

ENERGY AND CLIMATE CHANGE
ENVIRONMENT AND SUSTAINABILITY
INFRASTRUCTURE AND UTILITIES
LAND AND PROPERTY
MINING AND MINERAL PROCESSING
MINERAL ESTATES
WASTE RESOURCE MANAGEMENT



**QUERCIA LIMITED** 

**CLAYTON HALL LANDFILL** 

**OPERATING TECHNIQUES ADDENDUM** 

**DECEMBER 2024** 



### Wardell Armstrong (part of SLR)

Sir Henry Doulton House, Forge Lane, Etruria, Stoke-on-Trent, ST1 5BD, United Kingdom Telephone: +44 (0)1782 276 700 www.wardell-armstrong.com



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**QUERCIA LIMITED** 

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**OPERATING TECHNIQUES ADDENDUM** 

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PREPARED BY:

Arabella Sharrock Principal Permitting

Consultant

**REVIEWED BY:** 

Luke Prazsky Regional Director

**APPROVED BY:** 

Alison Cook Technical Director

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# 1 INTRODUCTION

- 1.1.1 Quercia Limited have commissioned Wardell Armstrong to prepare an environmental permit variation application for their Clayton Hall Landfill Site in Chorley, Lancashire.
- 1.1.2 The Site is located approximately 9km south of Preston, at Clayton Hall Sand Quarry, Dawson Lane, Whittle-le-Woods, Chorley, PR6 7DT. The National Grid Reference (NGR) for the Site is SD 56787 22022.
- 1.1.3 The environmental permit allows the disposal of non-hazardous waste to landfill (permit reference is EPR/BV1364ID).
- 1.1.4 This permit variation seeks to extend the landfill to the south by including an additional phase (Phase 4) to Cell 4B which would ultimately complete the landfill. There is an associated amendment to the environmental monitoring plan for the site to ensure that it remains appropriate and in accordance with the required standards.
- 1.1.5 This Operating Techniques sets out the waste acceptance and landfilling procedures. The site will operate in accordance with the relevant environmental legislation and in accordance with Environment Agency guidance, minimising as far as possible the risk of harm to human health and the environment.



# 2 PERMITTED ACTIVITIES

2.1.1 Clayton Hall landfill permit (permit reference EPR/AB1234CD) is currently permitted for the activities and directly associated activities as set out in Table 2.1 below. Please note we have changed the specified limits of Activity A5 in the table below to address the typographical error in Table S1.1 of the permit so that it refers to landfill gas rather than leachate.

Table 2.1: Permitted Activities				
Schedule 1 EPR (2016) Activity	WFD Annex I and II Operations	Description of Activity		
A1 Section 5.2 Part A(1) (a) Disposal of waste in a landfill	D5: Specially engineered landfill R10: Land treatment resulting in benefit to agriculture or ecology	Non-hazardous Landfill  Use of suitable waste for restoration		
Directly Associated Activities				
DAA	WFD Annex I and II Operations	Description of Activity		
A2 Treatment and utilisation of landfill gas	R1: Use principally as a fuel to generate energy	Pre-treatment and utilisation of landfill gas for energy recovery in an appliance with a rated thermal input <50MW		
A3 Treatment of leachate	D8: Biological Treatment of Waste	Treatment of leachate in a facility with a capacity of <50 t/day		
A4 Storage of leachate	N/A	Temporary storage of leachate		
A5 Flaring of landfill gas	N/A	Flaring of landfill gas		
A6 Discharge of leachate from leachate treatment plant	N/A	Discharge from leachate management system to point of entry to sewer		
A7 Discharge of site drainage from the landfill	D6: release to water body except seas/oceans	From surface water management system to point of entry to sewer		
A8 Storage of oil and coolant for operation of plant and equipment	N/A	Storage in a triple compartment steel storage tank		



2.1.2 Table 1.3 of the permit specifies the following annual waste input limits as shown in Table 2.2 below.

Table 2.2: Annual Waste Input Limits		
Category	Limit Tonnes/Year	
Non-Hazardous waste	149,000	
Waste for restoration	149,000	
Total	298,000	

- 2.1.3 Table S2.1 of the environmental permit species the range of non-hazardous wastes which are permitted for disposal into the landfill. There are no proposed changes to this list.
- 2.1.4 Table S2.2 of the environmental permit species the range of wastes which are suitable for restoration, which include materials such as soils, sands, clays, stones, gravel and rocks. There are no proposed changes to this list.



# 3 CHANGES TO THE ENVIRONMENTAL PERMIT

- 3.1 General
- 3.1.1 There are two changes being applied for in this variation, specifically:
  - Increase to Permit Boundary to accommodate new cell; and
  - Update to the monitoring regime.
- 3.1.2 There is no proposed amendment to the current limits on quantities of waste.
- 3.2 Permit Boundary Amendment
- 3.2.1 Phases 1 to 3 of Cell 4B, all sit within the current permitted boundary and have been constructed, validated and filled. These cells are now at capacity. The waste in Cell 4B Phase 3 is currently open and contained only by a temporary intercell bund, which is proposed to be removed to allow the construction of the proposed Cell 4B Phase 4.
- 3.2.2 A CQA Plan for Cell 4B was submitted to the Environment Agency in April 2020 which included the division of Cell 4B into 4 phases and includes a temporary intercell bund between the Phase 3 Cell and the proposed Phase 4 Cell.
- 3.2.3 The footprint of the proposed Cell 4B, although included in the approved CQA Plan, sits outside the extant permit boundary (as per the permit boundary plan in Schedule 7 of the environmental permit EPR/BV1364ID/V006).
- 3.2.4 Cell 4B Phase 4 will necessitate the expansion of the permit boundary to the southern end of the site. Drawing reference ST18115-501 shows the extent of the extension and provides a new environmental permit boundary plan.
- 3.2.5 As such, the permit requires variation to update the plan to include the footprint of Cell 4B Phase 4 to enable completion of the basal lining system and tie in of the cap.
- 3.2.6 It is estimated that approximately 124,618m³ of waste will be required to fill Phase 4, and ultimately complete the landfill.
- 3.3 Environmental Monitoring Plan
- 3.3.1 The monitoring agreed under Schedule 3 of the permit requires amending to include a new leachate monitoring point in cell 4, groundwater quality in the toe drain and a replacement groundwater monitoring borehole in the Glaciofluvial deposits.



3.3.2 A standalone Environmental Monitoring Plan is included with the application. Schedule 3 to the permit will require updating to reflect the monitoring changes, once agreed.



### 4 WASTE ACCEPTANCE

- 4.1.1 Wastes to be disposed of into the new extension area will comprise of non-hazardous wastes in accordance with Schedule 2 of the environmental permit.
- 4.2 Pre-Acceptance Checks
- 4.2.1 Prior to agreeing to accept the waste onto site, the nature and the properties of the waste will be checked. The waste producer must supply the basic characterisation (level 1) assessment. The producer must confirm that they have classified their waste as non-hazardous, including the completion of a WM3 assessment for wastes assigned mirror entry EWC codes, and the waste can be accepted in a non-hazardous landfill (for example, is not classified as high sulphate bearing).
- 4.2.2 Pre-acceptance checks will be carried out depending on the type or consistency of the waste or if the waste producer is a new or existing customer.
- 4.2.3 Soils for use in restoration above the cap will also be subject to the same preacceptance checks.

# Level 1: Basic Characterisation

- 4.2.4 Prior to the operator agreeing to accept waste onto the site, wastes will be subject to Level 1 Basic Characterisation to provide:
  - a description of the material (including smell, colour and physical form);
  - the source and origin of the material, including a description of the current and/or previous land use at the site from which the materials originate;
  - the process producing the material;
  - the six-figure code applicable to the waste under the European Waste Catalogue;
  - identification that the material is appropriate for disposal into the landfill (including chemical analysis where applicable); and
  - identification of any potential risks to the environment and any additional precautions to be taken at the site (e.g. any additional acceptance and handling procedures that are required to ensure safe and proper deposit).
- 4.2.5 Where the results of Level 1 Basic Characterisation show that a waste stream is not acceptable for landfilling or restoration, the waste will not be accepted at the site.



- 4.2.6 The waste producer must provide Level 1 Basic Characterisation documentation and, where applicable, leaching test results to the operator prior to the receipt of the waste. The documentation and leaching test results will be assessed by a suitably competent person to determine whether the waste is acceptable for landfilling at the site.
- 4.2.7 A copy of the documentation and leaching test results will be kept in a site log and made available for inspection to authorised officers of the Environment Agency. The site log will be kept in the site office.
- 4.3 Waste Acceptance

# Level 3: On-Site Verification of Materials

- 4.3.1 Only waste streams that have been shown to be acceptable for deposit at the site following Level 1 Basic Characterisation will be received at the site.
- 4.3.2 The drivers of all vehicles delivering materials to the site must report to the site office to disclose the nature of the material and complete the relevant documentation.
- 4.3.3 On arrival at the site control office, loads will be subject to Level 3 On-Site Verification, comprising:
  - a check of the waste transfer note or annual season ticket; and
  - visual inspection prior to and following deposit of the waste at the site.
- 4.3.4 A suitably trained and experienced weighbridge operative will examine waste transfer documentation and compare the information against the pre-acceptance details on Level 1 Basic Characterisation and the waste types specified in the Environmental Permit.
- 4.3.5 Loads will be inspected visually by the weighbridge operative to ensure that, as far as possible, the waste load matches the details given on Level 1 Basic Characterisation and the waste types permitted for acceptance at the site.
- 4.3.6 Discrepancies found during on-site verification checks will result in the vehicle being detained while supplementary checks are made. These may include, as appropriate, referral to a suitable competent person, referral to the waste producer to confirm the nature of the waste load, contact with the carrier's base and/or referral to the Environment Agency.



- 4.3.7 Waste loads that pass the supplementary checks and which conform with the conditions of the Environmental Permit will be accepted at the site. Wastes that do not conform to the conditions of the Environmental Permit will be rejected from the site.
- 4.3.8 Once accepted onto site, a visual inspection of the waste load will be undertaken during tipping, paying attention to odour, consistency, and the presence of non-conforming materials. Any wastes that are found not to conform to the conditions of the Environmental Permit will, wherever possible, be reloaded onto the delivery vehicle for off-site removal, or otherwise removed to a quarantine area for temporary storage prior to off-site removal.
- 4.3.9 All instances of rejection of loads will be recorded in a site log, which will be made available for inspection by authorised officers of the Environment Agency.
- 4.4 Rejection
- 4.4.1 Any discrepancies found as a result of the checks detailed above will result in:
  - referral to a suitable competent person;
  - referral to the waste producer or the waste carrier's base, to confirm the nature of the material load;
  - a written record being made in the site log to record the nature of the waste and the actions that are taken; and
  - where necessary, referral to the Environment Agency.
- 4.4.2 Where the investigation shows that waste is acceptable it will be directed to the tipping area. Otherwise, the waste will be rejected following the procedure below and a record will be made in the site log.
- 4.4.3 Where appropriate, waste will either be returned to the producer/previous holder or re-directed to an appropriate authorised facility for disposal. Where it is not possible to directly reject the load, it will be removed to an on-site quarantine area, for temporary storage prior to off-site removal to an authorised facility.
- 4.4.4 Should the non-compliance involve hazardous material or material that otherwise poses a heightened risk to the environment, the Environment Agency will be informed as soon as possible.



# 5 LANDFILLING

- 5.1 Waste Reception and Deposit of Waste into the Landfill
- 5.1.1 Following the satisfactory weighing and checking of each load it will be directed to the reception area where it will be tipped pending transfer to the tipping face. Good housekeeping, including measures outlined in the Amenity and Accident Risk Assessment, Dust Management Plan and Odour Management Plan will be followed at all times. Further commentary on the measures in place to mitigate any impact on amenity are discussed in Section 7.
- 5.1.2 Wastes suitable for landfill cover/site road maintenance will be transferred to a dedicated storage area. Where required, materials are crushed and screened to ensure that they are suitable for use as landfill cover.
- 5.1.3 Wastes for disposal will be transferred to the tipping face, deposited and then compacted within the landfill void.
- 5.2 Daily Cover
- 5.2.1 Wastes deposited at the tipping face will be covered at the end of each working day using suitable materials.
- 5.3 Restoration
- 5.3.1 Once a cell is filled to the final levels, a final capping layer will be placed.
- 5.3.2 Only suitable materials which are listed in the permit will be used for landfill restoration, including waste sands, clays, gravel, crushed rock, soils and stones.
- 5.4 Landfill Gas Management
- 5.4.1 This variation includes an updated Landfill Gas Risk Assessment.
- 5.4.2 Landfill gas will be combusted in on-site gas engines which are supported by an emergency gas flare that will automatically start up in the event that the gas engines are unavailable or if more landfill gas capacity is required.
- 5.4.3 Landfill gas will be actively managed at the site by YLEM. Landfill gas will be managed in accordance with the approved Landfill Gas Management Plan.
- 5.4.4 Landfill gas monitoring will be undertaken in accordance with the Environmental Monitoring Plan. There are no proposed amendments to the landfill gas monitoring set out in Schedule 3 to the permit.



# 5.5 Leachate Management

- 5.5.1 Leachate will be actively managed in the landfill and will be extracted for treatment prior to discharge to foul sewer. Leachate treatment is provided for on-site by the dedicated treatment plant. The discharge to foul sewer will be in accordance with the Trade Effluent Discharge Consent (TEDC) reference 716T5-2-108 issued by United Utilities.
- 5.5.2 Leachate levels within the site will be maintained at those specified in the Hydrogeological Risk Assessment (HRA) and any subsequent approved HRA Review (HRAR) to ensure ongoing permit compliance.
- 5.5.3 Leachate will be managed in accordance with the Leachate Management Plan for the site.
- 5.5.4 Two additional leachate monitoring points are proposed, one will be installed within Cell 4B Phase 4 and one will be installed within Cell 4 Phase 3 (in the location of the removed temporary bund). The proposed location of the leachate monitoring points are shown on drawing ST18115-303.
- 5.5.5 Whilst Schedule 3 of the permit will need to be updated to include the additional monitoring points there are no proposed amendments to the leachate monitoring suite of determinands.
- 5.6 Surface Water Management
- 5.6.1 Surface water will be managed in accordance with the Surface Water Management Plan.
- 5.6.2 There are no proposed amendments to the surface water monitoring set out in Schedule 3 to the permit.



# 6 DESIGN

- 6.1 Design
- 6.1.1 Cell 4B Phase 4 has been designed in accordance with the requirements of the Landfill Directive, that is the base and side walls of the new phases will be constructed with a liner system with a layer with a permeability of 1.0x10<sup>-9</sup>m/s.
- 6.2 Construction Quality Assurance
- 6.2.1 The new cell has been designed in accordance with recognised standards, methodologies and practices and the CQA Plan has been approved.
- 6.2.2 The design has been documented using drawings, specifications and method statements to provide an adequate audit trail for relevant elements of the cell areas engineering, including material selection, handling, storage and installation, conformance and performance testing, inspection and validation.
- 6.2.3 A competent and suitably qualified person (who will prepare a validation report confirming that the construction activities have been carried out in accordance with the CQA plan) will supervise the construction activities.



### 7 CONTROL OF AMENITY ISSUES

## 7.1 General

- 7.1.1 The landfill extension (Cell 4B Phase 4) has been designed to provide comprehensive environmental protection and will continue to operate under Quercia Limited's Environmental Management System.
- 7.1.2 Environmental monitoring of groundwater, surface water, leachate and landfill gas will be undertaken in accordance with the Environmental Monitoring Report. An updated Environmental Monitoring Report is included with the application.
- 7.1.3 Site activities will be carried out in accordance with approved management plans, including the Dust Management Plan and Odour Management Plan.
- 7.1.4 Site process and infrastructure will be maintained to ensure that the site continues to operate to the required standard, and risk to the identified receptors remains low.
- 7.1.5 The site will be inspected daily and monitored in accordance with the environmental permit and monitoring plans, with records maintained evidencing compliance.
- 7.1.6 In the event of a potentially polluting occurrence, strict procedures will be followed in order to prevent damage to site plant and infrastructure, minimise potential effects upon human health and the local environment.
- 7.1.7 The Amenity and Accident Risk Assessment provides further detail of how amenity issues will be controlled and minimised. These are summarised in turn below.

# 7.2 Dust

- 7.2.1 The site will operate in accordance with a Dust Management Plan, which details the control measures to be implemented to control fugitive emissions of dust, including:
  - good housekeeping procedures including maintenance of site roads;
  - daily visual monitoring and inspections undertaken and actions implemented where necessary;
  - enforced on-site speed limits;
  - sheeting/covering of vehicles delivering waste to site;
  - use of water suppression techniques as required, particularly during prolonged dry periods;
  - a wheel wash will be used and it will be located near to the exit of the site.



### 7.3 Odour

- 7.3.1 The site already accepts a range of wastes which may give rise to fugitive odour emissions. The proposed extension will allow for increased void space for additional volumes of non-hazardous and inert wastes.
- 7.3.2 An Odour Management Plan has been prepared to evaluate the risks of odour from the proposed extension and sets out the control measures that will be in place to manage the risk of odour. These control measures include:
  - the use of daily landfill cover using suitable materials for which there will be an adequate supply maintained on site;
  - daily olfactory monitoring around the site and daily observations of weather conditions;
  - planning for any planned temporary odorous activities;
  - good housekeeping procedures.

# 7.4 Noise

- 7.4.1 The following control measures will be in place to minimise the emissions of noise to prevent disturbance to nearby habitats:
  - modern plant will be used where practical and regular maintenance undertaken, including maintenance related to noise emissions;
  - engines on delivery vehicles or mobile plant will be switched off when not in use to prevent excessive idling;
  - where vehicle reversing alarms are required, they will be designed to cause the lowest practical environmental impact.
- 7.4.2 These control measures will minimise emissions of noise to acceptable levels to prevent pollution beyond the site boundary. Therefore, it is not considered that noise will cause any significant impact on sensitive habitats or species.
- 7.5 Litter
- 7.5.1 Wastes that are produced by site operatives will be collected and stored in enclosed containers awaiting removal off site.



- 7.5.2 Incoming waste loads will be covered or contained prior to deposit. Wastes will be compacted promptly following placement into the landfill and the size of the active tipping area will be minimised, to prevent opportunity of wind blown litter.
- 7.6 Pests and Vermin
- 7.6.1 Wastes will be deposited promptly, compacted and covered with daily cover materials, for which an adequate supply will be maintained on site.
- 7.6.2 Regular site inspections will be carried out and staff will be trained to identify signs of pests or vermin being present.
- 7.6.3 In the event that pests or vermin are identified, a suitably qualified contactor will be contacted.
- 7.7 Fire
- 7.7.1 Through waste acceptance checks, any materials which are found which are highly flammable, for example rechargeable vapes or lithium batteries, these will be removed from the waste and stored in an appropriate receptacle away from other potentially combustible materials.
- 7.7.2 Heat detection cameras have been installed on the external northern wall of the Material Recycling Facility which points to the landfill. These cameras can detect hot spots/temperature increases in the waste and are linked to an automated alarm system which operates 24/7.



### 8 MANAGEMENT SYSTEMS

- 8.1 Environmental Management System
- 8.1.1 Operational procedures for the management of the installation ensures that all appropriate pollution prevention and control techniques are delivered reliably an on an integrated basis.
- 8.1.2 The EMS assists in maintaining compliance with compliance with regulatory requirements and managing environmental impact.
- 8.2 Management Structure and Responsibilities
- 8.2.1 The Site Manager will be responsible for the day-to-day operations and compliance at the installation.
- 8.2.2 Whenever the Site is open to receive waste, or carry out any of the waste operations, all operations are supervised by members of staff who are suitably trained and fully conversant with the requirements of the permit regarding:
  - waste acceptance and control procedures;
  - operational controls;
  - maintenance;
  - record-keeping;
  - emergency action plans; and
  - notifications to the Environment Agency.
- 8.3 Technical Competence and Training
- 8.3.1 The waste management activities will be overseen by a Technically Competent Manager who holds the suitably qualifications and provides site attendance in accordance with the Environment Agency guidance on minimum site attendance.
- 8.3.2 All staff will benefit from a training programme, which will ensure their professional and technical development. An assessment of training needs will be carried out to identify where specific environmental awareness training is needed, and the scope and level of such training. The training programme will ensure that members of staff are aware of the following:
  - regulatory implications of the Environmental Permit for the installation and their specific work activities;



- all potential environmental effects from operations under normal and abnormal circumstances;
- the need to report deviations from the environmental permit; and
- prevention of accidental emissions and action to be taken should accidental emissions occur.
- 8.3.3 Records of training needs and training received will be maintained for each member of staff.
- 8.4 Environmental Policy, Objectives and Targets
- 8.4.1 There will be a commitment to continual improvement, prevention of pollution and compliance with legislation. Annual objectives and targets will be set.
- 8.5 Operational Control, Preventative Maintenance and Calibration
- 8.5.1 The Environment Management System (EMS) will complement operational procedures so as to ensure effective control of cell areas operations, the use of approved suppliers and contract services, the maintenance of operational equipment and the calibration of monitoring equipment.



# 9 COMPLAINTS AND RECORD KEEPING

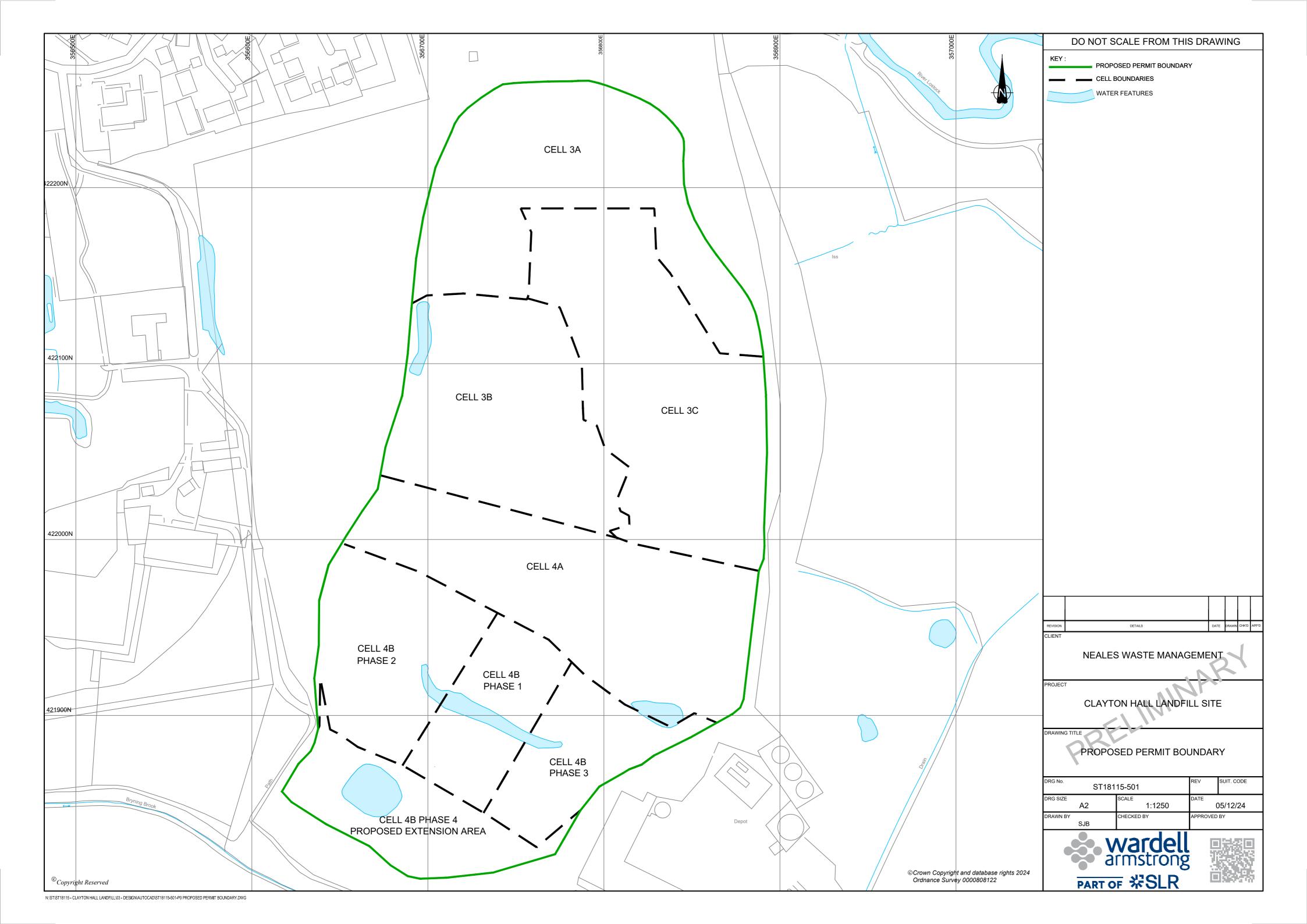
- 9.1 Complaints Procedure
- 9.1.1 Any complaints received will be recorded in the site complaint log, recording details of the complainant, the nature of the complaint and the time and date that the issue was noted. Other relevant information will also be recorded, for example the weather conditions at the time of the incident and any relevant operations that were taking place at the time.
- 9.1.2 All complaints will be passed to the Site Manager, who will investigate the complaint as soon as possible. They will record whether the complaint was substantiated, the likely cause and the mitigation put in place to prevent further issues.
- 9.1.3 The complainant will be informed of the outcome of the investigation and the measures taken unless they have requested otherwise or wish to remain anonymous.
- 9.1.4 Records relating to complaints will be kept for a minimum of 2 years and will be made available to the Environment Agency on request.
- 9.1.5 All complaints will be recorded using the Record of Complaints.
- 9.2 Record Keeping
- 9.2.1 The site will be inspected on a daily basis. Site staff will carry out a visual and olfactory assessment around the site boundary to check for emissions of litter, odour, noise, mud or dust.
- 9.2.2 Should any issues be noted during the daily inspections, these will be raised with the site management and appropriate remedial action will be agreed. The remedial action agreed and the time that is was (or is to be) carried out will be noted in the site log.
- 9.2.3 All site infrastructure and site plant will be regularly inspected for leaks or damage. Inspections will be recorded in the site diary. Where leaks or damage are identified, the equipment will be immediately repaired by suitably qualified staff or taken out of service. Any spills will be cleaned using a spill kit and a record made.
- 9.2.4 The site diary will be made available to warranted officers of the Environment Agency on request. Should any incident have the potential to cause significant emissions, the Environment Agency will be informed by telephone and remedial action will be agreed with the local environment officer.



- 9.2.5 Other records that are kept on site (either in electronic or hard copy format) include details of inert material enquiries and pre-acceptance information, copies of all material transfer notes for incoming and outgoing materials, details of any rejected loads, copies of the chemical analysis of where required and results of any environmental monitoring.
- 9.3 Reporting Non-Compliance and Taking Corrective Action
- 9.3.1 Staff maintain awareness of non-compliances in the following areas:
  - actual or potential non-compliance;
  - system failure discovered at internal audit;
  - supplies or subcontractors breaking the agreed operating rules;
  - incidents, accidents and emergencies;
  - other operational system failure; and
  - complaints.
- 9.3.2 The action taken in response to non-conformities may include:
  - obtaining additional information on the nature and extent of the nonconformance;
  - discussing and testing alternative solutions;
  - modifying procedures and responsibilities;
  - seeking approval for additional resources and training; and
  - contacting suppliers and contractors.



# **DRAWINGS**





# wardell-armstrong.com

### STOKE-ON-TRENT

Sir Henry Doulton House Forge Lane Etruria Stoke-on-Trent ST1 5BD

Tel: +44 (0)1782 276 700

### **BIRMINGHAM**

Two Devon Way Longbridge Technology Park Longbridge Birmingham B31 2TS Tel: +44 (0)121 580 0909

### **BOLTON**

41-50 Futura Park Aspinall Way Middlebrook **Bolton** BL6 6SU

Tel: +44 (0)1204 227 227

### **BRISTOL**

Temple Studios Temple Gate Redcliffe Bristol BS1 6QA

Tel: +44 (0)117 203 4477

### **BURY ST EDMUNDS**

**Armstrong House** Lamdin Road Bury St Edmunds Suffolk IP32 6NU

Tel: +44 (0)1284 765 210

#### **CARDIFF**

Tudor House 16 Cathedral Road Cardiff CF11 9LJ Tel: +44 (0)292 072 9191

#### CARLISLE

Marconi Road Burgh Road Industrial Estate Carlisle Cumbria CA2 7NA Tel: +44 (0)1228 550 575

### **EDINBURGH**

**Great Michael House** 14 Links Place Edinburgh EH6 7EZ Tel: +44 (0)131 555 3311

### **GLASGOW**

24 St Vincent Place Glasgow G1 2EU Tel: +44 (0)141 428 4499

**LEEDS** 

36 Park Row Leeds LS1 5JL

Tel: +44 (0)113 831 5533

### **LONDON**

Third Floor 46 Chancery Lane London WC2A 1JE Tel: +44 (0)207 242 3243

### **NEWCASTLE UPON TYNE**

City Quadrant 11 Waterloo Square Newcastle upon Tyne NE1 4DP Tel: +44 (0)191 232 0943

### **TRURO**

Baldhu House Wheal Jane Earth Science Park Baldhu Truro TR3 6EH Tel: +44 (0)187 256 0738

### International office:

### **ALMATY**

29/6 Satpaev Avenue Hyatt Regency Hotel Office Tower **Almaty** Kazakhstan 050040

Tel: +7(727) 334 1310

