipment and method used;
- On-site weather conditions;
- Observations including vegetation die-back, leachate outbreaks, surface water ponding; and
- Damage to borehole headworks or caps.

12.4.3 Monitoring Procedure

- The borehole cap will be removed and the depth to groundwater and depth to the base of the borehole from the cover level or any other agreed datum is measured using an electronic dip tape or other suitable equipment;
- The depth of the water column is calculated by subtracting the dip to the water from the dip to the base of the borehole;
- The volume of water is calculated by multiplying the depth of the water column by the borehole diameter to derive the well volume;
- A submersible pump, inertial pump or bailer is used to purge the borehole into a graduated bucket;
- The borehole is purged by 3 well volumes or until it is dry, whichever is the sooner;
- The volume of water removed is recorded;
- The borehole cap is replaced;
- Those sample bottles not containing preservative is flushed out with the sample;
- The sample bottle is filled to the brim to exclude air, the top is secured firmly, and it is clearly labelled with the location code and date;
- Care is taken to avoid cross contamination between samples. The pump head and hosing are kept off the ground, and the equipment is purged of any residual water, before progressing to the next sample location;
- Dirty equipment will not be put down the borehole; and

- Samples are transferred immediately to cool boxes containing ice packs and taken to the laboratory at the earliest opportunity.

12.5 Data Management and Reporting

Comparison of monitoring data with control levels are carried out each time monitoring data is collected. The monitoring frequency is increased if there appears to be a trend indicating that the trigger levels may be breached, or when there is a rapidly rising trend towards this point. When an adverse trend or breach of a control level is indicated by the monitoring results, appropriate contingency actions are implemented.

The groundwater level and quality monitoring results are entered into a database, and the data is submitted to NRW for review on an agreed frequency.

Results and analysis of the data will also be included within the annual environmental monitoring report.

12.6 Quality Assurance

12.6.1 Monitoring Quality Assurance

Suitably trained personnel undertake groundwater monitoring.

A UKAS accredited laboratory carries out groundwater quality analysis of samples.

A major ion balance is undertaken routinely and reported by the analytical laboratory as part of laboratory quality control procedures.

Monitoring equipment is serviced and maintained in line with the manufacturers' recommendations.

Monitoring equipment is cleaned after each monitoring exercise.

13.0 Landfill Gas Management

A gas management system will be installed at the facility for the long-term control of the landfill gas to minimise uncontrolled emissions beyond the landfill and to minimise uncontrolled emissions of landfill gases to the atmosphere.

The system will comprise of a series of gas extraction wells installed across the landfill, linked via sub surface pipe work to a gas flare and/or a gas utilisation plant (engines).

13.1 Landfill Gas Risk Assessment

A Landfill Gas Risk Assessment (Ref: 416.07238.00001/LFGRA), which is included in Section 9 of this EP application, has been used to derive the necessary mitigation measures that will be required at the installation to ensure that risks associated with the generation of gas will be acceptable.

13.2 Landfill Gas Generation Assessment

As part of the LFGRA, gas production calculations for the life of the installation have been undertaken.

13.3 Landfill Gas Emergency Plan

In view of the potentially hazardous nature of landfill gas, the Contingency Action Plan as detailed in Section 13.11 of this OTMP outlines the action that will be taken in the event of landfill gas migration.

13.4 Phased Development Plan

Details of the gas utilisation plant that will be required to treat landfill gas generated and collected at the landfill are unknown at the present time. However, it is anticipated that the site will require 1 gas flare and 1 gas engine, as detailed in Table 13-1 below;

Table 13-1
Landfill Gas Utilisation Plant

Flare/Engine	Operational Period	Capacity ($Nm^3 h^{-1}$)	Downtime
Engine 1	2023- 2045	160 -260	UNIFORM (3.0, 5.0)
Flare 1	2021- 2060	50 – 500	UNIFORM (3.0, 5.0)

Flares will remain on site after the generation equipment has been decommissioned and will continue to operate until the gas quality and quantity declines to an extent that flaring is no longer viable.

13.5 System Capacity

The capacity of the engine and flare are detailed in Table 13-1 above. The LFGRA demonstrates that the plant should have sufficient capacity to handle the maximum gas generation predicted by the gas generation model.

13.6 Design and Construction Quality Assurance (CQA)

13.6.1 Design

All elements of the control systems have been designed and assessed in accordance with recognised standards and methodologies, and all future installations will be documented to provide an adequate audit trail.

All future designs will consider the following aspects:

- Performance required to achieve necessary standards;
- The context i.e. whether they are temporary or permanent systems;
- The design life;
- The purpose and environment in which they are situated;
- Selection of materials and products;
- Compatibility of the installed elements of the control system in terms of the phased development of the site e.g. appropriate sizing of the gas extraction plant;
- Operational and maintenance requirements; and
- Health and safety issues.

13.6.2 CQA

During the construction of each phase of the permanent landfill gas management system, a CQA Plan will be followed for all permanent systems. This CQA plan will specify procedures for the installation, testing and sampling of all elements of the permanent landfill gas management system.

The CQA plan will incorporate the following:

- Roles and responsibilities;
- Quality assurance principles;
- As built documentation; and
- Provision for the preparation of a validation report.

Suitably qualified or experienced personnel will control the application of all engineering specifications and detailed CQA procedures. The records of Landfill Gas Management System CQA will be formulated into reports and retained by Mold.

Factors that will provide the necessary assurance for the quality of the gas system include:

- The use of suitably experienced and competent personnel;
- Surveying gas well positions to determine available depth of waste; and
- Provision of as-built drawings.

13.7 Gas System Design and Specification

The various elements of the proposed landfill gas management system are described below;

13.7.1 Engineered Containment System

The site will be developed with an engineered basal, sidewall and capping containment system, which will provide the primary protection against the migration of landfill gas.

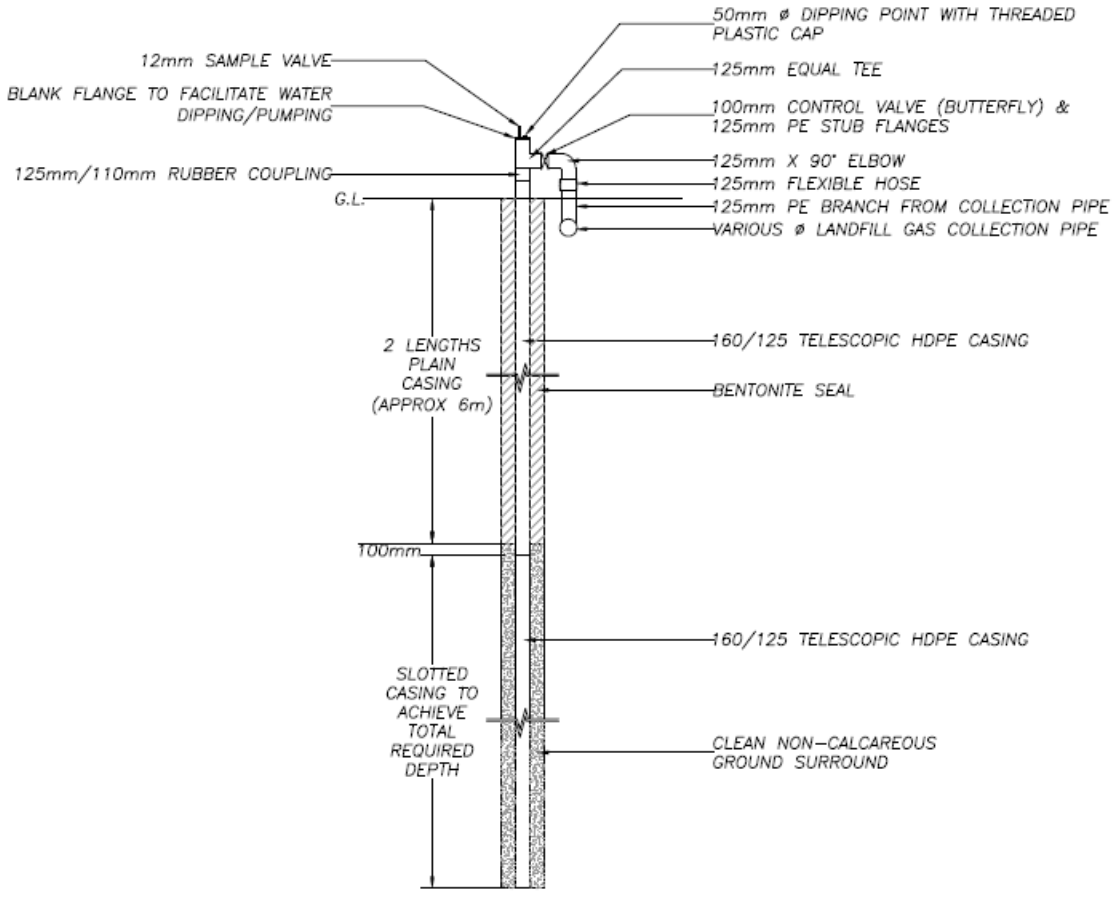
A description of the containment system is provided within the ESID report.

13.7.2 Gas Extraction Wells

The landfill gas collection scheme for Parry's Quarry Landfill could potentially comprise in excess of 50 individual extraction wells located at 40 to 50m and joined to the gas utilisation compound via horizontal collection pipework.

A typical section of a gas extraction well is illustrated on Figure1 below;

Figure 1 Telescopic Vertical Control Well



13.7.3 Metering Stations/Manifolds

In addition to stand alone wells, metering stations/manifolds may be installed at intervals across the gas field, with each typically being connected to between 6 and 12 wells. The metering stations/manifolds if installed will be located above ground.

13.7.4 Connection Pipework and Configuration

The gas wells may be linked via sub / surface MDPE pipework laid in graded trenches to a likely depth of between 0.5 and 1.5 metres. Wherever possible the pipework will be laid to a fall to encourage drainage of condensate to a low point.

The pipework will be sized to take account of the volume and rate of gas abstraction and configuration of the abstraction wells, to maintain suction pressure loss at acceptable levels and ensure effective gas abstraction is achievable throughout the gas field.

The manifolds will be linked via a main gas line to transport gas to the flare or utilisation equipment.

13.7.5 Control Systems

Valves

Control valves will be located at appropriate locations throughout the gas collection system to permit isolation of sections for monitoring, instrumentation, repair or modifications. The location of control valves will be determined by the landfill cell layout. They will allow regulation of vacuum to, and flow rates from, different parts of the site, to accommodate temporal and spatial variations in gas production.

Telemetry

The gas utilisation plant may incorporate an engine management system which links to a central station to permit remote monitoring of the facility 24 hours a day.

Alarm Systems

In the event of problems with the utilisation plant or the flare unit, the telemetry unit will automatically alarm to a pager system or mobile phone.

Interlock

Interlock systems may be incorporated within the gas management system to provide additional process control capability.

13.7.6 Dewatering Facilities

Landfill gas is extracted at temperatures often in the region of 10 to 30ºC and is saturated with water vapour. As the gas is conveyed through the collection pipe network, it cools, and landfill gas condensate forms.

Dewatering facilities will therefore be constructed at strategic low points within the system to avoid blockages caused by accumulation of condensate within the pipework. The condensate will be discharged into the landfill or via the site leachate management system.

Dewatering facilities may comprise either of pumped condensate knockout pots or condensate dewatering legs installed in the low points of the system.

13.7.7 Gas Pre-Treatment

If appropriate and commercially viable to do so gas pre-treatment or clean-up will be undertaken. Gas pre-treatment or clean-up is a multi-stage operation that can help reduce environmental emissions and reduce engine maintenance costs. Pre-treatment processes fall into two groups: primary pre-treatment processes are aimed at dewatering and particulate removal, whereas secondary pre-treatment processes are aimed at the removal of a percentage of specific components of the supply gas.

13.7.8 Gas Flare

A gas flare will be provided on site, the location of which is illustrated on Drawing ESID13, Gas Management Plan.

The gas flare will be on an enclosed design and will permit a homogenous temperature distribution across the combustion chamber. The flares will be lined with refractory material on the interior.

The flares will be maintained in accordance with the manufacturer's recommendations, to ensure continued effective operation. Full maintenance records will be maintained.

13.7.9 Gas Utilisation Plant

A gas utilisation plant is proposed at the installation. It will consist of an acoustically insulated and containerised generating set. The set will house a landfill gas driven prime mover and alternator set with engine management and remote monitoring facilities. The final specification of the plant will be determined once the it is understood whether or not a plant would be required, which would depend on the amount of gas produced by the deposited waste.

In the event of generator shut down, for planned maintenance or an unplanned event, the excess gas will flow to the flare, with minimal disruption to flow rate or applied vacuum to the field.

In the event of a power failure, both the flare and generator will shut down. However, on the resumption of installation supplies, the gas plant will restart automatically. The generators are linked via telemetry to a central location and are capable of being started remotely.

13.8 System Operation

13.8.1 Gas Management Plan

The landfill gas management system will be subject to an operational, preventative maintenance and servicing programme in accordance with the manufacturer's recommendations.

Procedures detailing all the operational and maintenance requirements for the permanent gas flare and utilisation plant will be retained within the gas management compound.

Personnel responsible for the operation and maintenance of the gas management system will be fully conversant with the operational procedures and safety and maintenance programmes.

The integrity of the gas system will also be subject to routine monitoring and any identified problems affecting the operation of the system is remedied to ensure continued effective control of landfill gas.

13.8.2 Start Up and Shut Down Procedures

The procedures will incorporate the gas engine manufactures start-up and shutdown procedures to ensure maximum reliability of the gas engine.

The gas engines start up and shutdown will use fully documented Start Up and Shutdown Procedures. These procedures will include the actions required by the operator to ensure the engine is commissioned safely and is left in a safe condition (i.e. gas free and isolated) when shutdown. The procedures will endeavour to ensure that the environmental impact of start-up and shutdown is minimised. The procedures are integrated with the gas bypass procedure as described in Section 13.8.3 below to ensure release of unburnt gas is minimised.

13.8.3 Engine By-Pass Procedures

In the case that the gas engine is shutdown, for example for routine maintenance, then the engine by pass procedure will be used, in conjunction with the shutdown and start-up procedures. The by pass procedure will ensure that gas bypassing the engine is fully burnt in a safe manner, in the flare which is designed for the gas flow rates usually handled by the gas engine. The procedure covers the safe ignition and extinguishing of the flare at the beginning and end of the by pass activity. It will also cover the monitoring of the flare to ensure the flame out is detected and that the gas is burnt in conditions that ensure full combustion.

13.8.4 Routine Operational Procedures

The results of the routine monitoring for gas quality, flow and pressure will be used to adjust and 'balance' the gas system, in order to optimise the extraction and control of the gas. This will be achieved by manually adjusting the control valves and the suction that is applied to individual wells or groups of wells, and thereby ensure equilibrium with gas generation rates within the site.

13.8.5 Prioritising Migration Control

The extraction system will be designed and configured to enable individual parts of the gas field to be isolated and controlled. This enables appropriate adjustments to be made to individual wells or groups of wells to ensure migration control is optimised.

13.8.6 Collection and Control During Low Methane Generation

During the early stages of the landfill development, and during the post closure aftercare period, there may be insufficient gas to support continual combustion. In these circumstances, the results of the routine system monitoring, will be used to determine the most appropriate operational regime both in respect of the suction applied to the wells and the operational sequence of the flare, with the objective of ensuring that extraction and flaring of gas is optimised.

Additional control measures such as optimising methane oxidation in the restoration soils may also be considered during periods of low methane generation.

13.9 System Maintenance

13.9.1 Planned and Unplanned Maintenance

The various components of the landfill gas management system will be subject to a maintenance programme in accordance with established procedures and any relevant manufacturers' instructions.

Gas Collection System

The gas pipelines, wellheads, manifolds and condensate knockout systems shall be checked (where practical) for the following;

- Wellhead damage;
- Settlement, which may affect wellhead connections and pipework falls;
- Condensate, which may block pipelines or restrict flow;
- Integrity of couplings and connections;
- Pipework damage and leaks; and
- Functioning of condensate pumping systems.

The requirement for unplanned remedial work or replacement wells will be identified during the routine inspection programme outlined above.

Gas Flare

The gas plant equipment will be subject to an inspection at least monthly to check that all systems are functioning according to the manufacturer's specification.

This inspection will include the following;

- Check all instrumentation;
- Listen for early signs of bearing or motor failure on fans;
- Check ignition systems;
- Check joints and pipework for signs of damage, leaks or fatigue;
- Check condensate pumping system;
- Check flame for signs of surging and flame colour; and
- Check performance indicators such as differential pressure and flow

These inspections will be used to indicate potential problems between services and any signs of malfunction will be reported immediately and arrangements made for repairs to be carried out.

In addition to the above, approved contractors will service the gas flare in accordance with the manufacturer's recommendations. Servicing of the gas plant will be carried out with minimal interruption to its operation.

Gas Utilisation Plant

The engine suppliers may service the gas utilisation plant, but general routine servicing and maintenance may also be carried out by company personnel. The servicing will allow for planned and unplanned maintenance activities, with the degree of servicing reflecting the hours of operation of the generator.

The requirement for unplanned maintenance is identified through the 24-hour feedback from the telemetry system, and the weekly monitoring carried out by the gas field technician.

13.10 System Monitoring

13.10.1 Flow, Pressure and Composition

The gas collection system will be monitored for gas flow, gas quality and pressure. Gas flow will not be routinely measured at each well but will be regularly measured at the plant compound.

The entire gas field will be monitored once a month, with the gas plant being monitored on a weekly basis during normal operations.

In the event of abnormal operating conditions, additional monitoring will be carried as required until normal operating conditions are re-established.

This monitoring will be carried out throughout the operational and post closure stages of the installation.

13.10.2 Meteorological Monitoring

Meteorological monitoring will be carried out at the site and will be used where necessary to assist in the management of gas.

13.11 Action Plan

13.11.1 Air Ingress

Air ingress into the system can be caused by a number of different failure scenarios, such as damage to a wellhead caused by settlement or vandalism, or failure of a component.

In the event of such damage being observed, immediate action will be taken to make temporary repairs using sealing tape, pending more permanent repairs, which will be undertaken following isolation of the wellhead or manifold.

13.11.2 Leaks

The integrity of the gas system is also subject to routine monitoring and any identified problems affecting the operation of the system is remedied to ensure continued effective control of landfill gas.

The priority will be to undertake temporary repairs immediately using sealing tape if possible pending more permanent replacements or resealing of components.

13.12 Data Management and Recording

Records of the design, specification, operation, inspection, maintenance and monitoring of the gas system are maintained. Specifically, the following records are maintained:

- Records of all inspections carried out on the system;
- Planned and unplanned maintenance and servicing;
- Records of monitoring for gas composition, flow and volume; and

These records will comprise data sheets, and electronic records of system operation. All records are available for inspection by the NRW on request.

A site diary is also maintained in the control room and is used to record all visits and significant alterations to the gas field extraction regime.

14.0 Gas Monitoring

14.1 Monitoring Locations

The landfill gas monitoring locations are illustrated on Drawing ESID9.

14.2 Emission Limits and Monitoring Requirements

14.2.1 Surface Emissions

Landfill Technical Guidance Note LFTGN07v2[2] provides a methodology to determine the emission of methane from the surface of a landfill. This guidance sets out a two-stage approach (Stage 1 walkover and Stage 2 flux survey) for the monitoring of emissions through a landfill cap, and hence determining the effectiveness of the cap. Monitoring (and frequency of monitoring) would be carried out as required by this guidance on the basis of the development of the temporary and permanent cap.

The surface emissions compliance limits are detailed in Table 5-1 of the LFGRA included as Section 9 of the EP application.

14.2.2 In-Waste Landfill Gas

In-waste monitoring of the following parameters will be routinely undertaken at the landfill site:

- Methane;
- Carbon dioxide;
- Oxygen;
- Temperature;
- Atmospheric and differential pressure; and
- Gas flow rate / suction (on collection wells).

Temperature and carbon monoxide are only measured as and when required. Annual trace analysis is also required of the Gas Line to the gas utilisation compound.

14.2.3 Perimeter Landfill Gas – Sub Surface

Monitoring is typically carried out monthly, but weekly when required by an Action Plan. Perimeter borehole monitoring of the following parameters will be routinely undertaken at the landfill site:

- Methane;
- Carbon dioxide;
- Oxygen;
- Temperature; and
- Atmospheric and differential pressure.

Other gases, for example hydrogen sulphide, carbon monoxide, may be monitored within perimeter boreholes if considered necessary at any given time, as will gas pressures.

[2] Environment Agency, Guidance on Monitoring Landfill Gas Surface Emissions V2 (LFTGN07_v2) 2010.

The approach for setting carbon dioxide action levels is detailed in Table 5-2 of the LFGRA included as Section 9 of the EP application.

The approach for setting methane action levels and compliance limits is detailed in Table 5-3 of the LFGRA included as Section 9 of the EP application.

Background data collected prior to the commencement of filling will be analysed to establish the actual compliance limits (for methane) and action levels (for methane and carbon dioxide) and is likely to be agreed as a pre-operational condition.

14.2.4 Landfill Gas Engine and Flare

Emissions from the combustion plant, i.e. gas utilisation engines and flare (if operated for more than 10% of the hours in a year) will be monitored annually using methodologies compliant with NRW and Health and Safety Executive guidance at the time.

Emission levels for the landfill gas utilisation plant are detailed in Table 5-4 of the LFGRA included as Section 9 of the EP application.

Emission levels for the landfill gas flares are detailed in Table 5-5 of the LFGRA included as Section 9 of the EP application.

14.2.5 Perimeter/ Receptor – Aerial Emissions

Off-site monitoring of landfill gas and / or trace gasses will only be undertaken in response to persistent odour complaints or as part of the Action Plan relating to exceedances of other compliance limits. In this event, monitoring would be undertaken in accordance with EA Technical Guidance notes M9 and M13.

14.3 Contingency Action Plan

The contingency action plan as detailed below will be followed in the event of:

- Abnormal changes in monitoring data;
- Operational problems or failure of the control system;
- Reported events (e.g. odour complaints);
- Migration and release of landfill gas; and
- Impact on local air quality.

The contingency action plan that is followed in the event of any of the circumstances identified above is as follows:

- Methane concentrations in the zero to 1% above background levels range are considered to show normal variability and routine monitoring is maintained in the boreholes;
- If methane concentrations exceed 1% above background levels, then the following actions are carried out and appropriate contacts with Mold personnel made:
    - The Site Manager is informed at the earliest opportunity, usually within on working day, by the established system of trigger breach reporting;
    - The affected borehole(s) are re-monitored to verify the results and establish that the trigger level has been exceeded. If it is established that the trigger level has been exceeded, then the monitoring frequency is increased within the affected and adjacent boreholes;

  - An assessment will be made by the Site Manager as to whether there are any properties immediately at risk from gas migration. Consideration will be given to monitor at the property;

- An assessment is made of the possible causes of the increase in methane levels, e.g.
  - Gas plant failure;
  - Vandalism or tampering to the extraction system by unauthorised persons;
  - Fluctuations in leachate and/or groundwater levels;
  - Rapid drop in atmospheric pressure; and
  - Snow, frost, heavy rain.
- The previous monitoring results for the site are checked;
- The gas extraction system is adjusted, where appropriate, to increase the extraction of gas adjacent to the affected area;
- The extraction system is checked for well failures, damaged pipework, condensate blockages;
- The surrounding area is checked for signs of gas or leachate escaping or vegetation die back; and
- If, after four weeks, gas levels are showing no signs of stabilising the following will be considered:
  - Review of the landfill gas risk assessment;
  - Sampling of gases for laboratory analysis to verify source;
  - Installation of additional monitoring boreholes;
  - Installation of additional gas extraction wells or capacity; and
  - Applying suction to monitoring wells.

Routine gas monitoring would recommence once methane levels had stabilised.

14.4 Monitoring Techniques

When monitoring perimeter and internal gas monitoring points the following records are made:

- Name of technician;
- Date of sampling;
- Atmospheric pressure;
- Instrument type and serial number;
- On-site weather conditions;
- Observations including vegetation die-back, leachate outbreaks, surface water ponding;
- Damage to borehole headworks, caps or taps; and
- For internal gas monitoring, the position of the valve between open and closed is recorded.

14.5 Data Management and Reporting Procedures

14.5.1 Recording and Maintenance of Data

Following each landfill gas monitoring exercise, a copy of the landfill gas monitoring results are downloaded and stored in a database.

The gas monitoring results entered into the database include:

- Perimeter borehole or gas well identification;
- Date;
- Gas concentration;
- Barometric pressure; and
- Units.

14.5.2 Reporting to NRW

Results of landfill gas monitoring are submitted to the EA in line with the EP.

14.5.3 Recording Complaints

Complaints will be recorded according to Mold's standard procedures. Complaints regarding landfill gas will be recorded, depending on their nature, either on an incident report which are cross referenced in the daily log or directly into the daily log. This will include the following details:

- Complaints received including address of complainant;
- Nature of problem including date, time, duration, prevailing weather conditions and cause of the problem;
- Details of any corrective action taken, and any subsequent changes to monitoring and operational procedures; and
- An evaluation of the effectiveness of the techniques used.

14.6 Quality Assurance

14.6.1 Construction Quality Assurance

Should any well, headworks or monitoring connection point become damaged they are repaired or replaced, if necessary, to ensure that the integrity and operating efficiency of the system is not impaired.

Where new perimeter boreholes or in waste gas wells are installed, the drilling logs and as-built installation details are retained and will provide the following information:

- Perimeter borehole or gas well identification;
- Date of drilling/installation;
- Geological strata descriptions;
- Water strike;
- Design of the perimeter borehole or in waste gas well if more than one type is being used on the site;
- Depth of borehole (m) and level of the bottom of the borehole in m AOD;
- The surveyed height of the top of the borehole in m AOD, and the surveyed ground level at the point if it differs; and
- The National Grid Reference of the borehole (10 figure).

14.6.2 Monitoring Quality Assurance

Suitably trained and experienced personnel undertake gas monitoring.

The gas monitoring equipment is calibrated, serviced and maintained in line with the manufacturer's recommendations. Calibration certificates are retained by Mold.

Laboratory analysis of gas are utilised when necessary to identify gas source or to validate results.

The area adjacent to the boreholes are kept clear and free from any vegetation, to ensure that adequate areas for sampling or monitoring are retained.

15.0 Installation Infrastructure

15.1 Security Measures and Standards

The following measures are implemented at the installation:

- Building security: Shutters on windows;
- Lighting: Security lighting;
- Fencing: Security fencing around perimeter;
- Security Gates;
- Warning notices;
- Authorised Access System: Visitor sign in;
- Inspection: Weekly inspection of gates and fencing; and
- Maintenance and Repair.

15.1.1 Contingency Action Plan

In the event of a breach of security at the installation, the following course of action is followed.

Unauthorised Access

The route of access is determined, and consideration given to the following measures as appropriate:

- Repair of gates or fencing;
- Replacement of gates or fencing with more secure design;
- Erection of warning signs; and
- Installation or implementation of additional security measures for example security cameras, more frequent patrols.

Unauthorised Tipping

The following actions are taken in the event of unauthorised tipping:

- The material is examined for evidence of ownership;
- NRW are informed;
- With the agreement of NRW, the material is removed and disposed of correctly;
- If appropriate, additional warning signs are erected; and
- Additional security measures are considered.

Records

A record relating to the management and monitoring of security are maintained. It will include the following details:

- Records of the inspections and maintenance of security fencing and gates;
- A record of all breaches of security and incidents of fly tipping, and investigations of these breaches of security; and

- Details of the action taken to replace or repair security equipment, and investigate fly tipping, including any subsequent changes to operational procedures.

15.2 Sub-Surface Structures

Sub surface structures are subject to an inspection and maintenance programme, which includes pressure tests, leak tests, material thickness checks or CCTV. These checks are undertaken at regular intervals.

15.3 Installation Surfacing

All areas of the installation (excluding the landfill containment areas) where there is potential for activities to pollute the ground or controlled waters are hard surfaced.

Construction of any future hard surfacing will be subject to CQA procedures, and thereafter regular inspection and maintenance.

15.4 Bunds

Bunds or other means of containment are provided for all tanks containing liquid whose spillage could be harmful to the environment.

The bunds will possess the following features:

- Impermeability and resistance to the stored materials;
- A capacity of 110% of the largest tank or 25% of the total tankage whichever is the greater;
- No outlet and drains to a blind collection point;
- Fill points within the bund or provide alternative containment;
- Pipework routed within the bund, with no penetration of contained surfaces; and
- Designed to catch leaks from tanks or fittings.

Bunds are subject to regular visual inspections at weekly intervals and the results are entered in the installation log. Where the structural integrity of bunds is in doubt, water testing is undertaken.

The contents of the bunds are pumped out or otherwise removed under manual supervision and control after checking for contamination.

Any tanks, which are not subject to frequent inspection, are fitted with a high-level alarm.

16.0 Particulate Matter Management and Monitoring

16.1 Operational Measures

The following operational measures are employed on site to manage the release of particulate matter:

- Vehicle speed limits;
- Sweeping of access road and highway;
- Spraying of roads and operational areas;
- Static water sprays;
- Seeding of earth bunds, stockpiles and surfaces;
- Containment of particularly dusty waste;
- Fill direction and sequence considering meteorological conditions; and
- Sheeting of vehicles.

The Site Manager has the responsibility for ensuring that nuisances and hazards arising from the landfill due to dust are minimised.

16.2 Dust Monitoring Plan

The following monitoring techniques are employed on site to manage the release of particulate matter:

- Monitoring of meteorological conditions;
- Daily visual monitoring; and
- Any quantitative monitoring required by the EP.

16.3 Dust Action Plan

If significant volumes of dust are noted at the installation during routine visual monitoring, the following action is taken:

16.3.1 Dust Generation during Vehicle Movements

- The Site Manager will aim to ensure that vehicles are obeying the speed limits; and
- Additional road sweeping will be organised if required.

16.3.2 Dust Generation during Waste Emplacement and Covering

- If a problem is caused by a particular waste type, this waste will cease to be accepted until a suitable method statement detailing how the waste is handled, has been prepared and implemented; and
- If dust is caused by general compaction and covering operations, the area will be sprayed with water.

16.3.3 Records

A record relating to the management and monitoring of dust is maintained in the site daily log. It includes the following details:

- A record of all dust events including date, time, and cause of the problem;

- A record of all complaints; and
- Details on the corrective action taken and any subsequent changes to operational procedures.

17.0 Odour Management and Monitoring

17.1 Odour Management Plan

The site is operated in accordance with the Odour Management Plan, included in Section 10 of the original EP application (Ref: 416.07238.00001/OMP). The plan is available for reference on site and a summary of the contents is detailed below:

- Landfill Odour Controls
  - Waste storage and Transport;
  - Disposal of high odour risk waste streams;
  - Compaction of waste;
  - Application of daily and intermediate cover;
  - Landfill gas infrastructure and management;
  - Leachate management; and
  - Odour management suppression systems.
- Landfill Odour Monitoring
  - Meteorological conditions;
  - Regular inspection/olfactory monitoring;
  - Monitoring of landfill gas and leachate management infrastructure;
  - Monitoring of gas flares and engines; and
  - Surface methane emissions surveys.
- Odour Action Plan
  - Odour complaint investigation;
  - Action plan:
    - Disturbed waste;
    - Malodorous waste;
    - Inadequate cover or capping;
    - Inadequate gas control;
    - Damage to gas collection system;
    - Generator or gas plant trip; and
    - Leachate wells/monitoring points.

18.0 Dirt and Mud Management and Monitoring

18.1 Operational Measures

The following operational measures will be employed on site to manage the release of dirt and mud:

- All access roads will be hard surfaced;
- All vehicles will be driven through the wheel wash facility before exiting the installation; and
- Routine road sweeping will be undertaken.

It is the responsibility of the Site Manager to ensure that nuisances and hazards arising from the landfill due to dirt and mud are minimised. The Site Manager ensures that daily inspections are made of the installation road and the highway outside the entrance to the facility.

18.2 Action Plan

In the event that mud or dirt is found to be escaping the site boundary, the following action is taken:

- Investigations will be made of the cause of the problems;
- Action will be prioritised according to the meteorological conditions and the location of sensitive receptors;
- If appropriate, a road sweeper will be hired to sweep the access road, and the surrounding highway within 24 hours of the problem notification; and
- Persistent misuse of the wheel cleaning equipment may lead to the vehicle being banned from using the installation.

18.2.1 Records

A daily record relating to the management and monitoring of mud and dirt will be maintained. It includes the following details:

- The results of inspections and monitoring carried out by site personnel;
- Problems including date, time, duration, and cause of the problem;
- Complaints received including address of complainant;
- Details on the corrective action taken, and any subsequent changes to operational procedures; and
- An evaluation of the effectiveness of the techniques used.

19.0 Litter Management and Monitoring

19.1 Operational Measures

The following operational measures are employed on site to manage litter:

- Litter fencing;
- Provision of cover materials;
- Fill direction and sequence considering meteorological conditions;
- Sheeting of vehicles;
- Cleaning of vehicles;
- Sheltered emergency tipping area;
- Efficient compaction of waste;
- Daily covering of waste;
- Mobile litter screens;
- Construction of temporary banks and bunds;
- Containment of high litter risk waste streams; and
- Litter collection.

The Site Manager has responsibility for ensuring that nuisances and hazards arising from the landfill due to litter are minimised.

19.2 Monitoring Techniques

The following monitoring techniques will be employed on site to manage litter:

- Monitoring of Meteorological Conditions; and
- Daily inspection.

19.3 Action Plan

Litter escaping from the deposition area but remaining within the installation boundary is collected within 7 days and is returned to the deposition area.

In adverse weather conditions, the following actions are considered:

- Litter picking personnel are deployed to collect litter within 24 hours of its escape from the installation;
- Mobile litter fencing is deployed to accommodate prevailing wind direction and location of receptors;
- Operations are transferred to the emergency landfilling area; and
- The installation is closed to selected waste or in extreme circumstances all waste inputs.

19.3.1 Records

A daily record relating to the management and monitoring of litter is maintained. It includes the following details:

- The results of inspections and monitoring carried out by installation personnel;

- Wind speed and direction;
- Problems including date, time, duration, prevailing weather conditions and cause of the problem;
- Complaints received including address of complainant;
- Corrective action taken; and
- An evaluation of the effectiveness of the techniques used.

20.0 Birds, Vermin and Insect Management

20.1 Operational Measures

The following operational measures are employed on site to manage birds, vermin and insects:

- Robust waste assessment combined with appropriate disposal and handling procedures;
- Regular cleaning of waste storage areas;
- Storage of waste contained within designated areas;
- Daily pest and vermin inspections;
- Rapid turnover of wastes within the waste recycling facility;
- Daily covering of waste;
- Removal of any ponding leachate;
- Bird scaring; and
- Trained and informed staff.

The Site Manager has responsibility for ensuring that nuisances and hazards arising from the landfill due to birds, vermin and insects are minimised.

20.2 Monitoring Techniques

The following monitoring techniques are employed on site to manage pests:

- Monitoring of Meteorological Conditions; and
- Daily inspection.

20.3 Action Plan

Fly control measures to be employed by specialist in the event of increased fly populations consist of:

- Insecticide sprays;
- Insecticide fogging; and
- Insecticutors.

A suitable and qualified contractor will treat for flies with either, spot treatment, residual insecticide treatments or larvicide treatment, all of which are used to control the fly populations on site.

Vermin control measures to be employed by specialist in the event of observed vermin populations consist of:

- Baiting at the site;
- Trapping areas of the site; and
- Night time culls.

A third-party contractor always carry's out site visits to site to perform bait treatment to control the population of vermin on site.

The frequency of attendance is set at a minimum of once per month to bait and trap the site for vermin. If the numbers of vermin are considered by either the contractor or by Mold staff to be on the increase then the frequency of visits is increased and the location and numbers of traps on the site is reviewed, with any increase

in number or change of location agreed with the contractor. Records of visits and treatments are retained within the site office.

20.3.1 Records

A daily record relating to the management and monitoring of pests is maintained. It includes the following details:

- The results of inspections and monitoring carried out by installation personnel;
- Problems including date, time, duration, prevailing weather conditions and cause of the problem;
- Complaints received including address of complainant;
- Corrective action taken; and

An evaluation of the effectiveness of the techniques used.

21.0 Noise and Vibration

A Noise Assessment Report, Ref: LE12936/005, has been prepared by Wardell Armstrong and is included as Section 13 of this EP application.

The assessment includes details of the noise surveys, noise data and an assessment of the results in accordance with current guidance including BS4142:2014.

The assessment was conducted for initial site preparations, the landfilling operations and subsequent restoration activities.

The assessment concluded that noise from the site is predicted to be below the measured background noise level during daytime and night-time with the exception of site preparation activities at Parry's cottages south east of the site. However, predicted noise levels are only marginally above background noise levels and therefore specific mitigation measures are not required.

Although mitigation measures are not required, the following operating techniques will be employed on site to manage noise and vibration:

- Liaison with neighbours;
- Training of all appropriate installation personnel;
- Noise sensitive engineering works;
- Noise suppression equipment;
- Selection of noise sensitive plant and equipment;
- Siting of plant and equipment in relation to sensitive receptors;
- Maintenance of plant and equipment;
- Possible alternatives to reversion alarms;
- Physical sound barriers e.g. bunds;
- 15mph speed limit across the site;
- Designated vehicle routes away from sensitive receptors where possible; and
- Regular road maintenance

The Site Manager has responsibility for ensuring that nuisances and hazards arising from the landfill due to noise are minimised.

21.1 Monitoring Techniques

The following monitoring techniques are employed on site to manage noise and vibration:

- Monitoring of meteorological conditions; and
- Regular inspection and monitoring.

21.2 Action Plan

If noise derived from the site is perceived beyond the installation boundary and gives rise to complaints, action is taken without delay. The remedial action is related to the meteorological conditions and the high sensitivity receptors. The following remedial action may be appropriate:

- Relocate landfilling operations pending change in wind direction;

- Relocate plant and equipment to less sensitive locations;
- Construct or erect acoustic bunds, barriers or screens;
- Replace noisy plant and equipment with quieter models;
- Undertake maintenance on equipment that will reduce noise levels; and
- Modify plant to incorporate noise suppression equipment.

21.2.1 Records

A record relating to the management and monitoring of noise is maintained. It includes the following details:

- The results of inspections and monitoring carried out by installation personnel;
- Wind speed and direction;
- Problems including date, time, duration, prevailing weather conditions and cause of the problem;
- Complaints received including address of complainant;
- Details on the corrective action taken, and any subsequent changes to operational procedures; and
- An evaluation of the effectiveness of the techniques used.

22.0 Raw and Auxiliary Materials

22.1 Introduction

This section describes the selection and minimisation of the raw and auxiliary materials that are used in the operation of the installation.

22.2 Principal Raw Materials

22.2.1 Engineering Materials

The primary materials that are used to engineer the installation are as follows:

- Low permeability clay for basal and sidewall geological barrier;
- Low density polyethylene/low permeability clay for capping layer;
- Geotextile to protect capping membrane;
- Gravel for leachate drainage blanket;
- Concrete and/or tarmacadam and associated materials for construction of main access road and hard standing areas;
- Aggregate for construction and maintenance of installation roads; and
- High and medium density polyethylene for construction of leachate drains, landfill gas pipelines, well components and monitoring installations.

The use and quantity of these specific materials is a requirement of the EP, and their primary role is to protect the environment. They are considered to be fundamentally inert and therefore their environmental impact is considered negligible. The consideration of alternatives is not therefore appropriate or necessary.

22.2.2 Fuels

Fuels utilised at the installation include:

- Gas, oil/diesel.
- Electricity.

The use of fuels at the installation is optimised through an annual review and inventory of energy use.

Specific fuels to be used are those recommended by the plant manufacturer, bearing in mind the need to minimise environmental impacts.

22.2.3 Amenity Control Chemicals

A number of chemicals may be used at the installation, which will primarily be associated with control of amenity impacts, these will possibly include:

- Pesticides to control insect and vermin infestation; and
- Herbicide for amenity management.

The compounds to be used are as recommended by specialist suppliers, to optimise the effectiveness of the treatment and the biodegradability of the selected materials.

The quantity of such chemicals is the minimum necessary to achieve successful control of amenity impacts.

22.3 Material Inventory

A full inventory of materials used at the installation are available from the following sources.

22.3.1 Control of Substances Hazardous to Health (COSHH) Regulations Records

This document contains details of all those substances used at the installation, which are considered to present a hazard to health.

22.3.2 Construction Quality Assurance Reports

The construction quality assurance reports contain details on all the engineering materials, which were utilised during the construction of the various elements of the installation, including where applicable chemical composition and quantities are used.

22.4 Material Selection

22.4.1 Engineering Materials

Selection of engineering materials is governed primarily by the quality assurance requirements to ensure long term performance and protection of the environment.

Where prescriptive quality assurance and performance specifications do not apply, e.g. in the construction of temporary installation roads, the use of recycled materials are optimised.

22.4.2 Fuel

All fuels used at the installation conform to relevant British Standards on polluting emissions.

22.4.3 Amenity and Process Control Chemicals

Wherever possible materials are selected that minimise the impact of the activities on the environment. Consideration is given to such factors as degradability, bioaccumulation potential and toxicity.

22.4.4 Substitution Principle

Alternative raw materials are evaluated for their environmental impact and where there is no overriding quality requirement, substitution is considered.

22.4.5 Product Awareness

The ongoing programme of professional and technical development for all installation personnel ensures awareness of new developments in product availability and their implications.

22.5 Material Input Minimisation

22.5.1 Raw and Auxiliary Material Minimisation

As the majority of raw and auxiliary materials used at the installation are required to minimise the impact of the activities on the environment, any attempts to minimise their use may compromise the control and abatement systems and may not be appropriate. However wherever possible and where such systems cannot be compromised, alternative materials are considered, e.g. the use of suitable inert waste for the construction of installation roads.

22.5.2 Review Procedure

To ensure the use of raw materials is evaluated, raw material use is reviewed on an annual basis. The review considers any opportunities for reduction in use and will provide an action plan for improvements.

23.0 Energy

The waste management sector is not considered to be a significant energy user and therefore the opportunity for significant energy efficiency is limited. However, the following section provides details on the proposed measures for energy efficiency that are adopted at the installation.

23.1 Energy Consumption Audit

To optimise the efficiency of energy usage at the installation, an audit of energy usage is undertaken on an annual basis. This will provide a breakdown of energy consumption at the installation.

The audit will identify energy use by source for the different installation operations. Sources of energy to be evaluated will include electricity, gas, oil, coal and diesel.

The results of the audit are evaluated and used to identify potential measures for improving energy efficiency.

23.2 Energy Efficiency Plan

23.2.1 Plant and Equipment Selection

The selection process for new plant and equipment will include an evaluation of its energy efficiency.

23.2.2 Maintenance

All plant and equipment in use at the installation are subject to regular maintenance to ensure they continue to operate at optimum energy efficiency, and that fuel consumption does not increase due to inefficient engine performance.

A record of fuel consumption is maintained and is used to identify the need for unplanned maintenance. These records will also be reviewed as part of the annual energy consumption audit.

23.2.3 Training in Energy Efficient Practices and Housekeeping

All site operatives will made aware of the need for energy efficient practices such as the need to ensure electric lights are not left switched on when they are not required, and the engines of mobile plant are not left running when not in use.

23.2.4 Landfill Gas Utilisation

The landfill will receive biodegradable wastes and landfill gas generated will continue to be collected, treated and, to the extent possible, used. The landfill gas will be used to generate electricity using gas engines employed at the landfill as long as sufficient gas is generated.

24.0 Accidents and their Consequences

Mold recognises the importance of the prevention of accidents that may have environmental consequences and that it is crucial to limit those consequences.

An accident management plan will be implemented and maintained at the facility to ensure that the site and staff are fully prepared for any such incidents. The accident management plan will be reviewed at least every four years or as soon as practicable after an incident, with changes made accordingly to minimise the risk of occurrence.

The following accident management plan describes the techniques that will be implemented to minimise the risks posed to the environment. Activities affecting the health and safety (H&S) of operatives, contractors and visitors will be separately managed in compliance with H&S regulation and company H&S Policy.

The following categories of potential hazard/accident have been identified as being relevant to the installation:

- Flooding;
- Fire;
- Explosion;
- Major Breach of Installation Liner;
- Unauthorised Waste;
- Security and Vandalism; and
- Spillage and Leakage.

The following sections summarise the measures necessary to minimise the potential causes and consequences of accidents.

24.1 Flooding

The facility is not identified as being at risk from flooding events according to the NRW flood map.

If an accident occurs, or additional risks are identified, the Site Manager is responsible for carrying out an investigation to determine the cause and implementing remedial action prior to logging this in the site diary.

24.2 Fire

Fire risks from landfill sites include:

- Site buildings containing electrical appliances and other sources of ignition along with materials that would readily burn;
- Combustible waste materials delivered to the facility which could support combustion;
- Hot loads arriving on site;
- Hot works; and
- Underground fires, due to smouldering loads or spontaneous combustion.

The following prevention and mitigation measures are in place on site to reduce the risk of an accidental fire:

- All employees will undergo training relevant to their role in fire prevention, use of fire extinguishers, and emergency procedures;

- Smoking will only be permitted at designated areas and specifically not at the operational areas on the installation;
- Where appropriate, plant will be fitted with automated fire protection equipment;
- A formal permit to work system will be in place to ensure appropriate precautions are taken and approval obtained prior to any hot work being carried out on installation plant and equipment;
- Waste acceptance procedures will minimise the likelihood of hot loads being deposited at the active face;
- All potentially hot loads will be identified on arrival at the installation and will be subject to quarantine procedures;
- The landfill gas management system will be monitored regularly and adjusted where necessary to ensure that air is not entering the system;
- Smoke and fire alarms will be fitted in the installation offices;
- All operatives will remain vigilant regarding the breakout of fire at the site;
- Monitoring for underground fires will be routinely carried out during the regular monitoring of the landfill gas management system.

In the unlikely event of a minor fire incident, site personnel will extinguish the fire and the incident will be reported to managerial personnel and NRW. Where initial attempts by site personnel have failed to contain the fire, or for incidents of a more serious nature, the Fire & Rescue Service (FRS) will be called.

24.3 Explosion

24.3.1 Gas Extraction System

The main risk of explosion at the installation is associated with the operation of the landfill gas collection and extraction system.

The gas system will be designed to meet all relevant British Standards.

In the event of an explosion, the action taken by installation personnel would be the same as that taken in the event of fire.

24.3.2 Explosive Waste Materials

If explosive materials are discovered within the waste or in a skip, the following action would be taken:

- Evacuate the area and keep clear;
- Dial 999 and state nature of emergency;
- Follow all instructions given; and
- Contact supervisor/line manager immediately.

24.4 Major Breach of Installation Liner

24.4.1 Stability Risk Assessment

A major breach of the installation liner could be caused by instability of the substrata, or of the engineered lining system. The stability of both these elements has been assessed within the SRA and all necessary precautions

incorporated within the design of the installation to ensure that the risk of a breach in the lining system as a result of instability in the substrata or the engineered lining system is low.

24.4.2 Monitoring

A visual inspection is carried out monthly for evidence of the following:

- Evidence of cracks in temporary waste slopes caused by the movement of the waste mass;
- Evidence of instability or movement in the lining system;
- Evidence of differential settlement causing depressions in the restored landform, cracks in the capping system, or damage to the drainage system; and
- Evidence of sudden drop in leachate levels.

Topographical surveys are carried out annually to monitor the following aspects:

- Settlement of waste mass (to monitor settlement against design assumptions); and
- Stability of temporary and permanent slopes (to identify any requirements for remedial actions and/or revisions to design future phases).

24.4.3 Action Plan

If stability or settlement problems are discovered, appropriate remedial action is taken as detailed below:

Liner Breach

- Leachate will be pumped from the affected cell to minimise heads;
- If exposed, the liner will be inspected by an independent engineer to assess the need for any remedial action, which will need to be agreed with NRW; and
- Revisions to the liner design to provide additional resistance to slippage or damage will be considered and agreed with NRW.

Instability of Waste Mass

If there is visual evidence of movement within the waste mass, or evidence from the regular topographical surveys, an independent engineer will review the situation, and appropriate remedial action will be taken in agreement with NRW.

The action taken will depend upon the severity of the movement, the timescales over which the unstable mass will remain unsupported and the consequences of failure.

Action taken may include one or more of the following:

- The situation will continue to be monitored through regular visual inspections and topographical surveys;
- Prohibit operations at the base of the slope which may place operatives at potential risk;
- Adjustment to phasing of landfill operations to provide additional support to the waste mass as soon as possible;
- Engineering work to increase the stability of the slope and reduce the risk of failure; and
- Revised design for future phases to reduce slope gradients and /or height of slopes and reduce time period over which temporary slopes remain unprotected.

24.4.4 Differential Settlement

Remedial action taken will depend upon the severity of the differential settlement and whether it has affected the integrity of the cap, and may include some or all the following actions:

- Surcharging affected areas with additional restoration soils to produce a landform with appropriate falls;
- Localised removal of capping layers, surcharging with waste or soils, and replacement of cap under appropriate CQA procedures;
- Replacement of drainage channels to ensure continued integrity of surface water drainage; and
- Review of design to accommodate predicted differential settlement by locally strengthened cap, providing additional thickness of capping materials, or incorporating irregular edges and boundaries to compensate for predicted settlement differentials.

24.5 Unauthorised Waste

The acceptance of unauthorised materials could result in unacceptable wastes being stored and treated at the site. All wastes will be subject to inspection and checking against the agreed quality specification and in accordance with the WAP. If unauthorised waste is delivered to the site, the waste will be handled in line with the rejection and quarantine procedures within the WAP.

24.6 Security and Vandalism

The following measures are implemented at the installation:

- Building security: Shutters on windows;
- Lighting: Security lighting;
- Fencing: Security fencing around perimeter;
- Security Gates;
- Warning notices;
- Authorised Access System: Visitor sign in;
- Inspection: Weekly inspection of gates and fencing; and
- Maintenance and Repair.

In the event of a breach of security at the site, the cause will be investigated, and appropriate mitigation measures implemented. This will be recorded in the site diary. Records maintained will include inspections and maintenance of doors and locks, breaches of security, investigations and actions taken.

24.7 Spillage and Leakage

Spillage and leakage can occur during refuelling of vehicles, fuel deliveries, vehicle servicing, vehicle breakdowns, accidents or loss of containment due to damage to tanks or bunds.

24.7.1 Vehicle Fuel Spillage

All fuels and potentially polluting liquids delivered to site are unloaded by suitably qualified employees from the delivery company and overseen by a designated installation operative.

24.7.2 Loss of Containment

To prevent loss of containment and minimise the risk and impact of releases the following measures will be implemented:

- Storage vessels: storage tanks will be constructed to the appropriate British Standard;
- Inspection: tanks will be inspected visually on a regular basis by the site staff to ensure the continued integrity of the tanks, and identify the requirement for any remedial action;
- Spill kits: materials suitable for absorbing and containing minor spillages will be maintained on site; and
- Monitoring techniques: the site staff will undertake regular monitoring for evidence of spillage and leakage.

24.7.3 Action Plan

In the event of any potentially polluting leak or spillage occurring on site, the following action will be taken:

- Minor spillages will be cleaned up immediately, using sand or proprietary absorbent. The resultant materials will be placed into containers and will then be removed from site and disposed of at a suitably permitted facility. The incident will be logged in the site diary.
- Any dry wastes spilled on site will be collected and transported to the appropriate area of the site.

In the event of a major spillage, which is causing or is likely to cause polluting emissions to the environment, immediate action will be taken to contain the spillage and prevent liquid from entering surface water or drains. The spillage will be cleared immediately and placed in containers for offsite disposal, and the EA will be informed.

25.0 Meteorological Monitoring

Meteorological data enables the Site Manager to make a qualitative assessment of the on-site conditions and put in place necessary precautions to prevent problems such as emissions to air beyond the site boundary. The facility will benefit from a wireless weather station, which will upload data to the Site Manager's laptop with daily weather conditions including temperature, atmospheric pressure, wind speed and direction, sunlight, precipitation and intensity.

As outlined in the EP, an annual summary of meteorological data is to be submitted to NRW as part of the annual report and in line with The Landfill Directive, Annex 3, Section 2.

26.0 Landfill Body Monitoring

A topographical survey referenced to ordnance datum is carried out annually, prior to the disposal of waste in any new cell or new development area of the landfill and following closure of the landfill or part of the landfill.

The topographical survey can be used to determine the following factors:

- Surface occupied by waste;
- Waste levels;
- Volume and composition of waste;
- Remaining capacity; and
- Settlement.

27.0 Site Closure, Aftercare and Completion

27.1 Introduction

This section describes the measures that are taken on definitive cessation of activities, to avoid any pollution risk, and return the installation to a satisfactory state. The plan is divided into 6 subsections, which address specific requirements of the overall aftercare management of the installation, namely:

- Definite closure plan;
- Access and site security plan;
- Restoration plan;
- Post closure monitoring plan;
- Post closure maintenance plan; and
- Site completion plan.

27.1.1 The Definition of Closure

A requirement of the Environmental Permitting Regulations is that when an installation closes, the operator should apply to surrender the permit to end regulation. However, with regards to landfill developments, the surrender of the EP will not be coincidental with the cessation of waste disposal operations owing to the ongoing potential for the installation to cause pollution and/or harm.

With regards to landfills, there are therefore two stages to the closure process. Stage 1 is the 'definite closure' of the landfill, which is the point at which the site stops taking waste, while Stage 2, or 'landfill completion', is the later point when aftercare maintenance and monitoring is completed to such a level that the installation is unlikely to cause pollution to the environment or harm to human health.

27.1.2 Design Considerations

To facilitate the ease and security of installation closure, consideration is given during the design process to the following:

- Provision for the draining and decontamination of tanks, lagoons and pipework prior to dismantling;
- Ease of dismantling and removal of installation infrastructure;
- Wherever practicable, use of construction materials that are readily recyclable, and insulation that can be removed without causing a dust hazard; and
- The need to design above ground infrastructure e.g. gas extraction wells which are compatible with the proposed after use of the installation.

27.1.3 Financial Provision

During the operational period of the installation, the price charged for the disposal of waste will cover the estimated costs of the closure and aftercare of the installation for the predicted period over which the installation is likely to present a hazard.

27.2 Definite Closure Plan

Definite closure will occur when the installation stops taking waste. The actions that will be taken at this point are set out below.

27.2.1 Final Waste Levels and Settlement Surveys

Surveys will be undertaken as required to ensure that final pre-settlement waste levels are achieved in accordance with the approved restoration plan and settlement allowances.

Throughout the aftercare period, settlement surveys will be undertaken initially every other year reducing to once every 5 years.

27.2.2 Communication

NRW will be informed in writing of the date of cessation of waste inputs to the installation. This will enable NRW to make arrangements to inspect the site, approve the closure, and agree the actions that will need to occur following closure.

All waste contractors will be informed of the impending closure of the installation so that alternative disposal options can be determined.

27.2.3 Capping

All waste cells will be capped in accordance with the approved specification.

27.2.4 Environmental Management and Monitoring Systems

All environmental management and monitoring systems for landfill gas, leachate, surface water and groundwater will be present in all the cells at the point of 'definite closure' and will be maintained and protected from damage so that they operate in an effective manner until the point of installation completion. If necessary infrastructure will be replaced to ensure their continued suitability for use throughout the aftercare phase.

Gas treatment, utilisation plant and flares will be operated, maintained and replaced as necessary such that they remain suitable for use throughout the aftercare phase.

Leachate extraction, recirculation, treatment and disposal systems will be operated, maintained and where necessary replaced such that they remain suitable for use throughout the aftercare phase.

27.3 Access and Site Security Plan

Following 'definite closure', an audit will be carried out of security provisions to ensure that the installation is left in a secure condition, unauthorised access is avoided, and illegal dumping is discouraged.

Installation security will be maintained with perimeter fencing and lockable gates to prevent unauthorised access to the installation after closure. Fencing and gates around the Environmental Management Compound will also be maintained throughout the aftercare period.

To ensure maintenance of security at the installation, regular inspections of the fencing and gates will be carried out, and any damage will be repaired as soon as practicable. This may necessitate the completion of temporary repairs pending permanent repairs. Maintenance and repair will be carried out where damage or deterioration is observed either during the routine inspection programme or as reported by a third party such as a local resident and only where the observed damage affects the integrity of the security provision.

27.4 Restoration Plan

The landfill area will be restored in accordance with the approved restoration proposals as detailed in Drawing ESID7.

The ground levels within the site will be varying amounts in accordance with the restoration profile approved by the local planning authority. The final restored profile will take account of the likely settlement of the deposited

waste. Drawing ESID6 illustrates the predicted pre-settlement and post-settlement contours, with relevant cross-sections.

The final restored site will be utilised for public amenity open space and nature conservation. The current indicative restoration proposals are as follows;

- The majority of the existing tree belts around the perimeter of the site will be retained;
- New extensive woodland planting and the provision of areas of open grassland and wildflower meadow on the landfill area of the site; and
- The final landform of the site after landfilling and restoration will be in the form of a rounded hill, which is sympathetic to the wider undulating landscape.

The restoration scheme is illustrated on Drawing ESID7.

27.5 Post Closure Monitoring Plan

Prior to the 'definite closure' of the installation, the environmental monitoring programme will be reviewed, and a post closure environmental monitoring plan will be submitted to NRW detailing the scope and frequency of the proposed environmental monitoring and reporting during the post closure period. This post closure monitoring plan will also incorporate installation completion objectives for agreement with NRW.

Notwithstanding this, all post closure monitoring will continue to be carried out in accordance with the procedures and methods adopted during the operational phase, specifically:

- All environmental monitoring and recording of landfill gas, leachate, groundwater and surface water will continue to be carried out in accordance with procedures and methods undertaken throughout the operational phase. Monitoring results for landfill gas, leachate and groundwater and surface water will continue to be recorded and sent to NRW;
- All environmental monitoring records will be kept on file in the site office; and
- Post closure settlement surveys will be regularly carried out.

27.6 Post Closure Maintenance Plan

27.6.1 Inspection Programme

To ensure all necessary maintenance is carried out during the aftercare period, a regular inspection programme will be implemented. The scope of the inspection programme will be as follows:

- Inspection of fencing and gates;
- Inspection of 'above ground' components of landfill including monitoring boreholes, pipework, wellheads;
- Inspection of leachate treatment and landfill gas plant; and
- Inspection of landfill topography for signs of differential settlement.

27.6.2 Maintenance Programme

All plant and equipment utilised during the post closure period will be maintained in accordance with the manufacturers requirements. The plant and equipment that will be subject to this maintenance is as follows:

- Fencing and gates;
- Monitoring boreholes (gas, leachate, groundwater);

- Landfill gas infrastructure (wells, pipework);
- Landfill gas plant (power generation equipment, gas flare); and
- Leachate pumping and treatment plant equipment.

In addition to the planned maintenance programme, unplanned maintenance will be carried out in response to unexpected damage identified during the routine inspection programme.

In addition, the restored landform will be maintained as required to remedy any differential settlement that may jeopardize the integrity of the capping or drainage system.

27.7 Installation Completion Plan

Installation completion will occur when the landfill is unlikely to cause pollution to the environment, harm to human health or detriment to the amenities of the locality.

The methodology that will be followed to determine this point, as well as the actions that will be carried out following completion are set out below.

27.7.1 Methodology to Determine Installation Completion

The methodology for determining installation completion will be in accordance with NRW guidance applicable at the time of completion.

The methodology will consist of the completion of a risk-based assessment that provides a structured and defensible basis for determining whether the installation is likely to cause a hazard to the environment as a result of the activities carried out on the permitted area of land.

A report will be prepared for the site and submitted to NRW in support of an application for 'permit surrender'. The report will consist of an identification of relevant completion criteria, an assessment and interpretation of the environmental monitoring data and a justification that the condition of the land is unlikely to cause an environmental hazard.

27.7.2 Following Installation Completion

Following installation completion, the entire remaining infrastructure that is present above ground surface will be decommissioned and removed off-site. This will include items relating to the landfill gas and leachate management systems and associated security provisions.

In addition, the environmental monitoring of the installation will cease, and installation security arrangements will be modified accordingly.

SECTION B: Waste Transfer Station

28.0 Waste Operations

28.1 Process Description

Operations carried out at the WTS are to accept and process approximately 400,000 tpa of wastes arising from households, commercial and industrial premises and the construction and demolition industry.

The objective of the activities is to recover as much material from the waste as practicable including:

- Primary and secondary aggregate;
- Wood;
- Ferrous and non-ferrous metals;
- Textiles;
- Plastics; and
- Paper and cardboard.

The indicative site layout for the WTS is illustrated on Drawing FPP1.

Vehicles will enter the facility the track off Pinfold Lane and report to the weighbridge and site control office. The waste will be weighed at the weighbridge and directed to the appropriate waste storage area in main waste transfer building. An operator will visually inspect the vehicle loads for any contaminants before allowing the vehicle to discharge their load prior to exiting the site.

The waste will be directed to the appropriate storage area/bay. An operator will visually inspect the vehicle loads for any contaminants before allowing the vehicle to discharge their load prior to exiting the site.

At the waste processing area, the following operations will be carried out:

- Sorting;
- Separation; and
- Screening;

After processing, wastes are stored on site for a maximum of 1 week prior to removal off site for further recovery or for disposal into the Parry's Quarry landfill.

28.2 Specified Waste Management Activities

The activities that will be carried out at the site as defined under Annex II of the Waste Framework Directive can be summarised as follows:

- **R3**: Recycling/reclamation of organic substances which are not used as solvents;
- **R4**: Recycling/reclamation of metals and metal compounds;
- **R5**: Recycling/reclamation of other inorganic materials;
- **D9**: Physico-chemical treatment not specified elsewhere which results in final compounds or mixtures which are disposed of by any of the operations numbered D1 to D12.
- **R13**: Storage of wastes pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced)
- **D14**: Repackaging prior to submission to any of the operations numbered D1 to D13.
- **D15:** Storage pending any of the operations numbered D1 to D14.

28.3 Waste Types and Treatment

The WTS will accept up to 400,000 tpa of commercial, industrial and household waste for further processing. The full waste list is included as Appendix 02 to the WAP.

All waste will be stored within the waste reception building which will benefit from fast roller action doors.

Waste pre-segregated upon acceptance will be stored immediately in the relevant storage bays indicated on Drawing FPP1. Mixed or bulked waste will undergo further processing and separation in the recycling building, prior to being stored in the appropriate bays.

After processing, wastes will be stored on site for the durations indicated in Table 27-1 prior to removal off site for further recovery or for disposal into the Parry's Quarry landfill if the waste meets the WAP for the landfill.

28.3.1 Indicative Storage Bays

The final internal design of the WTS building has not be completed. However, to ensure that NRW are confident that Mold will operate the facility with due regard to NRW's guidance[3], an indicative layout has been prepared and is presented on Drawing FPP1.

A worst-case scenario has been taken in this approach, in terms of the amount of waste which will be stored at any one time – which entails storage bays that are 7m long, 5m wide and 5m high, with bay walls that are 80cm think. The bays will maintain a 1m freeboard at all times which will result in the total bay waste height being capped at 4m. The freeboard is designed to prevent sparks or flames spreading from one bay to another in the event of fire.

Table 28-1
Maximum Stockpile Dimensions and Storage Time

Waste Type	Max Storage Time	Bay Length (m)	Bay Width (m)	Bay Height (m)	Max Bay Volume (m^3)
All waste storage bays illustrated on Drawing FPP1	1 week, but likely to be up to 48 hours	7	5	4	140

28.4 Waste Acceptance Procedure

The WAP for the WTS is included as Appendix 02 to this OTMP.

28.5 Plant and Equipment

The following mobile plant will be used on site (list not exhaustive):

- Forklift Trucks;
- Loading Shovels; and
- 360° Grab.

Additional plant and equipment including, but not limited to, water bowser, spray equipment and road sweeper will be made available as required.

All items of plant and equipment used on site will be maintained in accordance with manufacturer's recommendations.

[3] NRW Guidance – Fire Prevention and Mitigation Plan Guidance – Waste Management, Version 2.0, August 2017

29.0 Emissions and Monitoring

The WTS will be operated so that there will be no point source emissions to air, sewer, surface water, groundwater or land.

29.1 Surface Water and Groundwater

The WTS will be operated to prevent fugitive emissions to surface water and groundwater.

29.1.1 Waste Transfer Building

The waste transfer building benefits from impermeable surfacing and any runoff generated from periodic wash downs will be contained within the building.

29.1.2 Containment Bunding

Chemicals or fuel used on site will be stored in an appropriate tank that benefits from a bund with the capacity to store 110% of the tank capacity. Bunds will be:

- Impermeable and resistant to the stored materials;
- Have no outlet;
- Be designed to catch leaks from tanks or fittings;
- Have a capacity greater than 110% of the largest tank or 25% of the total tankage (whichever is greater);
- Have pipework routed within bunded areas with no penetration of contained surface;
- Have tanker connection points within the bund; and
- Be subject to regular visual inspection.

29.2 Odour

The overarching OMP for the facility is adhered to at the WTS. In addition, to prevent the generation or release of odour from the site, the following site management methods are adhered to:

- All storage and treatment of waste take place within the main processing building which benefits from roller shutter doors that remain closed unless a delivery is taking place;
- Waste handling is kept to a minimum;
- The building is subject to periodic wash downs and Mold maintain good housekeeping procedures;
- Site operatives ensure that the waste arriving on site, is not overly odorous or showing signs of infestation;
- If any problems associated with odour are identified, appropriate remedial and corrective action will be implemented as soon as practicable, including the removal of any odorous waste where necessary; and
- Daily olfactory inspection will be carried out by site staff during their normal working activities if potentially odorous waste is stored on Site.

If significant odours are detected, investigations will be undertaken to determine the cause and appropriate remedial action taken.

29.3 Dust

Dust emissions will be minimised through the following measures:

- All treatment of waste and storage of loose waste occurs within the main processing building;
- The building benefits from roller shutter doors, which are kept closed and only opened for deliveries of waste or transfer of treated waste off site;
- Speed limits are implemented on site for all vehicles to minimise the mobilisation of particulates;
- Site access roads and operational areas are maintained and swept regularly to reduce dust generation;
- Dusty waste types are stored within the building or in containers/skips;
- Transfer of dusty materials to containers/skips is undertaken within the confines of a building; and
- Daily visual inspection of the site and site boundary are carried out by site personnel.

29.4 Noise

A Noise Assessment Report, Ref: LE12936/005, has been prepared by Wardell Armstrong and is included as Section 13 of this EP application.

The assessment includes details of the noise surveys, noise data and an assessment of the results in accordance with current guidance including BS4142:2014.

The assessment was conducted for the WTS operation in addition to the landfilling operations.

The assessment concluded that noise from the site is predicted to be below the measured background noise level during daytime and night-time with the exception of site preparation activities at Parry's cottages south east of the site. However, predicted noise levels are only marginally above background noise levels and therefore specific mitigation measures are not required.

Although mitigation measures are not required, the following operating techniques will be employed on site to manage noise and vibration:

- All waste processing and storage takes place within the main building;
- The roller action doors are kept closed when deliveries of waste are not taking place;
- Liaison with neighbours;
- Training of all appropriate installation personnel;
- Selection of noise sensitive plant and equipment;
- Siting of plant and equipment in relation to sensitive receptors;
- Maintenance of plant and equipment;
- Possible alternatives to reversion alarms;
- 15mph speed limit across the site;
- Designated vehicle routes away from sensitive receptors where possible; and
- Regular road maintenance

The Site Manager has responsibility for ensuring that nuisances and hazards arising from the WTS due to noise are minimised.

29.5 Pests

Due to the type of waste accepted on site, it is likely that pest infestations will occur. Therefore, the following management and mitigation measures will be implemented on site:

- The WAP, included as Appendix 02 to this OTMP, ensures that only authorised wastes are accepted;
- All waste is treated and stored within the waste processing building;
- The main reception building benefits from roller action doors which are kept closed when deliveries of waste are not taking place;
- All waste stored and treated within the building are subject to a quick turnaround (up to one week but likely to be 24 - 48 hours);
- A specialist contractor will be employed to provide preventative measures across the site (including rat boxes); and
- The site is inspected daily for signs of pest infestations.

If an infestation becomes an issue, or complaints are received, an investigation to establish the cause will be undertaken and action taken accordingly, e.g. if the problem is caused by a particular waste type, cease accepting that waste until a suitable method statement detailing how the waste is handled, has been prepared and implemented. The Site Manager will be responsible for implementing risk management measures in conjunction with this OTMP document.

29.6 Litter

The waste types accepted and treated on site could potentially lead to litter escaping the waste processing building. Therefore, the following management and mitigation measures are implemented on site:

- The implementation of the WAP included as Appendix 02, ensures that only authorised wastes are accepted and all wastes with the potential to generate litter are accepted, stored and treated within the confines of waste transfer building which benefits from roller shutting doors, the layout of which is illustrated on Drawing FPP1;
- Vehicles are sheeted or enclosed when arriving and departing the site;
- Bins are provided on site around welfare areas for the use of site visitors and personnel;
- All yard areas and the waste transfer building are swept clean every day and any spilt waste deliveries will be removed;
- The site and its immediate surrounding are inspected daily and action will be taken to maintain the area free of significant accumulations of litter and debris; and
- Any excessive litter material at the facility or on the highways will be cleared using a mechanical sweeper and/or litter picker if required.

The Site Manager is responsible for implementing risk management measures in conjunction with this OTMP document.

29.7 Mud and Debris

Due to the nature of the waste accepted at the WTS, mud and debris does not pose a serious risk. However, within the site the following measures is taken to prevent the deposition or tracking of mud or debris from the site onto public areas or highways:

- Site roads are maintained free of significant quantities of mud and debris;

- All operational areas are subject to monitoring by staff throughout their shift to identify accumulations of mud or debris requiring remedial action;
- Where necessary road cleaning equipment will be deployed; and
- All vehicles leaving operational areas are checked for cleanliness and if necessary will be cleaned to ensure that they are clear of loose waste.

If mud, debris or waste arising from the WTS is deposited onto public areas outside the site, the following remedial measures will be implemented:

- The affected public areas outside the WTS will be cleaned;
- Traffic will be isolated from sources of mud and debris within the WTS to prevent further tracking of mud and debris, and measures will be taken to clear any such sources as soon as practicable; and
- Provision will be made for road sweepers for the WTS access roads to stop any mud being carried onto public roads, and bowsers made available to damp down areas during dry periods to ensure that dust is not a problem.

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