Maw Green Landfill Site

APPEAL PURSUANT TO REGULATION 31 OF THE ENVIROMENTAL PERMITTING (ENGLAND AND WALES) REGULATIONS 2016

REGARDING MAW GREEN SOIL TREATMENT FACILITY AT MAW GREEN LANDFILL SITE

ESSENTIAL SUPPORTING DOCUMENTS

PERMIT REFERENCE: EPR/BS7722ID/V010

ON BEHALF OF 3C WASTE LTD

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ESSENTIAL SUPPORTING DOCUMENTS

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DOCUMENT 1.1

EMAIL: EA TO APPELLANT'S AGENT - ENVIRONMENTAL PERMIT ISSUED, ATTACHING NOTICE OF VARIATION AND COVERING LETTER

Tom Roberts

From: Tom Roberts
Sent: 16 November 2023 10:38
To: Tom Roberts
Subject: FW: Environmental Permit EPR/BS7722ID/V010 issued
Attachments: Application Variation Issue Letter to Registered Office - 05102023.pdf; Application Variation Notice Issued - 05102023.pdf

Tom Roberts
My Pronouns Are He/Him
Trainee Solicitor
Planning
T:03450305652

From: IPS_admin <IPS_admin@environment-agency.gov.uk>
Sent: Friday, October 6, 2023 9:00 AM
To: Andy Stocks <AndyStocks@caulmert.com>
Cc: vicente.orts@fccenvironment.co.uk
Subject: FW: Environmental Permit EPR/BS7722ID/V010 issued

Dear Andy Stocks,

Please find the attached documents for the above recently issued permit.

Kind Regards,

Jack Smith
Permitting Support Advisor- Water Quality, National Permitting Service
Environment Agency | NPS Sheffield, Quadrant 2, 99 Parkway Avenue, Sheffield, S9 4WG
ips_admin@environment-agency.gov.uk
Tel: 02030251158

DOCUMENT 1.2

LETTER: EA TO APPELLANT - ISSUE OF AN ENVIRONMENT AGENCY INITIATED VARIATION

To the Director of:
3C Waste Limited
Steven Longdon
3 Sidings Court
White Rose Way
Doncaster
England
DN4 5NU

Our ref: EPR/BS7722ID/V010

Date: 05 October 2023

Dear Sir

Issue of an Environment Agency Initiated Variation of your permit

Permit reference: EPR/BS7722ID
Applicant: 3C Waste Limited
Facility: Maw Green Landfill Site

We've decided to vary your permit. We're satisfied that operations can continue in accordance with the variation without harm to the environment or human health.

The variation takes effect from 05/10/2023. I enclose a notice showing the changes we've made.

Please keep this in a safe place with your other permit records.

This letter contains web links to other documents. If you aren't able to access these phone our Customer Contact Centre for help on 03708 506 506.

If you're not familiar with our guidance on how to comply with your permit please look at the following guides:

www.gov.uk/guidance/develop-a-management-system-environmental-permits

www.gov.uk/guidance/control-and-monitor-emissions-for-your-environmental-permit

www.gov.uk/guidance/legal-operator-and-competence-requirements-environmental-permits

Please look at the table below and note any of the information or actions that apply to your permit.

If…	then...
the variation means you're now carrying out a waste operation or activity and need to submit quarterly waste returns on waste movements **Note** This does not apply to permits that only have stand alone water discharge or groundwater activities.	you can get the forms you need from our website https://www.gov.uk/government/collections/national-operator-waste-returns If you do not have web access phone our Customer Contact Centre
you need to submit other returns	send these to your area office. Speak to your area officer to check local arrangements.
your variation has added an installation to your permit for the first time	we've enclosed the pollution inventory letter, notice and fact sheet

Rights of appeal

If you're not happy with any permit condition that has been imposed by the variation you may appeal to the Secretary of State. You must make your appeal no later than two months after the date of the notice.

Further information on making an appeal and the forms you will need are available from the Planning Inspectorate website.

You will need to provide the documents listed below to the Secretary of State at the Planning Inspectorate:

Environment Team, The Planning Inspectorate, 3A Eagle Wing, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6PN

Email: ETC@planninginspectorate.gov.uk

Helpline: 0303 444 5000

The documents are:

- a statement of the grounds of appeal
- a copy of any relevant application
- a copy of any relevant environmental permit
- a copy of any relevant correspondence between the appellant and the regulator
- a copy of any decision or notice which is the subject matter of the appeal and
- a statement indicating whether you wish the appeal to be in the form of a hearing or dealt with by way of written representations.

At the same time you must send us a copy of the notice and documents to;

Centralised Services Team – Appeals, Environment Agency, National Permitting Service, Quadrant 2, Parkway Business Park, Sheffield, S9 4WF

Email : Appeals_NPS@environment-agency.gov.uk

You may withdraw an appeal by writing to the Secretary of State and sending a copy of that notification to us.

If you have any questions about this permit please phone our Customer Contact Centre on 03708 506 506. They will put you in touch with a local regulatory officer.

Yours sincerely

Eleanor Blackeby
Principal Permitting Team Leader

DOCUMENT 1.3
NOTICE OF VARIATION AND CONSOLIDATION WITH INTRODUCTORY NOTE, EPR/BS7722ID/V010

Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

3C Waste Limited

Maw Green Landfill Site
Maw Green Road
Coppenhall
Crewe
Cheshire
CW1 5NG

Variation application number

EPR/BS7722ID/V010

Permit number

EPR/BS7722ID

Maw Green Landfill Site
Permit number EPR/BS7722ID

Introductory note

This introductory note does not form a part of the notice

Under the Environmental Permitting (England & Wales) Regulations 2016 (schedule 5, part 1, paragraph 19) a variation may comprise a consolidated permit reflecting the variations and a notice specifying the variations included in that consolidated permit.

Schedule 1 of the notice specifies the conditions that have been varied and schedule 2 comprises a consolidated permit which reflects the variations being made. Only the variations specified in schedule 1 are subject to a right of appeal.

The Environment Agency have varied this permit to correct errors in the issued permit and insert the relevant conditions, standards and limits for the sector.

Amendments include:

- Table S1.1 is amended to vary activity AR7 from a Section 5.3 Part A(1)(a)(ii) to a Section 5.3 Part A(1)(a)(vi) activity;
- Table S1.1 is amended to vary activity AR6 to include restrictions on the storage of hazardous waste;
- Table S1.1 is amended to include appropriate limits for the processing of asbestos impacted waste types;
- Add condition 2.4 to insert improvement condition;
- Amend error in condition 2.7.3;
- Condition 3.5.1 to add ambient air monitoring;
- Table S1.2 is amended to update operating techniques;
- Table S1.3 is amended to add improvement condition 5 for asbestos monitoring and sampling;
- Table S1.4 is amended to add preoperational condition 4 for asbestos processing enclosure and abatement;
- Table S2.4 is amended to vary waste types to add waste code 17 05 04 and add restrictions on waste types containing asbestos;
- Table S3.2 is amended to add emissions limits to the asbestos screener air extraction system;
- Table S3.14 has been added to include Ambient Air Monitoring requirements;
- Table S4.1 is amended to add ambient air monitoring reporting;
- Table S4.4 is amended to add reporting forms for Ambient Air and Air Monitoring;
- Site layout plan is amended to include the asbestos impacted waste treatment area.

The installation operates as follows.

This site undertakes the landfilling of non-hazardous wastes and will be subject to restoration.

In addition, there are a number of waste treatment activities within the boundary of the landfill. This includes a Soil Treatment Facility (STF) located within the boundary, this undertakes the sorting and separation of asbestos from contaminated soils along with biological treatment activities taking leachate and hazardous and non-hazardous wastes.

Screening of asbestos impacted soils will be enclosed and abated to minimise emissions from the process. The STF will accept and treat up to 50,000 tonnes per annum of hazardous waste (including the asbestos impacted soils). Once treated the wastes will be tested for suitability for use in the wider landfill restoration. Soils that do not meet the reuse criteria will be sent offsite for disposal.

The schedules specify the changes made to the permit.

The status log of a permit sets out the permitting history, including any changes to the permit reference number.

Status log of the permit		
Description	**Date**	**Comments**
Application EPR/BS7722ID/A001	09/10/2003	Received
Request for information	17/06/2004	Response received 19/07/2004
Request for information	23/06/2004	Response received 06/07/2004
Request for information	06/07/2004	Response received 20/07/2004
Request for information	25/08/2004	Response received 06/10/2004 and 11/10/2004
Request for information	30/12/2004	Response received 14/01/2005 and 27/01/2005
Permit determined EPR/BS7722ID	15/02/2005	
Variation notice UP3232LQ determined (EPR/BS7722ID/V002)	17/03/2005	
Application for Permit variation (EPR/BS7722ID/V003)	10/10/2007	Application received
Variation notice FP3931XK determined (EPR/BS7722ID/V003)	30/05/2008	
Environment Agency variation determined (EPR/BS7722ID/V005)	14/05/2013	Agency variation to implement changes introduced by IED
Environment Agency Landfill Sector Review Permit reviewed Variation notice determined EPR/BS7722ID/V006	15/02/2017	Permit varied and consolidated permit issued in the modern format
Application EPR/BS7722ID/V007	Duly made 11/07/2019	Application to vary Permit to include soil treatment facility and associated Activities on site.
Request for information in Schedule 5 Notice	23/08/2019	Response received 23/10/2019
Request for information in Schedule 5 Notice	22/11/2019	Responses received13/12/2019 and 10/01/2020
Request for information by email	20/01/2020	Response received 12/02/2020
Variation determined EPR/BS7722ID/V007	18/03/2020	Varied permit issued.
Application EPR/BS7722ID/V008 (variation and consolidation)	Duly made 27/09/2022	Application to vary and update the permit. Increasing the treatment capacity for hazardous soils at the Soil Treatment Facility. Operator registered office change of address incorporated as administrative change.
Variation determined and consolidation issued EPR/BS7722ID	25/01/2023	Varied and consolidated permit issued in modern format.

Status log of the permit		
Description	**Date**	**Comments**
Application EPR/BS7722ID/V009 (variation and consolidation)	Duly Made 13/04/2023	Application to add an additional listed activity for the treatment and storage of soils contaminated with asbestos at the Soil Treatment Facility (STF), add associated waste codes and increase hazardous storage capacity at any one time.
Variation determination and consolidation issued EPR/BS7722ID	20/07/2023	Varied and consolidated permit issued.
Variation determined and consolidation issued EPR/BS7722ID/V010 Billing Reference BS7722ID	05/10/2023	Environment Agency initiated variation. Varied and consolidated permit issued.

End of introductory note

Notice of variation and consolidation

The Environmental Permitting (England and Wales) Regulations 2016

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2016 has varied:

Permit number

EPR/BS7722ID

Issued to

3C Waste Limited ("the operator")

whose registered office is

3 Sidings Court
White Rose Way
Doncaster
DN4 5NU

company registration number 02632581

to operate a regulated facility at

Maw Green Landfill Site
Maw Green Road
Coppenhall
Crewe
Cheshire
CW1 5NG

to the extent set out in the schedules.

The notice shall take effect from 05/10/2023

Name	Date
Principal Permitting Team Leader	**05/10/2023**

Authorised on behalf of the Environment Agency

Schedule 1

The following conditions were varied as a result of an Environment Agency initiated variation:

Conditions	Reason
Condition 2.4.1 and 2.4.2	Added as improvement condition inserted in table S1.3.
Condition 2.7.3	Amended to confirm condition applies to AR1 only.
Condition 3.5.1	Amended to add reference to ambient air monitoring.
Condition 2.6.8, 2.6.9, 2.6.10	Amended to update condition referencing.
Table S1.1 as referenced by condition 2.1.1	Amended to vary activity AR7 from a Section 5.3 Part A(1)(a)(ii) to a Section 5.3 Part A(1)(a)(vi) activity. Amended to vary activity AR6 to including restrictions on the storage of hazardous waste. Amended to include appropriate limits for the processing of asbestos impacted waste types.
Table S1.2 as referenced by condition 2.3.1	Amended to excluded references to mechanical screener which is not enclosed and remove operating techniques which contradict appropriate measures for the sector.
Table S1.3 as referenced by condition 2.4.1	Amended to add improvement condition 5 monitoring for asbestos monitoring and sampling.
Table S1.4 as referenced by condition 2.5.1	Amended to add preoperational condition 4 for asbestos processing enclosure and abatement.
Table S2.4 as referenced by condition 2.7.4	Amended to vary waste types to add waste code 17 05 04 and add restrictions on waste types containing asbestos.
Table S3.2 as referenced by condition 3.1.2	Amended to add emission limits to asbestos screener air extraction system.
Table S3.14 as referenced by condition 3.5.1	Added to include ambient air monitoring requirements.
Table S4.1 as referenced by condition 4.2.4	Amended to add ambient air monitoring reporting.
Table S4.4 as referenced by condition 4.2.3 and 4.2.4	Amended to add reporting forms for ambient air monitoring.
Schedule 7 – site layout plan	Amended to include the asbestos impacted waste treatment area.

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/BS7722ID

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/BS7722ID/V010 authorising,

3C Waste Limited ("the operator"),

whose registered office is

3 Sidings Court
White Rose Way
Doncaster
DN4 5NU

company registration number 02632581

to operate an installation at

Maw Green Landfill Site
Maw Green Road
Coppenhall
Crewe
Cheshire
CW1 5NG

to the extent authorised by and subject to the conditions of this permit.

Name	Date
Principal Permitting Team Leader	**05/10/2023**

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

(a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and

(b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

1.1.4 The operator shall comply with the requirements of an approved competence scheme.

1.2 Finance

1.2.1 The financial provision for meeting the obligations under this permit shall be as set out in the Deed of Performance dated 17 October 2007 between the Waste Recycling Group Limited (now known as FCC Environment (UK) Limited) and the Environment Agency as varied by a Deed of Variation dated 15 October 2010 (as varied by further Deeds of Variation from time to time). The operator shall accordingly ensure that the Permit is and remains throughout its subsistence a Permit to which the Deed relates and the operator shall produce evidence of such provision whenever required by the Environment Agency.

1.2.2 The operator shall ensure that the charges it makes for the disposal of waste in the landfill cover all of the following:

(a) the costs of setting up and operating the landfill;

(b) the costs of the financial provision required by condition 1.2.1; and

(c) the estimated costs for the closure and aftercare of the landfill.

1.3 Energy efficiency

1.3.1 The operator shall:

(a) take appropriate measures to ensure that energy is used efficiently in the activities;

(b) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and

(c) implement any appropriate measures identified by a review.

1.4 Efficient use of raw materials

1.4.1 The operator shall:

(a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;

(b) maintain records of raw materials and water used in the activities;

(c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and

(d) take any further appropriate measures identified by a review.

1.5 Avoidance, recovery and disposal of wastes produced by the activities

1.5.1 The operator shall take appropriate measures to ensure that:

(a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and

(b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and

(c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment

1.5.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the "activities").

2.1.2 For the following activities referenced in schedule 1, table S1.1 (AR3 to AR8 and AR16) waste authorised by this permit shall be clearly distinguished from any other waste on the site.

2.2 The site

2.2.1 The activities shall not extend beyond the site, being the land shown edged in blue on the site plan at schedule 7 to this permit.

2.3 Operating techniques

2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.

2.3.2 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan or other documentation ("plan") specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.

2.3.3 Any raw materials or fuels listed in schedule 2 table S2.5 shall conform to the specifications set out in that table.

2.4 Improvement programme

2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by the Environment Agency.

2.4.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each improvement.

2.5 Pre-operational conditions

2.5.1 The operations specified in schedule 1 table S1.4 shall not commence until the measures specified in that table have been completed.

2.6 Landfill Engineering

2.6.1 No construction of any new cell of the landfill shall commence until the operator has submitted construction proposals and the Environment Agency has confirmed that it is satisfied with the construction proposals.

2.6.2 Where the operator proposes to construct any new cell other than the first cell, but proposes no change from the design of the most recently approved cell which could have any impact on the performance of any element of the design, no construction of the new cell shall commence until the operator has submitted a cell layout drawing and the Environment Agency has confirmed that it is satisfied with the cell layout drawing.

2.6.3 The construction of a new cell shall take place only in accordance with the approved construction proposals unless:

(a) any change to the approved construction proposals would have no impact on the performance of any element of the design; or

(b) a change has otherwise been agreed in writing by the Environment Agency.

2.6.4 No disposal of waste shall take place in a new cell until the operator has submitted a CQA Validation Report and the Environment Agency has confirmed that it is satisfied with the CQA Validation Report.

2.6.5 No construction of landfill infrastructure shall commence until the operator has submitted relevant construction proposals or a written request to use previous construction proposals and the Environment Agency has confirmed that it is satisfied with the construction proposals.

2.6.6 The construction of the landfill infrastructure shall take place only in accordance with the approved construction proposals unless:

(a) any change to the approved construction proposals would have no impact on the performance of any element of the design; or

(b) a change has otherwise been agreed in writing by the Environment Agency.

2.6.7 The operator shall submit a CQA Validation Report within four weeks of the completion of the construction of the relevant landfill infrastructure or other time period agreed in writing with the Environment Agency.

2.6.8 Where pollution controls are immediately necessary to prevent an incident or accident, then conditions 2.6.5 and 2.6.6 do not apply and the relevant landfill infrastructure may be constructed, provided that the construction proposals are submitted to the Environment Agency as soon as practicable.

2.6.9 For the purposes of conditions 2.6.1, 2.6.2, 2.6.4 and 2.6.5, the Environment Agency shall be deemed to be satisfied where it has not, within the period of four weeks from the date of receipt of the relevant construction proposals or CQA Validation Report, either:

(a) confirmed whether or not it is satisfied; or

(b) informed the operator that it requires further information.

2.6.10 Where the Environment Agency has required further information under condition 2.6.9(b), the Environment Agency shall be deemed to be satisfied where it has not, within the period of four weeks from the date of receipt of the further information, either:

(a) confirmed whether or not it is satisfied; or

(b) informed the operator that it requires further information.

2.7 Waste acceptance

2.7.1 For the following activities referenced in Schedule 1, Table S1.1 (AR1), wastes shall only be accepted for disposal if:

(a) they are listed in schedule 2, Table S2.1, and

(b) they are non-hazardous waste, and

(c) they are not whole used tyres (other than bicycle tyres and tyres with an outside diameter of more than 1400 mm), and

(d) they are not shredded used tyres, and

(e) they are not liquid waste (including waste waters but excluding sludge), and

(f) they are not chemical substances from research and development or teaching activities, for example laboratory residues, which are unidentified and/or which are new and whose effects on man and/or the environment are unknown, and

(g) all the relevant waste acceptance procedures have been completed, and

(h) they fulfil the relevant waste acceptance criteria, and

(i) they have not been diluted or mixed solely to meet the relevant waste acceptance criteria, and

(j) they are wastes which have been treated, except for: inert wastes for which treatment is not technically feasible; or it is waste other than inert waste and treatment would not reduce its quantity or the hazards which it poses to human health or the environment, and

(k) they are wastes with a code beginning with 07 05 and 16 03, they shall exclude waste medicinal products and pharmaceutically active waste materials arising from their manufacture.

2.7.2 Wastes shall only be accepted for restoration where:

(a) they are listed in schedule 2, table S2.2 and

(b) they are accepted in accordance with a restoration plan approved in writing by the Environment Agency.

2.7.3 For the following activities referenced in Schedule 1, Table S1.1 (AR1) the operator shall:

(1) visually inspect without unloading it, waste that is not in an enclosed container or enclosed vehicle on arrival at the landfill and waste at the point of deposit; and

(2) be satisfied that the waste conforms to the requirements of condition 2.6.1.

2.7.4 For the following activities referenced in schedule 1, Table S1.1 (AR3 – AR8 and AR16) waste shall only be accepted if:

(a) it is of a type and quantity listed in schedule 2, Tables S2.3a and S2.3b and S2.4

(b) it conforms to the description in the documentation supplied by the producer and holder.

2.7.5 Where the operator has taken samples to establish that the waste is in conformity with the documentation submitted by the holder then the samples taken shall be retained for at least one month and results of any analysis for at least two years.

2.7.6 The operator on accepting each delivery of waste shall provide a receipt to the person delivering it.

2.7.7 The total quantity of waste that shall be deposited in the landfill shall be limited by the pre-settlement levels shown on drawing reference 1351-01-08 Final Restoration Plan.

2.7.8 The quantity of waste that is deposited or recovered in the landfill in any year shall not exceed the limits in schedule 1 table S1.5.

2.7.9 The operator shall maintain and implement a system which ensures that a record is made of the quantity, characteristics, date of delivery and, where practicable, origin of any waste that is received for disposal or recovery and of the identity of the producer, or in the case of municipal waste and multiple collection vehicles, of the collector of such waste. Any information regarded by the operator as commercially confidential shall be clearly identified in the record.

2.7.10 Hazardous waste shall not be mixed, either with a different category of hazardous waste or with other waste, substances or materials, unless it is authorised by schedule 1 table S1.1 and appropriate measures are taken.

2.7.11 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:

(1) the nature of the process producing the waste;

(2) the composition of the waste;

(3) the handling requirements of the waste;

(4) the hazardous property associated with the waste, if applicable; and

(5) the waste code of the waste.

2.7.12 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.

2.8 Leachate levels

2.8.1 The limits for the level of leachate listed in schedule 3 table S3.1 shall not be exceeded.

2.9 Closure and aftercare

2.9.1 The operator shall maintain a closure and aftercare management plan.

2.10 Landfill gas management

2.10.1 The operator shall take appropriate measures, including, but not limited to, those specified in any approved landfill gas management plan, to:

(a) collect landfill gas; and

(b) control the migration of landfill gas.

2.10.2 The operator shall use the collected landfill gas to produce energy. If the collected landfill gas cannot be used to produce energy, the operator shall use appropriate measures to flare or treat the gas in accordance with an approved landfill gas management plan.

2.10.3 The operator shall:

(a) if notified by the Environment Agency, submit to the Environment Agency for approval within the period specified, a revised landfill gas management plan;

(b) implement the revised landfill gas management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3 Emissions and monitoring

3.1 Emissions to water, air or land

3.1.1 The limits in Schedule 3 shall not be exceeded.

3.1.2 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.2, S3.3 and S3.4.

3.1.3 The limits given in Table S3.2 shall not be exceeded, save that compliance with an emission limit in that table shall include incorporation of the uncertainty allowance stated in Environment Agency guidance LFTGN 05 and LFTGN 08.

3.1.4 The operator shall prevent the input of any hazardous substances from the activities into groundwater.

3.1.5 The operator shall submit to the Environment Agency a review of the Hydrogeological Risk Assessment:

(a) between nine and six months prior to the sixth anniversary of the granting of the permit, and

(b) between nine and six months prior to every subsequent six years after the fourth anniversary of the granting of the permit.

3.1.6 For the following activities referenced in schedule 1, table S1.1 (AR3 to AR8 and AR16) periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on systematic appraisal of the risk of contamination.

3.2 Emissions of substances not controlled by emission limits

3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

3.2.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;

(b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.2.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.3 Odour

3.3.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.

3.3.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;

(b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.4 Noise and vibration

3.4.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.

3.4.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;

(b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.5 Monitoring

3.5.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring and any other actions specified in the following tables in schedule 3 to this permit:

(a) Leachate specified in tables S3.1 and S3.11;

(b) Point source emissions specified in tables S3.2, S3.3 and S3.4;

(c) Groundwater specified in tables S3.5 and S3.9;

(d) Landfill gas specified in tables S3.6, S3.8 and S3.10;

(e) Surface water specified in table S3.12;

(f) Particulate matter specified in table S3.7;

(g) Ambient air monitoring specified in table S3.14.

3.5.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.

3.5.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by the Environment Agency.

3.5.4 A topographical survey of the site referenced to ordnance datum shall be carried out and shall be used to produce a plan of a scale adequate to show the surveyed features of the site:

(a) annually, and

(b) prior to the disposal of waste in any new cell or new development area of the landfill, and

(c) following closure of the landfill or part of the landfill.

3.5.5 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1 to S3.13 unless otherwise agreed in writing by the Environment Agency.

3.6 Pests

3.6.1 The activities shall not give rise to the presence of pests which are likely to cause pollution, hazard or annoyance outside the boundary of the site. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved pests management plan, have been taken to prevent or where that is not practicable, to minimise the presence of pests on the site.

3.6.2 The operator shall:

(a) if notified by the Environment Agency, submit to the Environment Agency for approval within the period specified, a pests management plan which identifies and minimises risks of pollution hazard or annoyance from pests;

(b) implement the pests management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.7 Fire prevention

3.7.1 The operator shall take all appropriate measures to prevent fires on site and minimise the risk of pollution from them including, but not limited to, those specified in any approved fire prevention plan.

3.7.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to a risk of fire, submit to the Environment Agency for approval within the period specified, a fire prevention plan which prevents fires and minimises the risk of pollution from fires;

(b) implement the fire prevention plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

4 Information

4.1 Records

4.1.1 All records required to be made by this permit shall:

(a) be legible;

(b) be made as soon as reasonably practicable;

(c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and

(d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:

(i) the results of groundwater monitoring;

(ii) sub-surface landfill gas monitoring;

(iii) leachate levels, quality and quantities;

(iv) landfill gas generation and collection;

(v) waste types and quantities;

(vi) the specification and as built drawings of the basal, sidewall and capping engineering systems.

for the following activities referenced in schedule 1, table S1.1 (AR3 to AR8 and AR16):

(vii) off-site environmental effects; and

(viii) matters which affect the condition of the land and groundwater.

4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

4.2 Reporting

4.2.1 The operator shall send reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.

4.2.2 For the following activities referenced in schedule 1, Table S1.1 (AR1 and AR2), a report or reports on the performance of the activities over the previous year ('the annual report') shall be submitted to the Environment Agency by 31st January each year or such other date as may be agreed in writing by the Agency, with the exception of 4.2.2(c) that must be provided by the end of February each year. The report(s) shall include as a minimum:

(a) a review of the results of the monitoring and assessment carried out in accordance with this permit against the relevant assumptions, parameters and results in the risk assessments submitted in relation to this installation and any agreed amendments thereto. The review will include written descriptions of the improvements made to operational performance during the year, action plans developed and planned improvements for the coming year;

(b) the energy consumed at the site, reported in the format set out in schedule 4 table S4.3;

(c) the annual production/treatment set out in schedule 4 table S4.2;

(d) the topographical surveys required by condition 3.5.3 other than those submitted as part of a CQA validation report;

(e) the volumetric difference (reported in cubic metres) between the most recent topographical survey and the previous annual topographical survey i.e. the additional volume of the landfill void that is occupied by waste;

(f) an assessment of the settlement behaviour of the landfill body based on the difference between the most recent topographical survey and previous annual topographical survey for the areas of the landfill which did not receive waste between the surveys;

(g) a calculation of the remaining capacity (reported in cubic metres) derived from the pre-settlement contours and the most recent topographical survey;

(h) a plan(s) ('the monitoring and extraction point plan – MEPP') showing the locations of existing and any new leachate and landfill gas extraction and all monitoring points.

4.2.3 For the following activities referenced in schedule 1, table S1.1 (AR3 to AR8 and A16) a report or reports on the performance of the activities over the previous year shall be submitted to the Environment Agency by 31st January (or other date agreed in writing by the Environment Agency) each year. The report(s) shall include as a minimum:

(a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;

(b) the annual production/treatment data set out in schedule 4 table S4.2; and

(c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule.

4.2.4 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:

(a) in respect of the parameters and emission points specified in schedule 4 table S4.1;

(b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4; and

(c) giving the information from such results and assessments as may be required by the forms specified in those tables.

4.2.5 Within one month of the end of each quarter, the operator shall submit to the Environment Agency using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter.

4.2.6 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

4.3 Notifications

4.3.1 In the event:

(a) that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—

(i) inform the Environment Agency,

(ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and

(iii) take the measures necessary to prevent further possible incidents or accidents.

(b) in the event of a breach of any permit condition the operator must immediately—

(i) inform the Environment Agency, and

(ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;

(c) in the event of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.

4.3.2 Any information provided under condition 4.3.1 (a)(i), or 4.3.1 (b)(i) where the information relates to the breach of a limit specified in the permit, shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.

4.3.3 For the following activities referenced in schedule 1, table S1.1 (AR3 to AR8 and AR16) where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.

4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

(a) any change in the operator's trading name, registered name or registered office address; and

(b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

(a) any change in the operator's name or address; and

(b) any steps taken with a view to the dissolution of the operator.

In any other case:

(a) the death of any of the named operators (where the operator consists of more than one named individual);

(b) any change in the operator's name(s) or address(es); and

(c) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:

(a) the Environment Agency shall be notified at least 14 days before making the change; and

(b) the notification shall contain a description of the proposed change in operation.

4.3.6 The Environment Agency shall be given at least 14 days notice before implementation of any part of the site closure plan.

4.4 Interpretation

4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "immediately", in which case it may be provided by telephone.

Schedule 1 – Operations

Table S1.1 activities				
Activity reference	**WFD Annex I and II operations (where applicable)**	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity**	**Limits of specified activity**
AR1	D5 –Specially engineered landfill; R5 - the recycling or reclamation of inorganic material and R10 – Land treatment resulting in benefit to agriculture or ecology	Section 5.2 Part A(1) (a), The disposal of waste in a landfill.	Landfill for non-hazardous waste and landfill restoration.	Receipt, handling, storage and disposal of wastes, consisting of the types and quantities specified in conditions 2.7, as an integral part of landfilling.
AR2	D8 – Biological treatment of waste	Section 5.4, Part A(1)(a)(i), Biological treatment of non-hazardous waste.	Treatment of leachate in a facility with a capacity of >50 tonnes/day.	Leachate arising from the landfill.
AR3	D8 – Biological treatment of waste and R5 - the recycling or reclamation of inorganic material	Section 5.3 Part A(1)(a)(ii)	Bioremediation process for hazardous waste.	A maximum treatment capacity of 38,000 tonnes at any one time. Hazardous waste types and quantities as specified in table S2.3b.
AR4	D8 – Biological treatment of waste and R5 - the recycling or reclamation of inorganic material	Section 5.4 Part A(1)(b)(i), Biological treatment of non-hazardous waste.	Recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 75 tonnes per day involving biological treatment.	A maximum treatment capacity of 38,000 tonnes at any one time. Non-hazardous waste types and quantities as specified in table S2.3b.

Table S1.1 activities				
AR5	D8 – Biological treatment of waste and R5 - the recycling or reclamation of inorganic material	Section 5.3 Part A(1)(a)(ii)	Screening to remove oversize material.	A maximum treatment capacity of 38,000 tonnes at any one time. Hazardous waste types and quantities as specified in table S2.3a.
AR6	R13 - Storage of waste pending any of the operations numbered R1 to R12	Section 5.6 Part A(1)(a)	Temporary storage of hazardous waste.	A maximum of 38,000 tonnes at any one time on site for wastes due to undergo treatment as per Activities AR3, AR4, AR5 or AR7. All storage shall take place on an impermeable surface with a sealed drainage system. No more than 38,000 tonnes of hazardous waste shall be stored in aggregate. No more than 150 tonnes of hazardous asbestos impacted wastes for activity AR7 shall be stored at any time. Soil impacted with asbestos shall be stored inside a building in a way that minimises asbestos fibre emissions such as spraying and sheeting. Hazardous waste types and quantities as specified in table S2.3a, S2.3b and S2.4.

AR7	R5 - the recycling or reclamation of inorganic material	Section 5.3 Part A(1)(a)(vi) Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving physico-chemical treatment.	Recovery of soils impacted with identifiable pieces of bonded asbestos cement by separation.	From treatment of soils impacted with identifiable pieces of bonded asbestos cement, by handpicking of asbestos cement only, or by 3-way screener into oversize, medium size and silt-sized fractions prior to handpicking of asbestos cement from the medium fraction, to storage of recovered soils and separated bonded asbestos cement. Screening and handpicking shall take place in a building on an impermeable surface with a sealed drainage system. The screener shall be enclosed. Handpicking shall take place in a dedicated enclosed picking line. No more than 100 tonnes per day of soils impacted with identifiable pieces of bonded asbestos cement shall be treated (in aggregate). The screening and handpicking of asbestos impacted wastes shall not increase the asbestos fibre load in the waste. Storage of screened waste not impacted with asbestos shall be stored outside in bays or in a building. Screened soil impacted with asbestos shall be stored inside a building in a way that minimises asbestos fibre emissions such as spraying and sheeting. Separated bonded asbestos fragments shall be bagged whilst handpicking is in progress. Once handpicked asbestos shall be stored double bagged in sealed, closed and locked containers. Treated waste shall be stored for no longer than 6 months prior to transfer off-site or to the landfill as cover. No more than 10 tonnes of picked asbestos shall be stored on site. No more than 1000 tonnes of treated soils shall be stored on site. Non-hazardous treated soils shall be kept separate from hazardous soils. Waste types (soil wastes only) and quantities as specified in schedule 2, table S2.4.

Table S1.1 activities				
AR8	R5 - the recycling or reclamation of inorganic material	Section 5.4 Part A (1)(a)(ii) Physico-chemical treatment of non-hazardous waste with a capacity exceeding 50 tonnes per day.	Screening of non-hazardous waste to remove oversized material for recovery.	Non-hazardous waste following treatment on site by Activity AR4. Non-hazardous waste types and quantities as specified in table S2.3b.
Directly Associated Activities				
AR9	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.	Treatment and utilisation of landfill gas arising from the landfill.
AR10	N/A		Temporary storage of waste (leachate).	Leachate arising from the landfill.
AR11	N/A		Flaring of landfill gas for disposal in an appliance.	Landfill gas arising from the landfill.
AR12	D6 – release to water body except seas/ oceans		Discharges of site drainage from the landfill.	From surface water management system to point of entry to controlled waters.
AR13	N/A		Fuel Storage.	Storage of diesel for use in mobile plant at Soil Treatment Facility.
AR14	N/A		Water Storage.	Collection and storage of process water.
AR15	N/A		Pipework between the leachate treatment plant and public sewerage system.	From the point of discharge from the leachate treatment plant to the point where the pipework leaves the land under the control of the operator.
AR16	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)		Storage of waste.	Temporary storage of non-hazardous waste prior to treatment on site.

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Application	The response to questions 1.2, 2.1, 2.2, 2.3, 2.4 and 2.5 in part B of the Application Form, excluding the following sections: 2.2.4 to 2.2.6, 2.3.32, 2.3.33, 2.3.34, 2.3.35, 2.3.39, 2.3.43, 2.3.50 to 2.3.54, 2.3.68, 2.3.69, 2.3.71, 2.3.72 and 2.3.78	09/10/2003
SLR letter and supporting documents regarding requests for information dated 17/06/2004.	All Parts	19/07/2004
SLR letter and supporting documents regarding requests for information dated 06/07/2004.	All Parts	20/07/2004
SLR letter and supporting documents regarding requests for information dated 25/08/2004.	All Parts	11/10/2004
SLR e-mail and supporting documents regarding revised waste list.	All Parts	14/01/2005
SLR e-mail and supporting documents All parts 14/01/2005 and 27/01/2005 regarding requests for information dated 30/12/2004.	All Parts	28/02/2006
Correspondence dated 27/02/2006 re: 27/02/2006 re: Improvement condition 1.4.1.1	All Parts	28/02/2006
Correspondence dated 03/04/2006 re: Improvement condition 1.4.1.2	All Parts	03/04/2006
Correspondence dated 01/03/2006 re: Improvement condition 1.4.1.3	All Parts	06/03/2006
Correspondence dated 15/02/2006, (ref: 404- 0197-00178) re: Improvement condition 1.4.1.5	All Parts	16/02/2006
Correspondence dated 02/2006 (ref 404-0197-00178), CQA plan for downstream monitoring wells)	All Parts	02/2006
Correspondence dated 06/04/2006 (ref:402.0197.00423) re: Improvement condition 1.4.1.7	All Parts	12/04/2006
Correspondence dated 13/04/2006 (ref: 404.0197.00178) Re: improvement condition 1.4.1.9	All Parts	18/04/2006
Correspondence dated 15/03/2005 (ref: 4D-197-178) re improvement condition 1.4.1.12	All Parts	21/05/2005

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Correspondence 'Maw Green Leachate Extraction Review' re improvement condition 1.4.1.13	All parts	06/2006
Revised monitoring location plan (drawing no. ESID 14, dated August 2007)	All parts	22/01/2008
Monitoring reduction letter Ref ALM/MG/EAL53	All Parts	22/01/2014
FCC letter ref MG/LC2.2AR/ 20140829	All Parts	29/08/2014
FCC Document E mail from FCC 29 Jan 2016Attached updated tables for Doc ref: ALM/MG/EAL53	All Parts	29/01/2015
Landfill Restoration Plan (referenced report 10228-R07 and dated May 2017)	All Parts	15/05/2017
Application	Application Forms (All Parts) ESID Amendment Site Condition Report (referenced 3695-CAU-XX-XX-RP-V-0305.A0-C2 and dated March 2019) Soil Treatment Facility Amenity and Accident Plan (referenced 3695-CAU-XX-XX-RP-V-0302.A0-C2 and dated March 2019)	01/04/2019
Response to Schedule 5 Notice (1) dated 23/08/2019	Soil Treatment Facility Dust Management Plan (reference 3695-CAU-XX-XX-RP-V-0307-A0-C1 and dated October 2019) Soil Treatment Facility Operating Techniques (reference 3695-CAU-XX-XX-RP-V-0303 and dated October 2019) Response includes clarification on area drainage, clarification on waste codes and biofilter/air quality monitoring details.	02/10/2019
Response to Schedule 5 Notice (2) follow up request dated 22/11/2019 and 02/01/2020	STC Soil Characterisation Procedure (referenced WI-003) and dated 26/11/2019) Response includes further detail on waste code acceptance, biofilter and air quality monitoring.	13/12/2019
	Soil Treatment Facility Odour Management Plan (reference 3695-CAU-XX-XX-RP-V-0308-	10/01/2020

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
	A0-C3 OMP Combined and dated December 2019)	
Response to request for more information dated 20/01/2020	Drawings Leachate Pipeline Route (ref. 3695-CAU-XX-XX-DR-V-1802 P1) and Proposed Layout Plan (ref. 3695-CAU-XX-XX-DR-V-1801 P3) detailing sewer connections to site and proposed monitoring locations respectively.	12/02/2020
Response to Improvement Condition 4	H1 Assessment (referenced 5193-CAU-XX-XX-RP-V-0308.A0.C1 Final and dated November 2021)	08/11/2021
Application	Application Forms (All Parts) Updated Supporting Document (reference 5193-CAU-XX-XX-RP-V-0300.A0.C1 and dated December 2021) Updated Amenity and Accident Plan (reference 5193-CAU-XX-XX-RP-V-0301-A0.C1 and dated December 2021) Addendum to ESID Report (referenced 5193-CAU-XX-XX-RP-V-0302-A0.C1 and dated December 2021) Updated Operating Techniques Document (referenced 5193-CAU-XX-XX-RP-V-0306.A0.C1 and dated December 2021) Updated BAT Review (referenced 5193-CAU-XX-XX-RP-V-0307.A0.C1 and dated December 2021)	15/12/2021
Application EPR/BS7722ID/V009	Documents received in response to Section 3a of form Part C3: Treatment process & BAT review - reference 10012023, excluding all references to mechanical screener that is not enclosed. • Dust & Emissions Management Plan (Document Ref: 5193-CAU-XX-XX-RP-V-0313.A0.C1), excluding all references to mechanical screener that is not enclosed. • Environmental Setting and Installation Design (ESID) - Addendum 2022 (Document Ref: 5193-CAU-XX-XX-RP-V-0309.A0.C1), excluding all reference to mechanical screener that is not enclosed. Amenity & Accidents Risk Assessment (Document Ref: 5193-CAU-XX-XX-RP-	10/01/2023

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
	V-0310.A0.C1), excluding all references to mechanical screener that is not enclosed. Activities & Operating Techniques Report (Document Ref: 5193-CAU-XX-XX-RP-V-0311.A0.C1), excluding all references to mechanical screener that is not enclosed	
Description - Chemical waste: appropriate measures for permitted facilities Version published 18 November 2020	Parts: All parts of the appropriate measures guidance shall apply.	05/10/2023

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
4	(b) The operator shall submit to the Environment Agency in writing for approval, a report detailing monthly chemical analysis monitoring results of collected waters from the Soil Treatment Facility (STF) at the point of discharge from the STF. The report should contain details of comparison of results from the chemical analysis to existing discharge consent limits and the Environment Agency's H1 Guidance.	Complete
5	The operator shall provide a report on the monitoring undertaken as part of the sampling of the incoming waste and the separated wastes streams, from the operation of the asbestos screening process over 4 months of operation, for approval by the Environment Agency. The sampling report shall: • detail the method(s) used to sample and analyse the treated waste streams for asbestos fibres; • demonstrate a high percentile level of confidence in the treatment process taking account of the amount of waste treated per batch and the number of samples required to adequately sample each waste stream, both initially and on an ongoing basis; • demonstrate that additional asbestos fibre contamination is not being created by the screening process. • recommend any additional measures to be undertaken to ensure compliance with the permit conditions. The notification requirements of condition 2.4.2 will be deemed to have been complied with on submission of the plan. The operator shall implement the additional measures as approved, and from the date stipulated by, the Environment Agency.	08/04/2024

Table S1.4 Pre-operational measures for future development		
Reference	**Operation**	**Pre-operational Measures**
1	Deposit of wastes in any area of the Permitted installation where waste deposit commences after the issue of the permit	As part of any construction proposals required by condition 2.5.1 the operator shall include a design for leachate collection infrastructure, which includes details of the leachate collection layer, drainage pipework, collection systems and drilling targets.
2	Deposit of waste over previously completed areas of phase 1	A leachate drainage layer shall be incorporated into the design of the internal slope between phase 1 and future phases. The design specification of this layer shall be approved in accordance with condition 2.5.1.
3	Engineering of any new cell	As part of any construction proposals required by condition 2.5.1, the operator shall submit a report investigating the existence of sand horizons beneath the cell base. The report shall detail the thickness of any encountered sand horizon, the presence of groundwater including the piezometric head and shall also include an assessment into the possibility of basal heave and any necessary preventative action required for the cell, together with any required amendments to CQA procedures for engineering at the site. If in the preparation of the report, extra intrusive site investigation is undertaken, the report shall contain all relevant borehole logs and descriptions.
4	Operation of the mechanical screener for treatment of asbestos impacted wastes	Prior to the use of the mechanical screener for the pre-screening of asbestos contaminated soils under activity reference AR7 a report shall be submitted for written approval detailing the following aspects: • Evidence to demonstrate that the mechanical screener is fully enclosed and all dust emissions from the screening operation are directed to an active abatement system with a HEPA filter or other suitable design. • Details of the proposed commissioning, operational and maintenance procedures associated with the mechanical screener and active abatement system to be implemented on site. • Details of monitoring checks, audits and emergency procedures to be implemented on site to ensure both the mechanical screener and active abatement system are fully operational and working as designed. No mechanical pre-screening of asbestos contaminated soils under activity reference AR3A shall commence unless the Environment Agency has given prior approval under this condition.

Table S1.5 Annual waste input limits	
Category	**Limit Tonnes/ Year**
Non-hazardous waste	450,000
Inert waste	450,000
Waste for restoration	75,000

Schedule 2 – List of permitted wastes

Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste	
Waste code	**Description**
01	**Wastes resulting from exploration, mining, quarrying, and physical and chemical treatment of minerals**
01 01	**wastes from mineral excavation**
01 01 01	wastes from mineral metalliferous excavation
01 01 02	wastes from mineral non-metalliferous excavation
01 03	**wastes from physical and chemical processing of metalliferous minerals**
01 03 06	tailings other than those mentioned in 01 03 04 and 01 03 05
01 03 08	dusty and powdery wastes other than those mentioned in 01 03 07
01 03 09	red mud from alumina production other than the wastes mentioned in 01 03 10
01 04	**wastes from physical and chemical processing of non-metalliferous minerals**
01 04 08	waste gravel and crushed rocks other than those mentioned in 01 04 07
01 04 09	waste sand and clays
01 04 10	dusty and powdery wastes other than those mentioned in 01 04 07
01 04 11	wastes from potash and rock salt processing other than those mentioned in 01 04 07
01 04 12	tailings and other wastes from washing and cleaning of minerals other than those mentioned in 01 04 07 and 01 04 11
01 04 13	wastes from stone cutting and sawing other than those mentioned in 01 04 07
01 05	**drilling muds and other drilling wastes**
01 05 04	freshwater drilling muds and wastes
01 05 07	barite-containing drilling muds and wastes other than those mentioned in 01 05 05 and 01 05 06
01 05 08	chloride-containing drilling muds and wastes other than those mentioned in 01 05 05 and 01 05 06
02	**Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing**
02 01	**wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing**
02 01 01	sludges from washing and cleaning
02 01 02	animal-tissue waste
02 01 03	plant-tissue waste
02 01 04	waste plastics (except packaging)
02 01 06	animal faeces, urine and manure (including spoiled straw), effluent, collected separately and treated off-site
02 01 07	wastes from forestry
02 01 09	agrochemical waste other than those mentioned in 02 01 08
02 01 10	waste metal
02 02	**wastes from the preparation and processing of meat, fish and other foods of animal origin**

Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste	
Waste code	**Description**
02 02 01	sludges from washing and cleaning
02 02 02	animal-tissue waste
02 02 03	materials unsuitable for consumption or processing
02 02 04	sludges from on-site effluent treatment
02 03	**wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation**
02 03 01	sludges from washing, cleaning, peeling, centrifuging and separation
02 03 02	wastes from preserving agents
02 03 03	wastes from solvent extraction
02 03 04	materials unsuitable for consumption or processing
02 03 05	sludges from on-site effluent treatment
02 04	**wastes from sugar processing**
02 04 01	soil from cleaning and washing beet
02 04 02	off-specification calcium carbonate
02 04 03	sludges from on-site effluent treatment
02 05	**wastes from the dairy products industry**
02 05 01	materials unsuitable for consumption or processing
02 05 02	sludges from on-site effluent treatment
02 06	**wastes from the baking and confectionery industry**
02 06 01	materials unsuitable for consumption or processing
02 06 02	wastes from preserving agents
02 06 03	sludges from on-site effluent treatment
02 07	**wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)**
02 07 01	wastes from washing, cleaning and mechanical reduction of raw materials
02 07 02	wastes from spirits distillation
02 07 03	wastes from chemical treatment
02 07 04	materials unsuitable for consumption or processing
02 07 05	sludges from on-site effluent treatment
03	**Wastes from wood processing and the production of panels and furniture, pulp, paper and cardboard**
03 01	**wastes from wood processing and the production of panels and furniture**
03 01 01	waste bark and cork
03 01 05	sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04
03 03	**wastes from pulp, paper and cardboard production and processing**
03 03 01	waste bark and wood
03 03 02	green liquor sludge (from recovery of cooking liquor)
03 03 05	de-inking sludges from paper recycling

Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste	
Waste code	**Description**
03 03 07	mechanically separated rejects from pulping of waste paper and cardboard
03 03 08	wastes from sorting of paper and cardboard destined for recycling
03 03 09	lime mud waste
03 03 10	fibre rejects, fibre-, filler- and coating-sludges from mechanical separation
03 03 11	sludges from on-site effluent treatment other than those mentioned in 03 03 10
04	**Wastes from the leather, fur and textile industries**
04 01	**wastes from the leather and fur industry**
04 01 01	fleshings and lime split wastes
04 01 02	liming waste
04 01 06	sludges, in particular from on-site effluent treatment containing chromium
04 01 07	sludges, in particular from on-site effluent treatment free of chromium
04 01 08	waste tanned leather (blue sheetings, shavings, cuttings, buffing dust) containing chromium
04 01 09	wastes from dressing and finishing
04 02	**wastes from the textile industry**
04 02 09	wastes from composite materials (impregnated textile, elastomer, plastomer)
04 02 10	organic matter from natural products (for example grease, wax)
04 02 15	wastes from finishing other than those mentioned in 04 02 14
04 02 17	dyestuffs and pigments other than those mentioned in 04 02 16
04 02 20	sludges from on-site effluent treatment other than those mentioned in 04 02 19
04 02 21	wastes from unprocessed textile fibres
04 02 22	wastes from processed textile fibres
05	**Wastes from petroleum refining, natural gas purification and pyrolytic treatment of coal**
05 01	**wastes from petroleum refining**
05 01 10	sludges from on-site effluent treatment other than those mentioned in 05 01 09
05 01 13	boiler feedwater sludges
05 01 14	wastes from cooling columns
05 01 16	sulphur-containing wastes from petroleum desulphurisation
05 01 17	bitumen
05 06	**wastes from the pyrolytic treatment of coal**
05 06 04	waste from cooling columns
05 07	**wastes from natural gas purification and transportation**
05 07 02	wastes containing sulphur
06	**Wastes from inorganic chemical processes**
06 03	**wastes from the MFSU of salts and their solutions and metallic oxides**
06 03 14	solid salts and solutions other than those mentioned in 06 03 11 and 06 03 13
06 03 16	metallic oxides other than those mentioned in 06 03 15
06 05	**sludges from on-site effluent treatment**

Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste	
Waste code	**Description**
06 05 03	sludges from on-site effluent treatment other than those mentioned in 06 05 02
06 06	**wastes from the MFSU of sulphur chemicals, sulphur chemical processes and desulphurisation processes**
06 06 03	wastes containing sulphides other than those mentioned in 06 06 02
06 09	**wastes from the MSFU of phosphorous chemicals and phosphorous chemical processes**
06 09 02	phosphorous slag
06 09 04	calcium-based reaction wastes other than those mentioned in 06 09 03
06 11	**wastes from the manufacture of inorganic pigments and opacificiers**
06 11 01	calcium-based reaction wastes from titanium dioxide production
06 13	**wastes from inorganic chemical processes not otherwise specified**
06 13 03	carbon black
07	**Wastes from organic chemical processes**
07 01	**wastes from the manufacture, formulation, supply and use (MFSU) of basic organic chemicals**
07 01 12	sludges from on-site effluent treatment other than those mentioned in 07 01 11
07 02	**wastes from the MFSU of plastics, synthetic rubber and man-made fibres**
07 02 12	sludges from on-site effluent treatment other than those mentioned in 07 02 11
07 02 13	waste plastic
07 02 15	wastes from additives other than those mentioned in 07 02 14
07 02 17	waste containing silicones other than those mentioned in 07 02 16
07 03	**wastes from the MFSU of organic dyes and pigments (except 06 11)**
07 03 12	sludges from on-site effluent treatment other than those mentioned in 07 03 11
07 04	**wastes from the MFSU of organic plant protection products (except 02 01 08 and 02 01 09), wood preserving agents (except 03 02) and other biocides**
07 04 12	sludges from on-site effluent treatment other than those mentioned in 07 04 11
07 05	**wastes from the MFSU of pharmaceuticals**
07 05 12	sludges from on-site effluent treatment other than those mentioned in 07 05 11
07 05 14	solid wastes other than those mentioned in 07 05 13
07 06	**wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics**
07 06 12	sludges from on-site effluent treatment other than those mentioned in 07 06 11
07 07	**wastes from the MFSU of fine chemicals and chemical products not otherwise specified**
07 07 12	sludges from on-site effluent treatment other than those mentioned in 07 07 11
08	**Wastes from the manufacture, formulation, supply and use (MFSU) of coatings (paints, varnishes and vitreous enamels), adhesives, sealants and printing inks**
08 01	**wastes from MFSU and removal of paint and varnish**
08 01 12	waste paint and varnish other than those mentioned in 08 01 11
08 01 14	sludges from paint or varnish other than those mentioned in 08 01 13

Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste	
Waste code	**Description**
08 01 16	aqueous sludges containing paint or varnish other than those mentioned in 08 01 15
08 01 18	wastes from paint or varnish removal other than those mentioned in 08 01 17
08 02	**wastes from MFSU of other coatings (including ceramic materials)**
08 02 01	waste coating powders
08 02 02	aqueous sludges containing ceramic materials
08 03	**wastes from MFSU of printing inks**
08 03 07	aqueous sludges containing ink
08 03 13	waste ink other than those mentioned in 08 03 12
08 03 15	ink sludges other than those mentioned in 08 03 14
08 03 18	waste printing toner other than those mentioned in 08 03 17
08 04	**wastes from MFSU of adhesives and sealants (including water proofing products)**
08 04 10	waste adhesives and sealants other than those mentioned in 08 04 09
08 04 12	adhesive and sealant sludges other than those mentioned in 08 04 11
08 04 14	aqueous sludges containing adhesives or sealants other than those mentioned in 08 04 13
09	**Wastes from the photographic industry**
09 01	**wastes from the photographic industry**
09 01 07	photographic film and paper containing silver or silver compounds
09 01 08	photographic film and paper free of silver or silver compounds
09 01 10	single-use cameras without batteries
09 01 12	single-use cameras containing batteries other than those mentioned in 09 01 11
10	**Wastes from thermal processes**
10 01	**wastes from power stations and other combustion plants (except 19)**
10 01 01	bottom ash, slag and boiler dust (excluding boiler dust mentioned in 10 01 04)
10 01 02	coal fly ash
10 01 03	fly ash from peat and untreated wood
10 01 05	calcium-based reaction wastes from flue-gas desulphurisation in solid form
10 01 07	calcium-based reaction wastes from flue-gas desulphurisation in sludge form
10 01 15	bottom ash, slag and boiler dust from co-incineration other than those mentioned in 10 01 14
10 01 17	fly ash from co-incineration other than those mentioned in 10 01 16
10 01 19	wastes from gas cleaning other than those mentioned in 10 01 05, 10 01 07 and 10 01 18
10 01 21	sludges from on-site effluent treatment other than those mentioned in 10 01 20
10 01 23	aqueous sludges from boiler cleansing other than those mentioned in 10 01 22
10 01 24	sands from fluidised beds
10 01 25	wastes from fuel storage and preparation of coal-fired power plants
10 01 26	wastes from cooling-water treatment

Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste	
Waste code	**Description**
10 02	**wastes from the iron and steel industry**
10 02 01	wastes from the processing of slag
10 02 02	unprocessed slag
10 02 08	solid wastes from gas treatment other than those mentioned in 10 02 07
10 02 10	mill scales
10 02 12	wastes from cooling-water treatment other than those mentioned in 10 02 11
10 02 14	sludges and filter cakes from gas treatment other than those mentioned in 10 02 13
10 02 15	other sludges and filter cakes
10 03	**wastes from aluminium thermal metallurgy**
10 03 02	anode scraps
10 03 05	waste alumina
10 03 16	skimmings other than those mentioned in 10 03 15
10 03 18	carbon-containing wastes from anode manufacture other than those mentioned in 10 03 17
10 03 20	flue-gas dust other than those mentioned in 10 03 19
10 03 22	other particulates and dust (including ball-mill dust) other than those mentioned in 10 03 21
10 03 24	solid wastes from gas treatment other than those mentioned in 10 03 23
10 03 26	sludges and filter cakes from gas treatment other than those mentioned in 10 03 25
10 03 28	wastes from cooling-water treatment other than those mentioned in 10 03 27
10 03 30	wastes from treatment of salt slags and black drosses other than those mentioned in 10 03 29
10 04	**wastes from lead thermal metallurgy**
10 04 10	wastes from cooling-water treatment other than those mentioned in 10 04 09
10 05	**wastes from zinc thermal metallurgy**
10 05 01	slags from primary and secondary production
10 05 04	other particulates and dust
10 05 09	wastes from cooling-water treatment other than those mentioned in 10 05 08
10 05 11	dross and skimmings other than those mentioned in 10 05 10
10 06	**wastes from copper thermal metallurgy**
10 06 01	slags from primary and secondary production
10 06 02	dross and skimmings from primary and secondary production
10 06 04	other particulates and dust
10 06 10	wastes from cooling-water treatment other than those mentioned in 10 06 09
10 07	**wastes from silver, gold and platinum thermal metallurgy**
10 07 01	slags from primary and secondary production
10 07 02	dross and skimmings from primary and secondary production
10 07 03	solid wastes from gas treatment
10 07 04	other particulates and dust

Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste	
Waste code	**Description**
10 07 05	sludges and filter cakes from gas treatment
10 07 08	wastes from cooling-water treatment other than those mentioned in 10 07 07
10 08	**wastes from other non-ferrous thermal metallurgy**
10 08 04	particulates and dust
10 08 09	other slags
10 08 11	dross and skimmings other than those mentioned in 10 08 10
10 08 13	carbon-containing wastes from anode manufacture other than those mentioned in 10 08 12
10 08 14	anode scrap
10 08 16	flue-gas dust other than those mentioned in 10 08 15
10 08 18	sludges and filter cakes from flue-gas treatment other than those mentioned in 10 08 17
10 08 20	wastes from cooling-water treatment other than those mentioned in 10 08 19
10 09	**wastes from casting of ferrous pieces**
10 09 03	furnace slag
10 09 06	casting cores and moulds which have not undergone pouring other than those mentioned in 10 09 05
10 09 08	casting cores and moulds which have undergone pouring other than those mentioned in 10 09 07
10 09 10	flue-gas dust other than those mentioned in 10 09 09
10 09 12	other particulates other than those mentioned in 10 09 11
10 09 14	waste binders other than those mentioned in 10 09 13
10 09 16	waste crack-indicating agent other than those mentioned in 10 09 15
10 10	**wastes from casting of non-ferrous pieces**
10 10 03	furnace slag
10 10 06	casting cores and moulds which have not undergone pouring, other than those mentioned in 10 10 05
10 10 08	casting cores and moulds which have undergone pouring, other than those mentioned in 10 10 07
10 10 10	flue-gas dust other than those mentioned in 10 10 09
10 10 12	other particulates other than those mentioned in 10 10 11
10 10 14	waste binders other than those mentioned in 10 10 13
10 10 16	waste crack-indicating agent other than those mentioned in 10 10 15
10 11	**wastes from manufacture of glass and glass products**
10 11 03	waste glass-based fibrous materials
10 11 05	particulates and dust
10 11 10	waste preparation mixture before thermal processing, other than those mentioned in 10 11 09
10 11 12	waste glass other than those mentioned in 10 11 11
10 11 14	glass-polishing and -grinding sludge other than those mentioned in 10 11 13

Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste	
Waste code	**Description**
10 11 16	solid wastes from flue-gas treatment other than those mentioned in 10 11 15
10 11 18	sludges and filter cakes from flue-gas treatment other than those mentioned in 10 11 17
10 11 20	solid wastes from on-site effluent treatment other than those mentioned in 10 11 19
10 12	**wastes from manufacture of ceramic goods, bricks, tiles and construction products**
10 12 01	waste preparation mixture before thermal processing
10 12 03	particulates and dust
10 12 05	sludges and filter cakes from gas treatment
10 12 06	discarded moulds
10 12 08	waste ceramics, bricks, tiles and construction products (after thermal processing)
10 12 10	solid wastes from gas treatment other than those mentioned in 10 12 09
10 12 12	wastes from glazing other than those mentioned in 10 12 11
10 12 13	sludge from on-site effluent treatment
10 13	**wastes from manufacture of cement, lime and plaster and articles and products made from them**
10 13 01	waste preparation mixture before thermal processing
10 13 04	wastes from calcination and hydration of lime
10 13 06	particulates and dust (except 10 13 12 and 10 13 13)
10 13 07	sludges and filter cakes from gas treatment
10 13 10	wastes from asbestos-cement manufacture other than those mentioned in 10 13 09
10 13 11	wastes from cement-based composite materials other than those mentioned in 10 13 09 and 10 13 10
10 13 13	solid wastes from gas treatment other than those mentioned in 10 13 12
10 13 14	waste concrete and concrete sludge
11	**Wastes from chemical surface treatment and coating of metals and other materials; non-ferrous hydro-metallurgy**
11 01	**wastes from chemical surface treatment and coating of metals and other materials (for example galvanic processes, zinc coating processes, pickling processes, etching, phosphating, alkaline degreasing, anodising)**
11 01 10	sludges and filter cakes other than those mentioned in 11 01 09
11 01 14	degreasing wastes other than those mentioned in 11 01 13
11 02	**wastes from non-ferrous hydrometallurgical processes**
11 02 03	wastes from the production of anodes for aqueous electrolytical processes
11 02 06	wastes from copper hydrometallurgical processes other than those mentioned in 11 02 05
11 05	**wastes from hot galvanising processes**
11 05 01	hard zinc
11 05 02	zinc ash
12	**Wastes from shaping and physical and mechanical surface treatment of metals and plastics**

Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste	
Waste code	**Description**
12 01	**wastes from shaping and physical and mechanical surface treatment of metals and plastics**
12 01 01	ferrous metal filings and turnings
12 01 02	ferrous metal dust and particles
12 01 03	non-ferrous metal filings and turnings
12 01 04	non-ferrous metal dust and particles
12 01 05	plastics shavings and turnings
12 01 13	welding wastes
12 01 15	machining sludges other than those mentioned in 12 01 14
12 01 17	waste blasting material other than those mentioned in 12 01 16
12 01 21	spent grinding bodies and grinding materials other than those mentioned in 12 01 20
15	**Waste packaging, absorbents, wiping cloths, filter materials and protective clothing not otherwise specified**
15 01	**packaging (including separately collected municipal packaging waste)**
15 01 01	paper and cardboard packaging
15 01 02	plastic packaging
15 01 03	wooden packaging
15 01 04	metallic packaging
15 01 05	composite packaging
15 01 06	mixed packaging
15 01 07	glass packaging
15 01 09	textile packaging
15 02	**absorbents, filter materials, wiping cloths and protective clothing**
15 02 03	absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02
16	**Wastes not otherwise specified in the list**
16 01	**end-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)**
16 01 03	end-of-life tyres
16 01 12	brake pads other than those mentioned in 16 01 11
16 01 17	ferrous metal
16 01 18	non-ferrous metal
16 01 19	plastic
16 01 20	glass
16 02	**wastes from electrical and electronic equipment**
16 02 14	discarded equipment other than those mentioned in 16 02 09 to 16 02 13
16 02 16	components removed from discarded equipment other than those mentioned in 16 02 15

Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste	
Waste code	**Description**
16 03	**off-specification batches and unused products**
16 03 04	inorganic wastes other than those mentioned in 16 03 03
16 03 06	organic wastes other than those mentioned in 16 03 05
16 08	**spent catalysts**
16 08 01	spent catalysts containing gold, silver, rhenium, rhodium, palladium, iridium or platinum (except 16 08 07)
16 08 03	spent catalysts containing transition metals or transition metal compounds not otherwise specified
16 11	**waste linings and refractories**
16 11 02	carbon-based linings and refractories from metallurgical processes others than those mentioned in 16 11 01
16 11 04	other linings and refractories from metallurgical processes other than those mentioned in 16 11 03
16 11 06	linings and refractories from non-metallurgical processes others than those mentioned in 16 11 05
17	**Construction and demolition wastes (including excavated soil from contaminated sites)**
17 01	**concrete, bricks, tiles and ceramics**
17 01 01	concrete
17 01 02	bricks
17 01 03	tiles and ceramics
17 01 07	mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
17 02	**wood, glass and plastic**
17 02 01	wood
17 02 02	glass
17 02 03	plastic
17 03	**bituminous mixtures, coal tar and tarred products**
17 03 02	bituminous mixtures other than those mentioned in 17 03 01
17 04	**metals (including their alloys)**
17 04 01	copper, bronze, brass
17 04 02	aluminium
17 04 03	lead
17 04 04	zinc
17 04 05	iron and steel
17 04 06	tin
17 04 07	mixed metals
17 04 11	cables other than those mentioned in 17 04 10
17 05	**soil (including excavated soil from contaminated sites), stones and dredging spoil**
17 05 04	soil and stones other than those mentioned in 17 05 03

Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste	
Waste code	**Description**
17 05 06	dredging spoil other than those mentioned in 17 05 05
17 05 08	track ballast other than those mentioned in 17 05 07
17 06	**insulation materials and asbestos-containing construction materials**
17 06 04	insulation materials other than those mentioned in 17 06 01 and 17 06 03
17 09	**other construction and demolition wastes**
17 09 04	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03
18	**Wastes from human or animal health care and/or related research (except kitchen and restaurant wastes not arising from immediate health care)**
18 01	**wastes from natal care, diagnosis, treatment or prevention of disease in humans**
18 01 04	wastes whose collection and disposal is not subject to special requirements in order to prevent infection (for example dressings, plaster casts, linen, disposable clothing, diapers)
18 02	**wastes from research, diagnosis, treatment or prevention of disease involving animals**
18 02 03	wastes whose collection and disposal is not subject to special requirements in order to prevent infection
18 02 06	chemicals other than those mentioned in 18 02 05
19	**Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use**
19 01	**wastes from incineration or pyrolysis of waste**
19 01 02	ferrous materials removed from bottom ash
19 01 12	bottom ash and slag other than those mentioned in 19 01 11
19 01 14	fly ash other than those mentioned in 19 01 13
19 01 16	boiler dust other than those mentioned in 19 01 15
19 01 18	pyrolysis wastes other than those mentioned in 19 01 17
19 01 19	sands from fluidised beds
19 02	**wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)**
19 02 03	premixed wastes composed only of non-hazardous wastes
19 02 06	sludges from physico/chemical treatment other than those mentioned in 19 02 05
19 02 10	combustible wastes other than those mentioned in 19 02 08 and 19 02 09
19 03	**stabilised/solidified wastes**
19 03 05	stabilised wastes other than those mentioned in 19 03 04
19 03 07	solidified wastes other than those mentioned in 19 03 06
19 04	**vitrified waste and wastes from vitrification**
19 04 01	vitrified waste
19 05	**wastes from aerobic treatment of solid wastes**
19 05 01	non-composted fraction of municipal and similar wastes
19 05 02	non-composted fraction of animal and vegetable waste

Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste	
Waste code	**Description**
19 05 03	off-specification compost
19 06	**wastes from anaerobic treatment of waste**
19 06 04	digestate from anaerobic treatment of municipal waste
19 06 06	digestate from anaerobic treatment of animal and vegetable waste
19 08	**wastes from waste water treatment plants not otherwise specified**
19 08 01	screenings
19 08 02	waste from desanding
19 08 05	sludges from treatment of urban waste water
19 08 09	grease and oil mixture from oil/water separation containing only edible oil and fats
19 08 12	sludges from biological treatment of industrial waste water other than those mentioned in 19 08 11
19 08 14	sludges from other treatment of industrial waste water other than those mentioned in 19 08 13
19 09	**wastes from the preparation of water intended for human consumption or water for industrial use**
19 09 01	solid waste from primary filtration and screenings
19 09 02	sludges from water clarification
19 09 03	sludges from decarbonation
19 09 04	spent activated carbon
19 09 05	saturated or spent ion exchange resins
19 09 06	solutions and sludges from regeneration of ion exchangers
19 10	**wastes from shredding of metal-containing wastes**
19 10 01	iron and steel waste
19 10 02	non-ferrous waste
19 10 04	fluff-light fraction and dust other than those mentioned in 19 10 03
19 10 06	other fractions other than those mentioned in 19 10 05
19 11	**wastes from oil regeneration**
19 11 06	sludges from on-site effluent treatment other than those mentioned in 19 11 05
19 12	**wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12 01	paper and cardboard
19 12 02	ferrous metal
19 12 03	non-ferrous metal
19 12 04	plastic and rubber
19 12 05	glass
19 12 07	wood other than that mentioned in 19 12 06
19 12 08	textiles
19 12 09	minerals (for example sand, stones)
19 12 10	combustible waste (refuse derived fuel)

Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste	
Waste code	**Description**
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11
19 13	**wastes from soil and groundwater remediation**
19 13 02	solid wastes from soil remediation other than those mentioned in 19 13 01
19 13 04	sludges from soil remediation other than those mentioned in 19 13 03
19 13 06	sludges from groundwater remediation other than those mentioned in 19 13 05
20	**Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions**
20 01	**separately collected fractions (except 15 01)**
20 01 01	paper and cardboard
20 01 02	glass
20 01 08	biodegradable kitchen and canteen waste
20 01 10	clothes
20 01 11	textiles
20 01 25	edible oil and fat
20 01 28	paint, inks, adhesives and resins other than those mentioned in 20 01 27
20 01 30	detergents other than those mentioned in 20 01 29
20 01 36	discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35
20 01 38	wood other than that mentioned in 20 01 37
20 01 39	plastics
20 01 40	metals
20 01 41	wastes from chimney sweeping
20 02	**garden and park wastes (including cemetery waste)**
20 02 01	biodegradable waste
20 02 02	soil and stones
20 02 03	other non-biodegradable wastes
20 03	**other municipal wastes**
20 03 01	mixed municipal waste
20 03 02	waste from markets
20 03 03	street-cleaning residues
20 03 04	septic tank sludge
20 03 06	waste from sewage cleaning
20 03 07	bulky waste

Table S2.2 Permitted waste types for restoration	
Waste code	**Description**
01	**Wastes resulting from exploration, mining, quarrying, and physical and chemical treatment of minerals**
01 04	wastes from physical and chemical processing of non-metalliferous minerals
01 04 08	waste gravel and crushed rocks other than those mentioned in 01 04 07
01 04 09	waste sand and clays
02	**Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing**
02 04	wastes from sugar processing
02 04 01	soil from cleaning and washing beet
03	**Wastes from wood processing and the production of panels and furniture, pulp, paper and cardboard**
03 03	wastes from pulp, paper and cardboard production and processing
03 03 05	de-inking sludges from paper recycling
03 03 09	lime mud waste
17	**Construction and demolition wastes (including excavated soil from contaminated sites)**
17 05	soil (including excavated soil from contaminated sites), stones and dredging spoil
17 05 04	soil and stones other than those mentioned in 17 05 03
17 05 06	dredging spoil other than those mentioned in 17 05 05
19	**Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use**
19 05	wastes from aerobic treatment of solid wastes
19 05 03	off-specification compost
19 08	wastes from waste water treatment plants not otherwise specified
19 08 05	sludges from treatment of urban waste water
19 09	wastes from the preparation of water intended for human consumption or water for industrial use
19 09 02	sludges from water clarification
19 12	wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified
19 12 09	minerals (for example sand, stones)
19 13	wastes from soil and groundwater remediation
19 13 02	solid wastes from soil remediation other than those mentioned in 19 13 01
19 13 04	sludges from soil remediation other than those mentioned in 19 13 03
20	**Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions**
20 02	garden and park wastes (including cemetery waste)
20 02 02	soil and stones

Table S2.3a Permitted waste types for Physico-Chemical Treatment (Activity A5 in Table S1.1) at Soil Treatment Facility	
Maximum Quantity	**Annual throughput shall not exceed 50,000 tonnes for activities AR3, AR4, AR5, AR6, AR7, AR8, AR16**
Waste code	**Description**
01	**Wastes resulting from exploration, mining, quarrying, and physical and chemical treatment of minerals**
01 04	**wastes from physical and chemical processing of non-metalliferous minerals**
01 04 09	waste sand and clays
01 05	**Drilling muds and other wastes**
01 05 05*	oil-containing drilling muds and wastes
01 05 06*	drilling muds and other drilling wastes containing hazardous substances
05	**Wastes from petroleum refining, natural gas purification and pyrolytic treatment of coal**
05 01	**wastes from petroleum refining**
05 01 05*	oil spills
13	**Oil wastes and wastes of liquid fuels (except edible oils, and those in chapters 05, 12 and 19)**
13 05	**Oil/water separator contents**
13 05 01*	solids from grit chambers and oil/water separators
13 05 02*	sludges from oil/water separators
13 05 03*	interceptor sludges
13 05 08*	mixtures of wastes from grit chambers and oil/water separators
17	**Construction and demolitions wastes (including excavated soil from contaminated sites)**
17 02	**Wood, glass and plastic**
17 02 01	wood
17 05	**Soil (including excavated soil from contaminated sites), stones and dredging spoil**
17 05 03*	soil and stones containing hazardous substances
17 05 04	soil and stones other than those mentioned in 17 05 03
17 05 05*	dredging spoil containing hazardous substances
17 05 06	dredging spoil other than those mentioned in 17 05 05
17 05 07*	track ballast containing hazardous substances
17 05 08	track ballast other than those mentioned in 17 05 07
19	**Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use**
19 02	**Wastes from physico/chemical treatment treatments of waste (including dechromatation, decyanidation, neutralisation)**
19 02 05*	sludges from physico/chemical treatment containing hazardous substances – wastes suitable for biological treatment only
19 02 06	sludges from physico/chemical treatment other than those mentioned in 19 02 05 – wastes suitable for biological treatment only
19 05	**wastes from aerobic treatment of solid wastes**

Table S2.3a Permitted waste types for Physico-Chemical Treatment (Activity A5 in Table S1.1) at Soil Treatment Facility	
Maximum Quantity	**Annual throughput shall not exceed 50,000 tonnes for activities AR3, AR4, AR5, AR6, AR7, AR8, AR16**
Waste code	**Description**
19 05 03	off-specification compost
19 08	**wastes from waste water treatment plants not otherwise specified**
19 08 02	waste from desanding
19 08 13*	sludges containing hazardous substances from other treatment of industrial waste water
19 08 14	sludges from other treatment of industrial waste water other than those mentioned in 19 08 13
19 12	**wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12 07	wood other than those mentioned in 19 12 06
19 13	**Wastes from soil and groundwater remediation**
19 13 01*	solid wastes from soil remediation containing hazardous substances
19 13 02	solid wastes from soil remediation other than those mentioned in 19 13 01
19 13 03*	sludges from soil remediation containing hazardous substances
19 13 04	sludges from soil remediation other than those mentioned in 19 13 03
20	**Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions**
20 01	**Separately collected fractions (except 15 01)**
20 01 38	wood other than that mentioned in 20 01 37
20 02	**Garden and park wastes (including cemetery waste)**
20 02 01	biodegradable waste
20 02 02	soil and stones
20 03	**Other municipal wastes**
20 03 03	street cleaning residues

Table S2.3b Permitted waste types for Biological Treatment (Activity A3/A4 in Table S1.1) at Soil Treatment Facility	
Maximum Quantity	**Annual throughput shall not exceed 50,000 tonnes for activities AR3, AR4, AR5, AR6, AR7, AR8, AR16**
Waste code	**Description**
01	**Wastes resulting from exploration, mining, quarrying, and physical and chemical treatment of minerals**
01 04	**wastes from physical and chemical processing of non-metalliferous minerals**
01 04 09	waste sand and clays
01 05	**Drilling muds and other wastes**
01 05 05*	oil-containing drilling muds and wastes
01 05 06*	drilling muds and other drilling wastes containing hazardous substances
05	**Wastes from petroleum refining, natural gas purification and pyrolytic treatment of coal**
05 01	**wastes from petroleum refining**
05 01 05*	oil spills
13	**Oil wastes and wastes of liquid fuels (except edible oils, and those in chapters 05, 12 and 19)**
13 05	**Oil/water separator contents**
13 05 01*	solids from grit chambers and oil/water separators
13 05 02*	sludges from oil/water separators
13 05 03*	interceptor sludges
13 05 08*	mixtures of wastes from grit chambers and oil/water separators
17	**Construction and demolitions wastes (including excavated soil from contaminated sites)**
17 02	**Wood, glass and plastic**
17 02 01	wood
17 05	**Soil (including excavated soil from contaminated sites), stones and dredging spoil**
17 05 03*	soil and stones containing hazardous substances
17 05 04	soil and stones other than those mentioned in 17 05 03
17 05 05*	dredging spoil containing hazardous substances
17 05 06	dredging spoil other than those mentioned in 17 05 05
17 05 07*	track ballast containing hazardous substances
17 05 08	track ballast other than those mentioned in 17 05 07
19	**Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use**
19 02	**Wastes from physico/chemical treatment treatments of waste (including dechromatation, decyanidation, neutralisation)**
19 02 05*	sludges from physico/chemical treatment containing hazardous substances – wastes suitable for biological treatment only
19 02 06	sludges from physico/chemical treatment other than those mentioned in 19 02 05 – wastes suitable for biological treatment only
19 05	**wastes from aerobic treatment of solid wastes**

Table S2.3b Permitted waste types for Biological Treatment (Activity A3/A4 in Table S1.1) at Soil Treatment Facility	
Maximum Quantity	**Annual throughput shall not exceed 50,000 tonnes for activities AR3, AR4, AR5, AR6, AR7, AR8, AR16**
Waste code	**Description**
19 05 03	off-specification compost
19 08	**wastes from waste water treatment plants not otherwise specified**
19 08 02	waste from desanding
19 08 13*	sludges containing hazardous substances from other treatment of industrial waste water
19 08 14	sludges from other treatment of industrial waste water other than those mentioned in 19 08 13
19 12	**wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12 07	wood other than those mentioned in 19 12 06
19 12 11*	other wastes (including mixtures of materials) from mechanical treatment of waste containing hazardous substances
19 13	**Wastes from soil and groundwater remediation**
19 13 01*	solid wastes from soil remediation containing hazardous substances
19 13 02	solid wastes from soil remediation other than those mentioned in 19 13 01
19 13 03*	sludges from soil remediation containing hazardous substances
19 13 04	sludges from soil remediation other than those mentioned in 19 13 03
20	**Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions**
20 01	**Separately collected fractions (except 15 01)**
20 01 38	wood other than that mentioned in 20 01 37
20 02	**Garden and park wastes (including cemetery waste)**
20 02 01	biodegradable waste
20 03	**Other municipal wastes**
20 03 03	street cleaning residues

Table S2.4 Permitted waste types and quantities for screening and handpicking, and storage of soils impacted with bonded asbestos cement (AR6, AR7)	
Maximum quantity	**Annual throughput shall not exceed 50,000 tonnes for activities AR3, AR4, AR5, AR6, AR7, AR8, AR16**
Waste code	**Description**
Exclusions	**Wastes having any of the following characteristics shall not be accepted:** **Asbestos in unbound fibrous form (free chrysotile fibrous asbestos in the soil must be <0.1% w/w. Other forms or mixed forms of fibrous asbestos in the soil must be <0.01% w/w.)**
17	**CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITE**
17 05	**soil (including excavated soil from contaminated sites), stones and dredging spoil**
17 05 03* and 17 06 05*	soil and stones containing hazardous substances which are impacted with identifiable pieces of bonded asbestos (any particle of a size that can be identified as potentially being asbestos by a competent person, if examined by the naked eye)
17 05 04 and 17 06 05*	soil and stones other than those mentioned in 17 05 03 which are impacted with identifiable pieces of bonded asbestos (any particle of a size that can be identified as potentially being asbestos by a competent person, if examined by the naked eye)

Table S2.5 Raw materials and fuels	
Raw materials and fuel description	**Specification**
NPK fertilizers	50 tonnes storage maximum at any one time

Schedule 3 – Emissions and monitoring

Table S3.1 Leachate level limits and monitoring requirements			
Monitoring point reference/Description	**Limit**	**Monitoring frequency**	**Monitoring method**
Phase 1: Two leachate monitoring points in addition to the collection sump for each hydraulically separate cell unless otherwise agreed in writing with the Agency.	3 m above cell base	Monthly	In accordance with Environment Agency document LFTGN02 (February 2003) 'Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water' or such other subsequent guidance as may be agreed in writing with the Environment Agency.
Phase 2: Two leachate monitoring points in addition to the collection sump for each hydraulically separate cell unless otherwise agreed in writing with the Agency.	6 m above cell base		

Table S3.2 Point source emissions to air – emission limits and monitoring requirements						
Emission point Ref. & Location	**Parameter**	**Source**	**Limit (including unit)**	**Reference Period**	**Monitoring Frequency**	**Monitoring Standard or Method**
Engines 1-5 Landfill gas engine on Plan ESID4	Oxides of Nitrogen	Gas utilisation plant	650 mg/m^3	Hourly mean	Annually	As per M2 or such other subsequent guidance as may be agreed in writing with the Environment Agency.
	CO		1500 mg/m^3			
	Total VOCs		1750 mg/m^3			
A1: Flare on plan 116-1-3026/A dated 27/02/2006	Oxides of Nitrogen	Landfill Gas Flares	150 mg/m^3	Hourly mean	Annually	As per M2 or such other subsequent guidance as may be agreed in writing with the Environment Agency. Monitoring is unnecessary where the flare is active for <10% of the year.
	CO		50 mg/m^3			
	Total VOCs		10 mg/m^3			

Table S3.2 Point source emissions to air – emission limits and monitoring requirements						
Emission point Ref. & Location	**Parameter**	**Source**	**Limit (including unit)**	**Reference Period**	**Monitoring Frequency**	**Monitoring Standard or Method**
Biofilter Monitoring Point as shown on plan 3695-CAU-XX-XX-DR-V-1801	Ammonia	Biofilter at Soil Treatment Facility	20 mg/m^3	Hourly mean	Every six months	As agreed in writing with the Environment Agency.
	TVOCs		40 mg/m^3			
	Hydrogen Sulphide		No Limit			
Asbestos screener emissions point (to be confirmed by pre-operational condition PO7)	Asbestos fibres	Air extraction system stack	0.1 fibre/ml	Hourly average	Monthly (Note 1, Note 2)	ISO 10397: 1993
	Particulate matter		5 mg/m^3	Average value of 3 consecutive measurements of at least 30 minutes each	Every 6 months (Note 2)	BS EN 13284-1
Note 1: May be reduced to a quarterly frequency after 12 monthly monitoring events with the written agreement of the Environment Agency. Note 2: To the extent possible, the measurements shall be carried out at the highest expected emission state under normal operating conditions.						

Table S3.3 Point source emissions to water (other than sewer) – emission limits and monitoring requirements						
Emission point Ref. & Location	**Parameter**	**Source**	**Limit (incl unit)**	**Reference Period**	**Monitoring Frequency**	**Monitoring Standard or Method**
W1 On Plan ESID14 dated	Suspended Solids	Site drainage from the site surface water drainage system	75 mg/l	Spot Sample	Monthly	As specified in Environment Agency Guidance TGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), risk assessments for your environmental permit (www.gov.uk) or such other subsequent
	Oil or grease		No visible discharge	Spot Sample	Monthly	
	pH		>6 and <9	Spot Sample	Monthly	

Table S3.3 Point source emissions to water (other than sewer) – emission limits and monitoring requirements						
Emission point Ref. & Location	**Parameter**	**Source**	**Limit (incl unit)**	**Reference Period**	**Monitoring Frequency**	**Monitoring Standard or Method**
August 2007	Volume		750 m^3/day	24 hours	Monthly	guidance as may be agreed in writing with the Environment Agency
	Flow rate		20 l/s	Instantaneous	Monthly	
	Conductivity		No limit set	Spot Sample	Monthly	
	Ammoniacal Nitrogen		No limit set	Spot Sample	Monthly	
	Chloride		No limit set	Spot Sample	Monthly	
	DO		No limit set	Spot Sample	Monthly	
	Sulphate		No limit set	Spot Sample	Quarterly	
	Alkalinity (as $CaCO_{3)}$		No limit set	Spot Sample	Quarterly	
	COD		No limit set	Spot Sample	Quarterly	
	TON		No limit set	Spot Sample	Quarterly	
	Na		No limit set	Spot Sample	Quarterly	
	K		No limit set	Spot Sample	Quarterly	
	Ca		No limit set	Spot Sample	Quarterly	
	Mg		No limit set	Spot Sample	Quarterly	
	Cr		No limit set	Spot Sample	Quarterly	

Table S3.3 Point source emissions to water (other than sewer) – emission limits and monitoring requirements						
Emission point Ref. & Location	**Parameter**	**Source**	**Limit (incl unit)**	**Reference Period**	**Monitoring Frequency**	**Monitoring Standard or Method**
	Cd		No limit set	Spot Sample	Quarterly	
	Mn		No limit set	Spot Sample	Quarterly	
	Fe		No limit set	Spot Sample	Quarterly	
	Cu		No limit set	Spot Sample	Quarterly	
	Ni		No limit set	Spot Sample	Quarterly	
	Zn		No limit set	Spot Sample	Quarterly	
	Pb		No limit set	Spot Sample	Quarterly	
	Hg		No limit set	Spot Sample	Quarterly	
	List 1 substances identified in leachate, unless otherwise agreed in writing with the Environment Agency		No limit set	Spot Sample	Annually	

Table S3.4 Point source emissions to sewer, effluent treatment plant or by tankering or other transfer off-site – emission limits and monitoring requirements						
Emission point Ref. & Location	**Parameter**	**Source**	**Limit (including unit)**	**Reference Period**	**Monitoring Frequency**	**Monitoring Standard or Method**
Treated Process Water Monitoring Point as shown on Plan 3695-CAU-XX-XX-DR-V-1801	No parameters	Soil Treatment Facility	No limits	-	-	As agreed in writing with the Environment Agency

Table S3.5 Groundwater – emission limits and monitoring requirements					
Monitoring point reference	**Parameter**	**Limit (including unit)**	**Reference Period**	**Monitoring frequency**	**Monitoring standard or method**
GW5.01 as detailed on drawing number 124E232 dated February 2013	Ammoniacal Nitrogen	1.41 mg/l[1]	Spot Sample	Monthly	As specified in Environment Agency Guidance TGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), risk assessments for your environmental permit (www.gov.uk) or such other subsequent guidance as may be agreed in writing with the Environment Agency
	Chloride	225 mg/l[1]		Monthly	
	Mecoprop	0.04 µg/l[1]		Quarterly	
	Xylene	3.0 µg/l[1]		Quarterly	
	Trichlorobenzene	0.01 µg/l[1]		Quarterly	
GW08 as detailed on drawing number 124E232 dated February 2013	Ammoniacal Nitrogen	1.80 mg/l		Monthly	
	Chloride	410 mg/l		Monthly	
	Mecoprop	0.04 µg/l		Quarterly	
	Xylene	3.0 µg/l		Quarterly	
	Trichlorobenzene	0.01 µg/l		Quarterly	
1. Unless otherwise agreed in writing by the Environment Agency					

Table S3.6 Landfill gas in external monitoring boreholes – limits and monitoring requirements				
Monitoring point Ref. /description	**Parameter**	**Limit (including units)**	**Monitoring frequency**	**Monitoring standard or method**
BH1, BH2, BH5-BH18, BH22-BH35 as detailed on drawing no. 124E232 dated February 2013	Methane	1% v/v	Monthly	As per LFTGN03 (Sept 2004) or such other subsequent guidance as may be agreed in writing with the Environment Agency. Record whether the ground is: waterlogged frozen snow covered
	Carbon Dioxide	1.5% v/v		
	Oxygen	No limit		
	Atmospheric pressure	No limit		
	Differential Pressure	No limit		
BH3, BH3.01, BH3.02, BH4.00, BH4.01 as detailed on drawing no. 124E232 dated February 2013	Methane	1% v/v		
	Carbon Dioxide	2% v/v		
	Oxygen	No limit		
	Atmospheric pressure	No limit		
	Differential Pressure	No limit		
BH4.02 as detailed on drawing no. 124E232 dated February 2013	Methane	1% v/v		
	Carbon Dioxide	11.5% v/v		
	Oxygen	No limit		
	Atmospheric pressure	No limit		
	Differential Pressure	No limit		
BH36, BH37, BH38.1, BH39.1, BH40.1, BH41-BH44 as detailed on drawing no. 124E232 dated February 2013	Methane	1% v/v		
	Oxygen	No limit		
	Atmospheric pressure	No limit		
	Differential Pressure	No limit		
BH36 and BH37	Carbon Dioxide	1.5% v/v		
BH38.1	Carbon Dioxide	2.6% v/v		
BH39.1	Carbon Dioxide	5.5% v/v		

Table S3.6 Landfill gas in external monitoring boreholes – limits and monitoring requirements				
Monitoring point Ref. /description	**Parameter**	**Limit (including units)**	**Monitoring frequency**	**Monitoring standard or method**
BH40.1	Carbon Dioxide	3.3% v/v	Monthly	As per LFTGN03 (Sept 2004) or such other subsequent guidance as may be agreed in writing with the Environment Agency. Record whether the ground is: waterlogged frozen snow covered
BH41	Carbon Dioxide	3.0% v/v		
BH42	Carbon Dioxide	2.7% v/v		
BH43	Carbon Dioxide	2.2% v/v		
BH44	Carbon Dioxide	2.3% v/v		

Table S3.7 Particulate matter in ambient air - monitoring requirements					
Monitoring Point Ref. /Description	**Parameter**	**Limit**	**Reference Period**	**Monitoring Frequency**	**Monitoring Standard or Method**
Dust monitoring points as detailed on drawing no.ESID14, dated August 2007	Deposited dust	200 mg/m^2/day	24 hours	Monthly	
	Suspended particulate PM10	None set	In accordance with correspondence ref: 402.0197.00423 dated 06/04/2006	In accordance with correspondence ref: 402.0197.00423 dated 06/04/2006	

Table S3.8 Landfill gas emissions from capped surfaces for cells that have accepted non-hazardous biodegradable waste – monitoring requirements			
Monitoring point Ref. /description	**Parameter**	**Monitoring frequency**	**Monitoring Standard or method**
Permanently capped zone	Methane concentration	Every 12 months	As per LFTGN 07 (v2 2010) or such other subsequent guidance as may be agreed in writing with the Environment Agency.

Table S3.8 Landfill gas emissions from capped surfaces for cells that have accepted non-hazardous biodegradable waste – monitoring requirements			
Monitoring point Ref. /description	**Parameter**	**Monitoring frequency**	**Monitoring Standard or method**
Temporarily capped zone	Methane concentration	Every 12 months	As per LFTGN 07 (v2 2010) or such other subsequent guidance as may be agreed in writing with the Environment Agency.
Whole site	Total methane emission	As agreed with the Environment Agency	As per LFTGN 07 (v2 2010) or such other subsequent guidance as may be agreed in writing with the Environment Agency.
Uncapped areas	Methane concentration	Every 12 months	As agreed with the Environment Agency based on the wording of revised LFTGN 07 or landfill sector guidance or such other subsequent guidance as may be agreed in writing with the Environment Agency.

Table S3.9 Groundwater – other monitoring requirements			
Monitoring Point Ref./Description	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**
Up gradient MEPP	Water level, electrical conductivity, chloride, ammoniacal nitrogen, pH,	Quarterly	As specified in Environment Agency Guidance TGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), risk assessments for your environmental permit (www.gov.uk) or such other subsequent guidance as may be agreed in writing with the Environment Agency
	total alkalinity, magnesium, potassium, total sulphates, calcium, sodium, chromium, copper, iron, lead, nickel, zinc, manganese	Annually	
	Hazardous substances	Annually for first six years of operation	
Down or cross gradient MEPP	Water level, electrical conductivity, chloride, ammoniacal nitrogen, pH,	Quarterly	As specified in Environment Agency Guidance TGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), risk assessments for your environmental permit (www.gov.uk) or such other subsequent guidance as may be agreed in writing with the Environment Agency After the initial 6 year monitoring period for hazardous substances, if the results of quarterly or annual monitoring suggest an increase in contamination, the operator shall also undertake a full leachate hazardous substances screen.
	total alkalinity, magnesium, potassium, total sulphates, calcium, sodium, chromium, copper, iron, lead, nickel, zinc, manganese	Annually	
	Hazardous substances detected in leachate	Annually for first six years of operation then every two years	
MEPP	Base of monitoring point (mAoD)	Annually	

Table S3.10 Landfill gas – other monitoring requirements				
Monitoring Point Ref. /Description	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
In waste gas monitoring boreholes or sealed leachate wells or sacrificial gas extraction system	Methane Carbon Dioxide Oxygen Carbon Monoxide Differential pressure Atmospheric pressure	Monthly until gas extraction commences	Calibrated handheld monitoring instrument	For cells or phases which have no active gas extraction. Gas extraction system shall be installed and extraction commenced once monitoring shows onset of methane production in waste at a rate that can be sustainably extracted. Once gas extraction has commenced in a particular cell or phase, there is no longer a requirement to carry out this monitoring.
	Hydrogen sulphide	Quarterly	Calibrated handheld monitoring instrument or Tedlar Bag sample in accordance with LFTGN04 (V3, March 2010) or other such subsequent guidance as may be agreed in writing with the Environment Agency or a method agreed with the Environment Agency.	For cells or phases which have no active gas extraction. Once gas extraction has commenced in a particular cell or phase, there is no longer a requirement to carry out this monitoring. Concentrations of hydrogen sulphide shall be assessed in accordance with the gas and odour management plans

Table S3.10 Landfill gas – other monitoring requirements				
Monitoring Point Ref. /Description	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Gas collection system at well control valve, manifolds (if applicable) and strategic points on gas system	Methane Carbon Dioxide Oxygen Carbon Monoxide Atmospheric pressure Gas flow rate or suction % Balance Gas (calculated as the difference between the sum of measured gases and 100%)	Monthly or at such other frequency as may be agreed in writing with the Environment Agency.	Calibrated handheld monitoring instrument	Where the oxygen concentration exceeds 5% or the % balance gas is greater than 20% an assessment of air ingress into the system shall be undertaken. Where the concentration of carbon monoxide exceeds 100ppm then further investigation shall be undertake Record the ambient air temperature and whether the ground is: waterlogged frozen snow covered
Gas collection system at well control valve	Hydrogen sulphide	Six monthly	Calibrated handheld monitoring instrument or Tedlar Bag sample in accordance with LFTGN04 (v3, March 2010) or other such subsequent guidance as may be agreed in writing with the Environment Agency or a method agreed with the Environment Agency.	Concentrations of hydrogen sulphide shall be assessed in accordance with the gas and odour management plans

Table S3.10 Landfill gas – other monitoring requirements				
Monitoring Point Ref. /Description	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Output to flare or LFG Utilisation Compound	Trace gas	Annually	Trace gas analysis in accordance with LFTGN04 (v3, March 2010) or such other subsequent guidance as may be agreed in writing with the Environment Agency [or a trace gas characterisation method agreed with the Environment Agency].	The concentration of trace gas components shall be assessed against the assumptions made in the Landfill gas risk assessment and dispersion modelling.
Output to flare or LFG Utilisation Compound	Methane Carbon Dioxide Oxygen Gas flow rate Suction % Balance Gas (calculated as the difference between the sum of measured gases and 100%)	Weekly		Where the oxygen concentration exceeds 5% or the % balance gas is greater than 20% an assessment of air ingress into the system shall be undertaken.

Table S3.10 Landfill gas – other monitoring requirements				
Monitoring Point Ref. /Description	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Flare 1 shown on Plan 3026/A dated 27/02/2006	Temperature	As per LFTGN05 (v2, March 2010) or such other subsequent guidance as may be agreed in writing with the Environment Agency.	As per M2 or such other subsequent guidance as may be agreed in writing with the Environment Agency.	
Gas engines 1-5, post turbo	NOx and CO	Quarterly	In accordance with Appendix C of LFTGN08, (v2, 2010) or such other subsequent guidance as may be agreed in writing with the Environment Agency.	Where monitoring using hand-held, electrochemical equipment indicates an exceedance of the emissions standards specified in Table S3.2, these shall be used as action levels and the operator shall investigate the cause and take appropriate measures to reduce emissions.

Table S3.11 Leachate – other monitoring requirements				
Monitoring point reference or description	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Operational Cells or Phases **(Any cell or phases that do not have a final engineered cap agreed in accordance with condition 2.6)**			At leachate compliance point as listed in table S3.1. As specified in Environment Agency Guidance TGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), risk assessments for your environmental permit (www.gov.uk) or such other subsequent guidance as may be agreed in writing with the Environment Agency	
MEPP	pH, EC, total alkalinity, ammoniacal nitrogen, Chloride, COD, BOD, cadmium, chromium, copper, lead, nickel, iron, arsenic, magnesium, potassium, total sulphates, calcium, sodium, zinc, manganese	Quarterly		None
MEPP	Hazardous substances	Annually		None
MEPP	Depth to base (mAoD)	Annually		None
Non Operational Cells or Phases **(Any cell or phases that have a final engineered cap agreed in accordance with condition 2.6)**				
MEPP	pH, EC, total alkalinity, ammoniacal nitrogen, Chloride, COD, BOD, cadmium, chromium, copper, lead, nickel, iron, arsenic, magnesium, potassium, total sulphates, calcium, sodium, zinc, manganese	Annually		
MEPP	Hazardous substances	Once every four years		None
MEPP	Depth to base (mAoD)	Annually		

Table S3.12 Surface water – other monitoring requirements				
Monitoring Point Ref. /Description	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
MEPP	Ammoniacal nitrogen Chloride Suspended Solids Visual Oil and Grease pH electrical conductivity	Monthly	Spot sample	As specified in Environment Agency Guidance TGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), risk assessments for your environmental permit (www.gov.uk) or such other subsequent guidance as may be agreed in writing with the Environment Agency

Table S3.13 Process monitoring requirements				
Monitoring Point	**Substance or parameter**	**Monitoring frequency**	**Monitoring method**	**Other specifications**
Biofilter Monitoring Point as shown on Plan 3695-CAU-XX-XX-DR-V-1801	Moisture content, flow rate, nutrient levels, contaminant elimination	As required	As required	Biofilter should be checked and maintained to ensure appropriate temperature and moisture content on a daily basis. Monitoring equipment shall be available on-site and used as required.

Table S3.14 Ambient air monitoring requirements					
Location or description of point of measurement	**Parameter**	**Limit**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Outside air testing when asbestos contaminated soils are being received, handled and moved within the site (points to be confirmed by pre-operational condition PO7)	Asbestos fibres	0.01 fibres/ml. Where total fibre concentration exceeds 0.01 fibres/ml in any sample, that sample must be submitted for electron microscopy to confirm the concentration of asbestos fibres present.	During receipt, handling and movement of asbestos contaminated soil within the site. 1 hour at 8 l/min or other agreed period in writing.	In line with M17 monitoring guidance. While asbestos contaminated soils are being received, handled and moved within the site. • Pumped sampling • 1 m above ground level • Flow rate = 8 litres/minute • Minimum sample volume = 480 litres • Filter pore size = 0.8-1.2 µm • Asbestos fibre limit of detection = 0.001 fibres/ml.	-

Schedule 4 – Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

Table S4.1 Reporting of monitoring data		
Parameter	**Reporting period**	**Period ends**
Leachate and/ or groundwater level As specified by schedule 3, table S3.1	Every 3 months	31 March, 30 June, 30 September, 31 December
Point source emission to air As specified by schedule 3, table S3.2	Every 12 months	31 December
Point source emission to water (other than sewer) As specified by schedule 3, table S3.3	Every 3 months	31 March, 30 June, 30 September, 31 December
Point source emission to sewer As specified by schedule 3, table S3.4	Every 3 months	31 March, 30 June, 30 September, 31 December
Emission to groundwater As specified by schedule 3, table S3.5	Every 3 months	31 March, 30 June, 30 September, 31 December
Landfill gas in external monitoring boreholes As specified by schedule 3, table S3.6	Every 3 months	31 March, 30 June, 30 September, 31 December
Particulate matter in ambient air. As required by schedule 3, table S3.7	Every 6 months	30 June, 31 December
Emission of landfill gas from capped surfaces As specified by schedule 3, table S3.8	Every 12 months	31 December
Other groundwater monitoring As specified by schedule 3, table S3.9	Every 3 months	31 March, 30 June, 30 September, 31 December
Other Landfill gas monitoring As specified by schedule 3, table S3.10	Every 3 months	31 March, 30 June, 30 September, 31 December
Trace gas monitoring	Every 12 months	31 December
Other leachate monitoring As specified by schedule 3, table S3.11	Every 12 months	31 December
Other surface water monitoring As specified by schedule 3, table S3.12	Every 12 months	31 December

Table S4.1 Reporting of monitoring data		
Parameter	**Reporting period**	**Period ends**
Process monitoring requirements As specified by Schedule 3, table S3.13	As agreed with the Environment Agency	31 December
Meteorological data Landfill Directive, annex III, section 2	Every 12 months	31 December
Ambient air monitoring Parameters as required by condition 3.5.	Every 12 months	31 December

* - where the reporting period is 12 months, you may submit this information as part of the 'annual report' required by condition 4.2.2.

Table S4.2 Annual production/treatment	
Leachate: Disposed of off site; Disposed of to any onsite effluent treatment plant; Recirculated into the waste mass. Accepted from offsite for treatment at any onsite effluent treatment plant.	Cubic metres/year
Landfill gas: combustion in flares; combustion in gas engines; Other methods of gas utilisation. Average methane content entering the landfill gas utilisation or treatment compound (based on the annual average of Table S3.9 monitoring) Methane generation rate (50%ile from a representative model)	Normalised cubic metres/year % methane v/v m3 /hr

Table S4.3 Performance Parameters			
Parameter	**Frequency of assessment**	**Annual total**	**Unit**
Energy used (including for leachate treatment)	Annually		MWh of electricity or natural gas

Table S4.4 Reporting Forms		
Media/parameter	**Reporting Format**	**Date of Form**
Leachate	Form leachate 1 or other reporting format to be agreed in writing with the Environment Agency	02/02/17
Air	Form Air 1 or other reporting format to be agreed in writing with the Environment Agency	Version 1, 08/03/2021
Controlled water	Form Water 1 or other reporting format to be agreed in writing with the Environment Agency	02/02/17
Groundwater	Form Groundwater 1 or other reporting format to be agreed in writing with the Environment Agency	02/02/17
Landfill gas	Form LFG 1 or other reporting format to be agreed in writing with the Environment Agency	02/02/17
Particulate matter	Form Particulate 1 or other reporting format to be agreed in writing with the Environment Agency	02/02/17
Waste Return	Waste Return Form RATS2E	02/02/17
Landfill topographical surveys and interpretation	Reporting format to be agreed in writing with the Environment Agency	02/02/17
Ambient air monitoring	Ambient Air Monitoring Form, or other form as agreed in writing by the Environment Agency	Version 1, 08/03/2021

Schedule 5 – Notification

This page outlines the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	
Name of operator	
Location of Facility	
Time and date of the detection	

(a) Notification requirements for any incident or accident which significantly affects or may significantly affect the environment	
To be notified within 24 hours of detection	
Date and Time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Measures taken, or intended to be taken, to stop the emission	

Time periods for notification following detection of a breach of a limit	
Parameter	**Notification period**

(c) Notification requirements in the event of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B to be supplied as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

“accident” means an accident that may result in pollution.

“annually” means once every year.

“application” means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

“authorised officer” means any person authorised by the Environment Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

“Background concentration” means such concentration of that substance as is present in:

- For emissions to surface water, the surface water quality up-gradient of the site; or
- For emissions to sewer, the surface water quality up-gradient of the sewage treatment works discharge; or
- For emissions of landfill gas, the ground or air outside the site and not attributable to the site.

(3) “Cell layout drawing” means: A drawing or drawings of the proposed new cell that illustrate(s) in sufficient detail:

(i) the location of the new cell on the site;

(ii) the proposed level (Above Ordnance Datum) of the base of the excavation;

(iii) the proposed finished levels of all containment and leachate drainage layers;

(iv) the positions of leachate management infrastructure; and

(v) the positions of landfill gas infrastructure (if appropriate).

(4) A detailed written explanation of any minor design changes from the most recently approved cell that result from the new cell layout. This would include, for example:

(i) changes to slope length and gradient within the cell;

(ii) new leachate or landfill gas infrastructure construction design;

(iii) slope stability issues such as new basal excavation level; and/or

(iv) depth of waste.

“Construction Proposals” means written information, at a level of detail appropriate to the complexity and pollution risk, on the design, specifications of materials selected, stability assessment (where relevant) and the construction quality assurance (CQA) programme in relation to the New Cell or Landfill Infrastructure.

“CQA Validation Report” means the final “as built” construction and engineering details of the New Cell or of the Landfill Infrastructure. It must provide a comprehensive record of the construction and must include, where relevant:

- The results of all testing required by the CQA programme - this must include the records of any failed tests with a written explanation, details of the remedial action taken, referenced to the appropriate secondary testing;
- Plans showing the location of all tests;
- “As-built” plans and sections of the works;
- Copies of the site engineer’s daily records;
- Records of any problems or non-compliances and the solution applied;

- Any other site specific information considered relevant to proving the integrity of the New Cell or Landfill Infrastructure;
- Validation by a qualified person that all of the construction has been carried out in accordance with the Construction Proposals.

“emissions to land” includes emissions to groundwater.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations 2016, SI 2016 No.1154 and words and expressions used in this permit which are also used in those Regulations have the same meanings as in those Regulations.

“emissions of substances not controlled by emission limits” means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission or background concentration limit.

“exceeded” means that a value is above a permitted limit, or where a range of values or a minimum value is set as a permitted limit it means a value outside that range or below the minimum value, whichever is applicable.

‘Hazardous property’ has the meaning in Annex lll of the Waste Framework Directive.

“Hazardous substances” as defined by the Environmental Permitting (England and Wales) Regulations 2010, SI 2010 No.675, schedule 22 and listed in our Hydrogeological risk assessment guidance, annex J to our H1 risk assessment guidance.

‘Hazardous waste’ has the meaning given in the Hazardous Waste (England and Wales) Regulations 2005 (as amended).

“Landfill Infrastructure” means any specified element of the:

- permanent capping;
- temporary capping (i.e. engineered temporary caps not cover materials);
- leachate abstraction systems;
- leachate transfer, treatment and storage systems;
- surface water drainage systems;
- leachate monitoring wells;
- groundwater monitoring boreholes;
- landfill gas monitoring boreholes;
- landfill gas management systems;
- lining within the installation.

within the site.

“Liquids” means any liquid other than leachate within the engineered landfill containment system.

“List of Wastes” means the list of wastes established by Commission Decision 2000/532/EC replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste, as amended from time to time.

“LFTGN 05” means Environment Agency Guidance for monitoring enclosed landfill gas flares.

“LFTGN 07” means Environment Agency Guidance on monitoring landfill gas surface emissions.

“LFTGN 08” means Environment Agency Guidance for monitoring landfill gas engines.

“Groundwater” means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

"Inert waste" means waste that does not undergo any significant physical, chemical or biological transformations. Inert waste will not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm human health. The total leachability and pollutant content of the waste and the ecotoxicity of the leachate must be insignificant, and in particular not endanger the quality of surface water and/or groundwater.

“Medicinal product” means any medicine licensed by the Medicines and Healthcare products Regulatory Agency (MHRA) or their predecessors under the Medicines Act 1968, section 130.

“MEPP” Monitoring and extraction point plan, required by condition 4.2.2(h) to specify extraction points and routine monitoring locations.

“M2” means Environment Agency Guidance Monitoring of stack emissions to air.

“New Cell” means any new cell, part of a cell or other similar new area of the site where waste deposit is to commence after issue of this permit and can comprise:

- groundwater under-drainage system;
- permanent geophysical leak location system;
- leak detection layer;
- sub-grade;
- barriers;
- liners;
- leachate collection system;
- leachate abstraction system;
- separation bund/layer;
- cell or area surface water drainage system;
- side wall subgrade and containment systems;

for the New Cell.

“MCERTS” means the Environment Agency’s Monitoring Certification Scheme.

“No impact” means that the change made to the construction process will not affect the agreed design criteria, specification or performance in a way that has a negative effect.

“Pests” means Birds, Vermin and Insects.

“Previous year” means the 12 month period preceding the month the annual report is submitted in.

“quarter” means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

“Relevant waste acceptance procedures” means the procedure for the acceptance of waste at landfills and the associated sampling and test methods specified in the Council Decision Annex (2003/33/EC, European Council of 19 December 2002).

“Relevant waste acceptance criteria” means the waste acceptance criteria and the associated sampling and test methods specified in the Council Decision Annex (2003/33/EC, European Council of 19 December 2002).

“Review of the Hydrogeological Risk Assessment” means a written review of the hydrogeological risk assessment included in the Application, together with any other parts of the Application that addressed the requirements of the EP Regulations. The review shall assess whether the activities of disposal or tipping for the purpose of disposal of waste authorised by the permit continue to meet the requirements of the EP Regulations.

‘Sustainably extracted’ means where suction can be applied to the extraction wells such that a flow rate of landfill gas, with a methane content capable of either being combusted, or treated by bio-oxidation, can be extracted without increasing the risk of air ingress to the waste or inducing aerobic degradation within the waste.

‘Waste code’ - See ‘List of Wastes’.

“WFD” means Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste [and repealing certain Directives] – the Waste Framework Directive.

Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means the standards included in Environment Agency Guidance for Monitoring Enclosed Landfill Gas Flares LFTGN 05 or Guidance for Monitoring Landfill Gas Engine Emissions LFTGN 08.

Where the following terms appear in the waste code list in Tables S2.1 or S2.2 they have the meaning given below:

‘hazardous substance’ means a substance classified as hazardous as a consequence of fulfilling the criteria laid down in parts 2 to 5 of Annex I to Regulation (EC) No 1272/2008;

‘heavy metal’ means any compound of antimony, arsenic, cadmium, chromium (VI), copper, lead, mercury, nickel, selenium, tellurium, thallium and tin, as well as these materials in metallic form, as far as these are classified as hazardous substances;

‘polychlorinated biphenyls and polychlorinated terphenyls’ (‘PCBs’) means PCBs as defined in Article 2(a) of Council Directive 96/59/EC’.
Article 2(a) says that ‘PCBs’ means:

- polychlorinated biphenyls
- polychlorinated terphenyls
- monomethyl-tetrachlorodiphenyl methane, Monomethyl-dichloro-diphenyl methane, Monomethyldibromo-diphenyl methane
- any mixture containing any of the above mentioned substances in a total of more than 0,005 % by weight;

‘transition metals’ means any of the following metals: any compound of scandium, vanadium, manganese, cobalt, copper, yttrium, niobium, hafnium, tungsten, titanium, chromium, iron, nickel, zinc, zirconium, molybdenum and tantalum, as well as these materials in metallic form, as far as these are classified as hazardous substances;

‘stabilisation’ means processes which change the hazardousness of the constituents in the waste and transform hazardous waste into non-hazardous waste;

‘solidification’ means processes which only change the physical state of the waste by using additives without changing the chemical properties of the waste;

‘partly stabilised wastes’ means wastes containing, after the stabilisation process, hazardous constituents which have not been changed completely into non-hazardous constituents and could be released into the environment in the short, middle or long term.

Schedule 7

Site boundary plan

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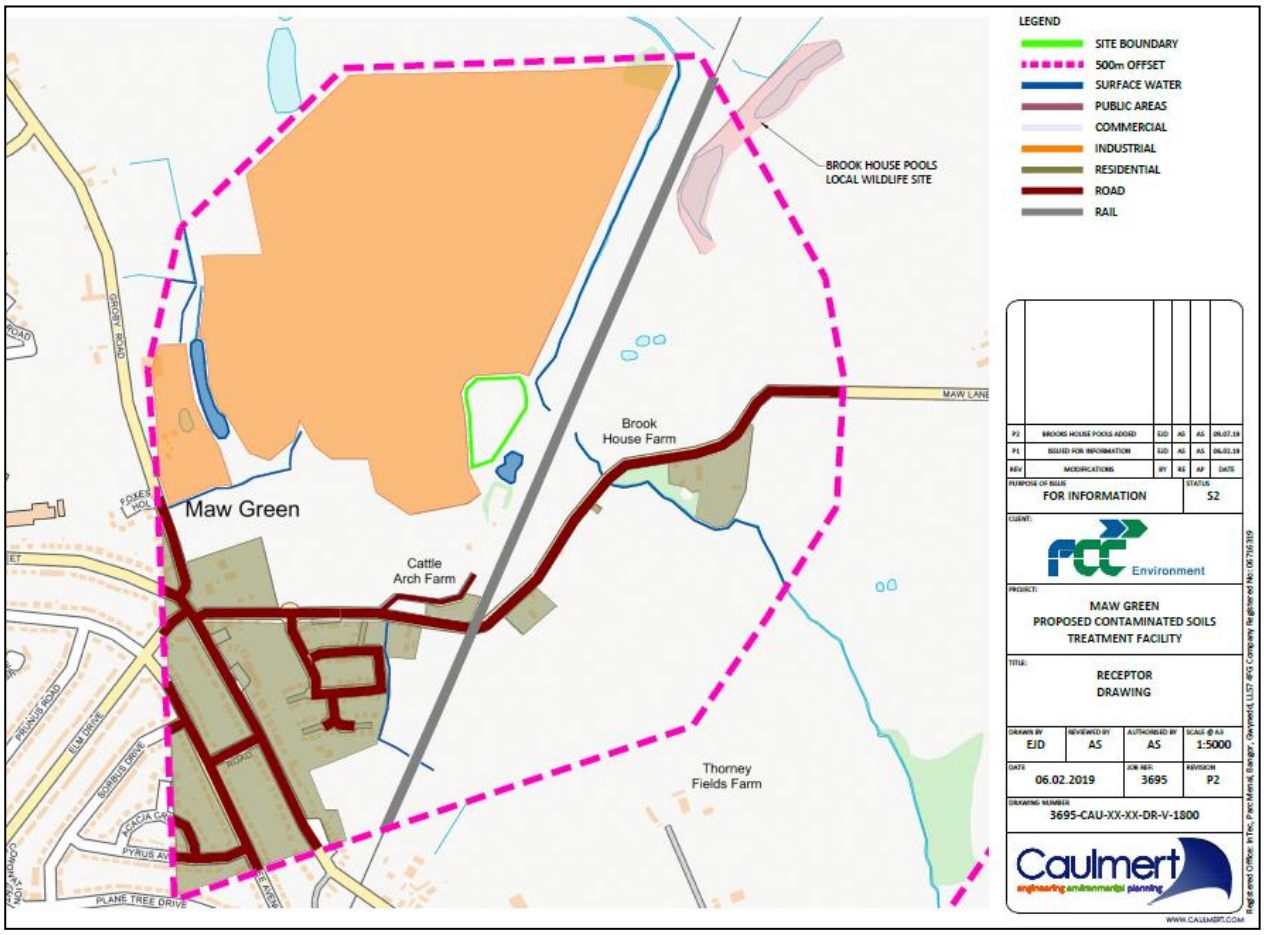
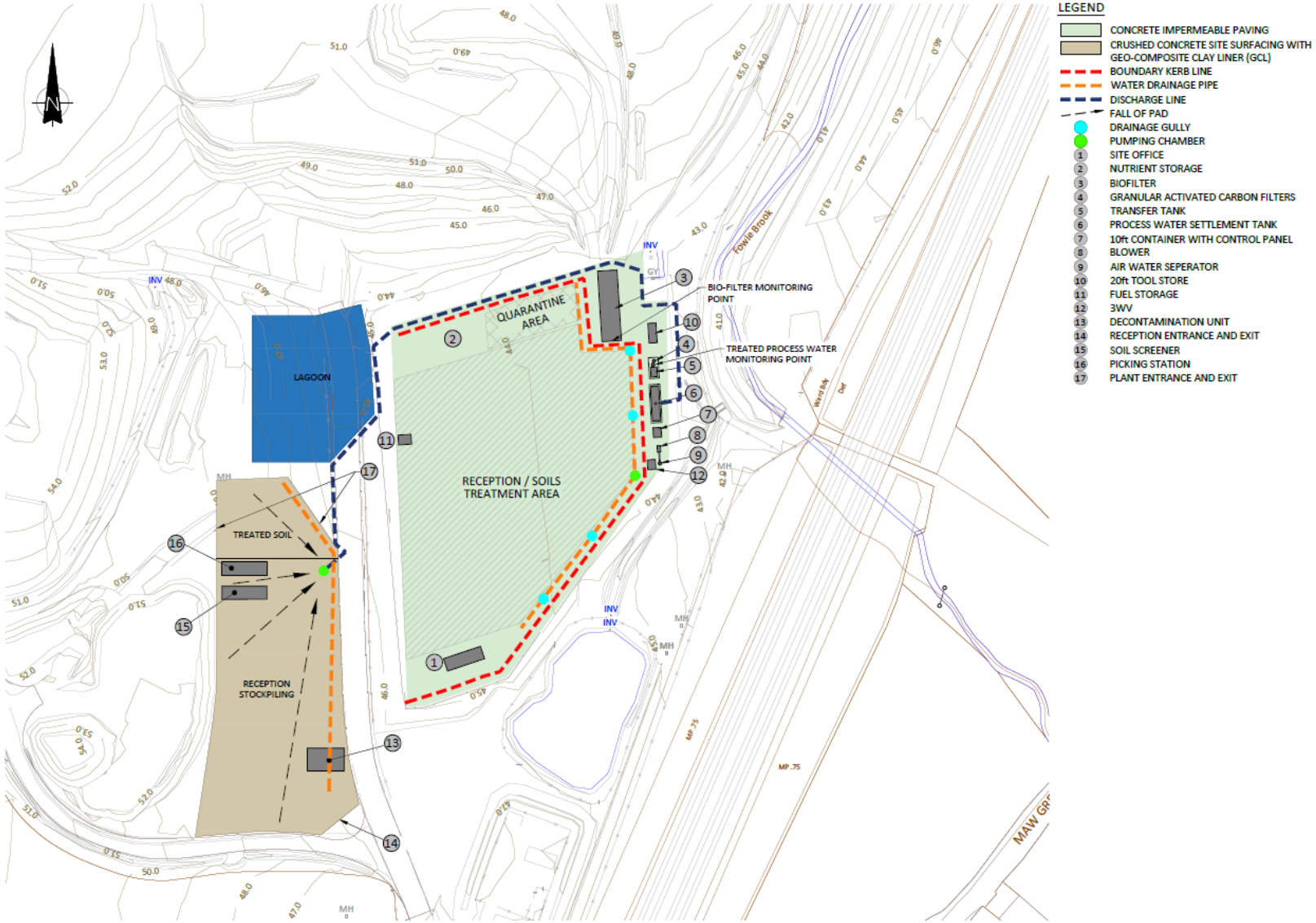


Site layout plan



END OF PERMIT

Ambient Air Monitoring Form

Permit number: *[EPR/AB1234CB]* **Operator:** *[A Company Name Limited]*

Facility name: *[Unit A, Anytown]* **Ambient Air Monitoring Form: version 1, 08/03/2021**

Reporting of monitoring ambient air for the period from *[DD/MM/YY]* to *[DD/MM/YY]*

Monitoring point	Substance / parameter	Compliance limit	Reference period	Test method [1]	Result [2]	Sample dates and times [3]	Uncertainty [4]
[e.g. P1]	*[e.g. PM_{10} suspended particulate matter]*	*[e.g. 50 µg/m^3]*	*[24 hour average]*	*[e.g. BS EN 12341:2014]*	*[State result]*	*[State relevant dates and time periods]*	*[State uncertainty if not 95% confidence interval]*

Signed: *[Name]* **Date:** *[DD/MM/YY]*

(Authorised to sign as representative of the operator)

Guidance for use: Use this form to report your monitoring results.
Example text is shown in bracketed grey italics. Replace the example text by entering your own site specific information. Complete columns 1 to 5 using the information from schedule 3 of your permit. Complete columns 6 to 8 with your monitoring data. Add additional rows as necessary.

[1] Where an internationally recognised standard test method is used, give the reference number. Where another method that has been formally agreed with the Environment Agency, give the appropriate identifier. In other cases state the principal technique, for example gas chromatography.
[2] Give the result as the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, give the result as the 'minimum to maximum' of the measured values.
[3] For non-continuous measurements give the date and time of the sample that produced the result. For continuous measurements give the percentage of the process operating time covered by the result.

Complete if the uncertainty associated with the result is not a 95% confidence interval. Leave blank for 95% confidence intervals.

Emissions to Air Reporting Form

Permit number: *[EPR/AB1234CB]* **Operator:** *[A Company Name Limited]*

Facility name: *[Unit A, Anytown]* **Emissions to Air Reporting Form: version 1, 08/03/2021**

Reporting of emissions to air for the period from *[DD/MM/YY]* to *[DD/MM/YY]*

Emission point	Substance / parameter	Emission Limit Value	Reference period	Test method [1]	Result [2]	Sample dates and times [3]	Uncertainty [4]
[e.g. A1]	*[e.g. Oxides of nitrogen (NO and NO_2 expressed as NO_2)]*	*[e.g. 200 mg/m^3]*	*[e.g. daily average]*	*[e.g. BS EN 14181]*	*[State result]*	*[State relevant dates and time periods]*	*[State uncertainty if not 95% confidence interval]*

Signed: *[Name]* **Date:** *[DD/MM/YY]*

(Authorised to sign as representative of the operator)

Guidance for use: Use this form to report your monitoring results.
Example text is shown in bracketed grey italics. Replace the example text by entering your own site specific information. Complete columns 1 to 5 using the information from schedule 3 of your permit. Complete columns 6 to 8 with your monitoring data. Add additional rows as necessary.

[1] Where an internationally recognised standard test method is used, give the reference number. Where another method that has been formally agreed with the Environment Agency, give the appropriate identifier. In other cases state the principal technique, for example gas chromatography.
[2] Give the result as the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, give the result as the 'minimum to maximum' of the measured values.
[3] For non-continuous measurements give the date and time of the sample that produced the result. For continuous measurements give the percentage of the process operating time covered by the result.
[4] Complete if the uncertainty associated with the result is not a 95% confidence interval. Leave blank for 95% confidence intervals.

DOCUMENT 1.4
EMAIL: APPELLANT'S CONSULTANT TO EA – REQUEST FOR DECISION DOCUMENT

Tom Roberts

From: Andy Stocks <AndyStocks@caulmert.com>
Sent: 10 October 2023 10:43
To: IPS_admin
Subject: RE: Environmental Permit EPR/BS7722ID/V010 issued

Morning Jack

Could you please provide the decision document relating to this Variation.

Thanks

Andy

Andy Stocks	Caulmert Limited
Director of Environment	Mobile: 07818 623158
AndyStocks@caulmert.com	Direct: 01773 305 041
www.caulmert.com	Phone: 01773 749132

Nottingham Office • Strelley Hall, Main Street • Strelley, Nottingham • NG8 6PE • United Kingdom

From: IPS_admin <IPS_admin@environment-agency.gov.uk>
Sent: Friday, October 6, 2023 9:00 AM
To: Andy Stocks <AndyStocks@caulmert.com>
Cc: vicente.orts@fccenvironment.co.uk
Subject: FW: Environmental Permit EPR/BS7722ID/V010 issued

Dear Andy Stocks,

Please find the attached documents for the above recently issued permit.

Kind Regards,

Jack Smith
Permitting Support Advisor- Water Quality, National Permitting Service
Environment Agency | NPS Sheffield, Quadrant 2, 99 Parkway Avenue, Sheffield, S9 4WG
ips_admin@environment-agency.gov.uk
Tel: 02030251158

DOCUMENT 1.5
EMAIL: EA TO APPELLANT'S CONSULTANT – DECISION DOCUMENT

Tom Roberts

From: IPS_admin <IPS_admin@environment-agency.gov.uk>
Sent: 10 October 2023 11:02
To: Andy Stocks
Subject: RE: Environmental Permit EPR/BS7722ID/V010 issued
Attachments: Application Variation Decision Document - 05102023.pdf

Dear Andy,

Please find the Decision Document for permit EPR/BS7722ID/V010 attached to this email.

Kind regards,

Jack Smith
Permitting Support Advisor- Water Quality, National Permitting Service
Environment Agency | NPS Sheffield, Quadrant 2, 99 Parkway Avenue, Sheffield, S9 4WG
ips_admin@environment-agency.gov.uk
Tel: 02030251158

From: Andy Stocks <AndyStocks@caulmert.com>
Sent: 10 October 2023 10:43
To: IPS_admin <IPS_admin@environment-agency.gov.uk>
Subject: RE: Environmental Permit EPR/BS7722ID/V010 issued

Morning Jack

Could you please provide the decision document relating to this Variation.

Thanks

Andy

Andy Stocks	Caulmert Limited
Director of Environment	Mobile: 07818 623158
AndyStocks@caulmert.com	Direct: 01773 305 041
www.caulmert.com	Phone: 01773 749132

Nottingham Office • Strelley Hall, Main Street • Strelley, Nottingham • NG8 6PE • United Kingdom

From: IPS_admin <IPS_admin@environment-agency.gov.uk>
Sent: Friday, October 6, 2023 9:00 AM
To: Andy Stocks <AndyStocks@caulmert.com>
Cc: vicente.orts@fccenvironment.co.uk
Subject: FW: Environmental Permit EPR/BS7722ID/V010 issued

Dear Andy Stocks,

Please find the attached documents for the above recently issued permit.

Kind Regards,

Jack Smith
Permitting Support Advisor- Water Quality, National Permitting Service
Environment Agency | NPS Sheffield, Quadrant 2, 99 Parkway Avenue, Sheffield, S9 4WG
ips_admin@environment-agency.gov.uk
Tel: 02030251158

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DOCUMENT 1.6
DECISION DOCUMENT – ENVIRONMENT AGENCY INITIATED VARIATION, EPR/BS7722ID/V010

Permitting Decisions- Environment Agency Initiated Variation

We have decided to issue an Environment Agency initiated variation for Maw Green Landfill Site operated by 3C Waste Limited.

The variation number is EPR/BS7722ID/V010.

The variation is for the amendment of permit conditions and limits to reflect appropriate standards for the operation of onsite activities involving the treatment of asbestos impacted soils.

The variation corrects activity types, waste types, storage and processing restrictions, emissions points, limits and monitoring requirements and the site layout plan.

The screening and handpicking activities are permitted subject to approval by the Environment Agency ("Agency") via improvement condition (IC 5) and Pre-Operational Condition (PO4). This is to demonstrate appropriate measures are being applied, including monitoring of the effectiveness of removal by the treatment processes and adequate enclosure and abatement controls are used during the screening operation to prevent and minimise emissions of asbestos fibres.

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

Purpose of this document

This decision document provides a record of the decision making process. It:

- explains how the Environment Agency initiated variation has been determined;
- summarises the decision making process in the decision considerations section to show how the main relevant factors have been taken into account;
- highlights key issues in the determination.

Read the permitting decisions in conjunction with the environmental permit and the variation notice.

Key issues of the decision

Environment Agency initiated variation

We recently issued a permit variation (EPR/BS7722ID/V009). On ensuring consistency of standards across the sector for the treatment of asbestos impacted soils, it has been determined that the permit variation (EPR/BS7722ID/V009) was issued incorrectly. The correct standards expected for the sector were not applied in the operating techniques, outlined in the application or implemented through the permit conditions.

We have therefore varied and updated the permit to include the relevant conditions, exclude specific operating techniques and insert appropriate limits for those activities which involve the treatment of soil impacted with asbestos. This is to ensure the operation reflects appropriate standards for the sector.

Key aspects which led to this decision

The mechanical screening process proposed by the operator may agitate the asbestos containing waste and result in the generation of asbestos fibres. We consider that to carry out this process effectively without endangering human health or without negatively impacting the environment, the screener must be fully enclosed and the air within the enclosure (potentially contaminated with asbestos fibres) must be treated via an abatement system prior to release. It is also a requirement of our Chemical Waste appropriate measures guidance (Nov 2020) to minimise fugitive emissions to air. Treatment of the air to remove particulates and asbestos fibres is typically done using a High Efficiency Particulate Air (“HEPA”) filter. HEPA filters are a commonly available technique to control asbestos fibre emissions and are used at other sites as part of best available techniques (BAT) for emissions control. We have therefore included a Pre-Operational Condition on the screening operation (PO4 in table S1.4) for the operator to demonstrate they have fully enclosed the mechanical screener and that all air is being suitably treated prior to operation of the screener.

In addition, we have also included an Improvement Condition (IC5 in table S1.3). This requires the operator to provide a report on the monitoring undertaken as part of the sampling of the incoming waste and the separated wastes streams, from the operation of the asbestos screening process over 4 months of operation. The intention is to require the operator to demonstrate that the mechanical screening process is working as intended in separating the bonded asbestos waste fraction in the hand-pickable stream, that the asbestos screening itself is not creating additional asbestos fibre contamination, and that the residual waste streams are suitably low in asbestos contamination to allow reuse without endangering human health or without harming the environment.

We have also included a restriction in the permit table S1.1 so that soils impacted with asbestos are stored inside a building in such a way that minimises emissions, such as using water sprays to dampen waste and sheeting of stockpiles, to prevent fugitive emissions.

The operator's proposals for handpicking included an enclosed picking station where operatives in personal protective equipment handpick bonded asbestos fragments from the segregated soil fraction. Spray rails for damping down would be used on the input conveyers to the picking station to suppress dust and asbestos fibres. This process is considered to meet our appropriate measures.

The handpicked bonded asbestos fragments are then appropriately double bagged and transferred to sealed, lockable containers, generally a skip, for onward disposal to landfill. This is in accordance with our appropriate measures for handling asbestos waste for transfer and disposal.

Decision Considerations

Confidential information

A claim for commercial or industrial confidentiality has not been made.

The decision was taken in accordance with our guidance on confidentiality.

Identifying confidential information

We have not identified information provided as part of the application that we consider to be confidential.

The decision was taken in accordance with our guidance on confidentiality.

The regulated facility

We considered the extent and nature of the facility at the site in accordance with:

- RGN2 'Understanding the meaning of regulated facility'.
- Appendix 2 of RGN2 'Defining the scope of the installation'.
- Appendix 1 of RGN 2 'Interpretation of Schedule 1'.

The existing site comprises of a:

- Landfill for non-hazardous waste.
- Waste installation storage and treatment activities.
  And
- Waste operations.

This variation amends an activity from a Section 5.3 Part A(1)(a)(ii) to a Section 5.3 Part A(1)(a)(vi) activity.

The extent of the facility is defined in the site plan and in the permit. The activities are defined in table S1.1 of the permit.

Nature conservation, landscape, heritage and protected species and habitat designations

We have checked the location of the application to assess if it is within the screening distances, we consider relevant for impacts on nature conservation, landscape, heritage and protected species and habitat designations. The application is within our screening distances for these designations.

We have assessed the application and its potential to affect sites of nature conservation, landscape, heritage and protected species and habitat designations identified in the nature conservation screening report as part of the permitting process.

We consider that the application will not affect any site of nature conservation, landscape and heritage, and/or protected species or habitats identified.

We have not consulted Natural England

The decision was taken in accordance with our guidance.

Operating techniques

The operating techniques that the applicant must use are specified in S1.2 in the environmental permit. This includes adding a requirement to comply with the standards of our chemical waste: appropriate measures guidance.

Changes to the permit conditions

We have varied the permit as stated in the variation notice. This is to allow the treatment of asbestos impacted soils via pre-screening and hand picking, in accordance with Chemical Waste Appropriate Measures Guidance as set out in the key issues section. As well as the conditions/requirements set out in the sections below, our variation includes the necessary changes to make the permit enforceable, such as including European Waste Codes (“EWC”) for the asbestos wastes, monitoring, reporting and other consequential amendments. A full list of changed conditions is set out in the variation notice.

Improvement programme

We have included an Improvement Programme. This is covered in the Key Issues section.

Emission limits

Emission Limit Values (“ELV's”) based on Best Available Techniques (“BAT”), have been added for the following substances:

- Particulate matter (dust) = 5 mg/m3 (BAT-AEL requirement)
- Asbestos fibres = 0.1 f/ml (Environment Agency requirement)

We made these decisions in accordance with Chemical Waste Appropriate Measures and the Waste Treatment Best Available Techniques Conclusions (“BATCs”).

Monitoring

We have decided that monitoring should be added for the following parameters, using the methods detailed and to the frequencies specified:

- Particulate matter (dust) = 6 monthly (BAT-AEL requirement).
- Asbestos fibres = monthly, with the possibility to fall to quarterly with our written agreement (Environment Agency requirement).

Methods as specified in table S3.2 of the permit.

These monitoring requirements have been included in order to check compliance with the emission limits stated above.

We made these decisions in accordance with Chemical Waste Appropriate Measures and the Waste Treatment Best Available Techniques Conclusions (“BATCs”).

Based on the information in the application we are not satisfied that the operator’s techniques, personnel and equipment have either Monitoring Emissions to Air, Land and Water (“MCERTS certification”) or MCERTS accreditation as appropriate.

We have applied the requirements and expect the operator to meet MCERTS standards as appropriate.

Reporting

We have added reporting in the permit for the following parameters:

- Particulate matter (dust)
- Asbestos fibres

These are included under the requirement to report the requirements of the monitoring under tables S3.2 and S3.14.

We made these decisions in accordance with Chemical Waste Appropriate Measures and the Waste Treatment Best Available Techniques Conclusions.

Growth Duty

We have considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the guidance issued under section 100 of that Act in deciding whether to grant the variation of this permit.

Paragraph 1.3 of the guidance says:

“The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation.”

We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections.

We consider the requirements and standards we have set in this permit are reasonable and necessary to avoid a risk of an unacceptable level of pollution. This also promotes growth amongst legitimate operators because the standards applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards.

DOCUMENT 2.1
EMAIL: APPLICATION SUBMITTED TO ENVIRONMENT AGENCY

Andy Stocks

From: Samantha Hayden
Sent: 10 January 2023 11:29
To: PSC Land
Cc: Jon Owens; kellie-marie.burston@fccenvironment.co.uk; Andy Stocks
Subject: Permit Variation Application - Maw Green Landfill Soils Treatment Facility - EPR/BS7722ID
Attachments: 5193-CAU-XX-XX-CO-V-9101.A0.C1 Submission Letter.pdf; Part A.pdf; Part B3.pdf; Part C2.pdf; Part F1.pdf; 5193-CAU-XX-XX-RP-V-0309.A0.C1 ESID final.pdf; 5193-CAU-XX-XX-RP-V-0310.A0.C1 ARA final.pdf; 5193-CAU-XX-XX-RP-V-0311.A0.C1 Op Tech final.pdf

Good morning,

On behalf of 3C Waste Limited, please find attached a permit variation application for Maw Green Landfill - Soils Treatment Facility.

Attached to this email are the following application documents:

- Submission cover letter
- Application forms Part A, B3, C2 and F1
- Environmental Setting & Installation Design – Addendum
- Amenity & Accidents Risk Assessment
- Activities & Operating Techniques Report

Due to their large file sizes, please find the following documents by clicking on the secure links below:

- Supporting Document: https://acrobat.adobe.com/link/track?uri=urn:aaid:scds:US:4ffc249e-72ef-3f34-aa45-ce085c9c6b86
- Treatment Process Description & BAT Review: https://acrobat.adobe.com/link/track?uri=urn:aaid:scds:US:56363069-138a-3ec9-8586-fe15e4eb9607
- Dust & Emissions Management Plan: https://acrobat.adobe.com/link/track?uri=urn:aaid:scds:US:63952d56-b974-3a98-809a-9b9dde8c49fb

A BACs transfer for the total application fee of **£18,021** has been made to the Environment Agency using payment ref. **PSCAPPMAWG5193**.

If you have any questions regarding this application, please do not hesitate to contact me.

Kind regards,
Samantha Hayden

Caulmert
engineering environmental planning

Samantha Hayden	Caulmert Limited
Environmental Consultant	
	Mobile: 07960 410 776
samanthahayden@caulmert.com	Telephone: 01773 305 047
www.caulmert.com	

Nottingham Office • Strelley Hall • Main Street, Strelley, Nottingham • NG8 6PE • United Kingdom

DOCUMENT 2.2

LETTER: APPELLANT'S AGENT TO EA - ENVIRONMENTAL PERMIT VARIATION APPLICATION – MAW GREEN

Strelley Hall, Main Street, Strelley, Nottingham, NG8 6PE
Tel: 01773 749 132
Email: andystocks@caulmert.com
Web: www.caulmert.com

The Environment Agency
Permitting Support Centre
Quadrant 2
99 Parkway Avenue
Parkway Business Park
Sheffield
S9 4WF

Our ref: 5193-CAU-XX-XX-CO-V-9101.A0.C1

Date: Tuesday, 10 January 2023

By e-mail

Dear Sir/Madam,

Re: Environmental Permit Variation Application – Maw Green

On behalf of our client, 3C Waste Limited (a wholly owned subsidiary of FCC Environment (UK) Limited), please find attached a permit variation application to vary the existing Maw Green Landfill Permit ref. EPR/BS7722ID, to add a Section 5.3A(1)(a)(ii) activity. This is to include for the treatment of hazardous soils containing asbestos in a new area at the existing Soils Treatment Facility at Maw Green Landfill, in Crewe, Cheshire.

A total BACS payment for the amount of **£18,021** has been made to the Environment Agency using payment reference: **PSCAPPMAWG5193** (see Part F1 form for working out of fee).

I trust the application is in order but please contact me if you need any further information or have any queries regarding this.

Yours Sincerely,

A. Stocks

Andy Stocks
Director of Environment
On behalf of Caulmert Limited

DOCUMENT 2.3
ENVIRONMENTAL PERMIT APPLICATION
FORM – PART A

Application for an environmental permit Part A – About you

You will need to fill in this part A if you are applying for a new permit, applying to change an existing permit or surrender your permit, or want to transfer an existing permit to yourself. Please check that this is the latest version of the form available from our website.

You can apply online for Waste standard rules environmental permits, bespoke waste permits and bespoke Medium combustion plant permits

Apply online for an environmental permit.

Please read through this form and the guidance notes that came with it.

The form can be:

1) **saved onto a computer and then filled in. Please note that the form follows a logic that means questions will open or stay closed depending on a previous answer. So you may not be able to enter text in some boxes.**
2) **printed off and filled in by hand. Please write clearly in the answer spaces.**

Note: if you believe including information on a public register would not be in the interests of national security you must enclose a letter telling us that you have told the Secretary of State. We will not include the information in the public register unless directed otherwise.

It will take less than one hour to fill in this part of the application form.

Where you see the term 'document reference' on the form, give the document references and send the documents with the application form when you've completed it.

Contents

1 About you

Are you applying as an individual, an organisation of individuals (for example, a partnership), a company (this includes Limited Liability Partnerships) or a public body?

An individual	Now go to section 2 and if you are applying for a new permit or transferring a permit for an installation or waste activity please also fill in Appendix 1
An organisation of individuals (for example, a partnership)	Now go to section 3 and if you are applying for a new permit or transferring a permit for an installation or waste activity please also fill in Appendix 1
A public body	Now go to section 4
A registered company or other corporate body	Now go to section 5 and if you are applying for a new permit or transferring a permit for an installation or waste activity please also fill in Appendix 1

2 Applications from an individual

2a Please give us the following details

Name

Title (Mr, Mrs, Miss and so on)

First name

Last name

Now go to section 6

3 Applications from an organisation of individuals or charity

3a Type of organisation

For example, a charity, a partnership, a group of individuals or a club

3b Details of the organisation or charity

If you are an organisation of individuals, please give the details of the main representative below. If relevant, provide details of other members (please include their title Mr, Mrs and so on) on a separate sheet and tell us the document reference you have given this sheet

Contact name

Title (Mr, Mrs, Miss and so on)

First name

Last name

Now go to question 3c or section 6

3c Details of charity

Full name of charity

This should be the full name of the legal entity not any trading name.

3d Company registration number

If you are registered with Companies House please tell us your registration number

3e Charity Commission number

If you are registered with the Charity Commission please tell us your registration number

Now go to section 6

4 Applications from public bodies

4a Type of public body

For example, NHS trust, local authority, English county council

4b Name of the public body

4c Please give us the following details of the executive

An officer of the public body authorised to sign on your behalf

Name

Title (Mr, Mrs, Miss and so on)

First name

Last name

Position

Now go to section 6

5 Applications from companies or corporate bodies

5a Name of the company

3C Waste Limited

5b Company registration number

02632581

Date of registration (DD/MM/YYYY)

25/07/1991

If you are applying as a corporate organisation that is not a limited company, please provide evidence of your status and tell us below the reference you have given the document containing this evidence.

Document reference

5 Applications from companies or corporate bodies, continued

5c Please give details of the directors

If relevant, provide details of other directors and company secretary, if there is one, on a separate sheet and tell us the reference you have given this sheet.

Document reference: See Supp Doc ref. 5193-CAU-XX-XX-RP-V-0308

Details of company secretary (if relevant) and director/s

Title (Mr, Mrs, Miss and so on)

First name

Last name

Title (Mr, Mrs, Miss and so on)

First name

Last name

Now go to section 6

6 Your address

6a Your main (registered office) address

For companies this is the address on record at Companies House.

Contact name

Title (Mr, Mrs, Miss and so on): Mr

First name: Vicente Federico

Last name: Orts-Llopis

Address: 3 Sidings Court
White Rose Way
Doncaster
England

Postcode: DN4 5NU

Contact numbers, including the area code

Phone: 01604 826 380

Fax

Mobile

Email: vicente.orts@fccenvironment.co.uk

For an organisation of individuals every partner needs to give us their details, including their title Mr, Mrs and so on. So, if necessary, continue on a separate sheet and tell us below the reference you have given the sheet.

Document reference

6b Main UK business address (if different from above)

Contact name

Title (Mr, Mrs, Miss and so on)

First name: As Q6a above.

Last name

Address

Postcode

6 Your address, continued

Contact numbers, including the area code

Phone

Fax

Mobile

Email

Now go to section 7

7 Contact details

7a Who can we contact about your application?

It will help us if there is someone we can contact if we have any questions about your application. The person you name should have the authority to act on your behalf.

Please add a second contact on a separate sheet if this person is not always available.

Document reference of this separate sheet

This can be someone acting as a consultant or an 'agent' for you.

Contact name

Title (Mr, Mrs, Miss and so on): Mr

First name: Andy

Last name: Stocks

Address: Caulmert Limited
Strelley Hall
Main Street, Strelley
Nottingham

Postcode: NG8 6PE

Contact numbers, including the area code

Phone: 01773 305 041

Fax

Mobile: 07818 623 158

Email: andystocks@caulmert.com

7b Who can we contact about your operation (if different from question 7a)?

Contact name

Title (Mr, Mrs, Miss and so on): Ms

First name: Kellie-Marie

Last name: Burston

Address: 3C Waste Limited
3 Sidings Court
White Rose Way
Doncaster, England

Postcode: DN4 5NU

Contact numbers, including the area code

Phone

Fax

Mobile: 07876 003268

Email: kellie-marie.burston@fccenvironment.co.uk

7 Contact details, continued

7c Who can we contact about your billing or invoice?

Note: Please provide the name and address that all invoices should be sent to for your subsistence fees.

As in question 7a

As in question 7b

Please give details below if different from question 7a or 7b.

Contact name

Title (Mr, Mrs, Miss and so on)	
First name	Finance Department
Last name	
Address	6 Sidings Court
	White Rose Way
	Doncaster
	England
Postcode	DN4 5NU

Contact numbers, including the area code

Phone	01302 30 30 30
Fax	
Mobile	
Email	

8 How to contact us

If you need help filling in this form, please contact the person who sent it to you or contact us as shown below.

General enquiries: 03708 506 506 (Monday to Friday, 8am to 6pm)

Textphone: 03702 422 549 (Monday to Friday, 8am to 6pm)

Email: enquiries@environment-agency.gov.uk

Website: www.gov.uk/government/organisations/environment-agency

If you are happy with our service, please tell us. It helps us to identify good practice and encourages our staff. If you're not happy with our service, please tell us how we can improve it. More information on how to do this is available at: www.gov.uk/government/organisations/environment-agency/about/complaints-procedure.

Please tell us if you need information in a different language or format (for example, in large print) so we can keep in touch with you more easily.

9 Where to send your application

For how many copies to send see the guidance note on part A.

For water discharges by email to PSC-WaterQuality@environment-agency.gov.uk

For waste and installations by email to PSC@environment-agency.gov.uk

For flood risk activity permits send 1 copy only to enquiries@environment-agency.gov.uk or to the local Environment Agency office for where the work is proposed to be carried out.

Or

Permitting Support, NPS Sheffield
Quadrant 2
99 Parkway Avenue
Parkway Business Park
Sheffield
S9 4WF

Feedback

(You don't have to answer this part of the form, but it will help us improve our forms if you do.)

We want to make our forms easy to fill in and our guidance notes easy to understand. Please use the space below to give us any comments you may have about this form or the guidance notes that came with it.

How long did it take you to fill in this form?

We will use your feedback to improve our forms and guidance notes, and to tell the Government how regulations could be made simpler.

Would you like a reply to your feedback?

Yes please

No thank you

For Environment Agency use only

Date received (DD/MM/YYYY)

Our reference number

Payment received?

No

Yes

Amount received

£

Appendix 1 – Date of birth information for installation and waste activities (applications for a new permit or transferring a permit) only

Date of birth information in this appendix will not be put onto our Public Register

Are you applying as an individual, an organisation of individuals (for example, a partnership) or a company (this includes Limited Liability Partnerships)?

An individual	Now go to 2
An organisation of individuals (for example, a partnership)	Now go to 3
A registered company or other corporate body	Now go to 4

2 Applications from an individual

Please give us the following details

Name

Date of birth (DD/MM/YY)

3 Applications from an organisation of individuals or charity

Details of the organisation or charity

If you are an organisation of individuals, please give the date of birth details of the main representative below. If relevant, provide details of other members on a separate sheet and tell us the document reference you have given this sheet.

Name

Date of birth (DD/MM/YY)

Document reference

4 Applications from companies or corporate bodies

Name of the company: 3C Waste Limited

Please give the date of birth details for all directors and company secretary if there is one. If relevant, provide those details of other directors on a separate sheet and tell us the document reference you have given this sheet.

Details of company secretary (if relevant) and director/s

Name

Date of birth (DD/MM/YY)

Name

Date of birth (DD/MM/YY)

Name

Date of birth (DD/MM/YY)

Document reference: See Supp Doc ref. 5193-CAU-XX-XX-RP-V-0308

DOCUMENT 2.4
ENVIRONMENTAL PERMIT APPLICATION
FORM – PART B3

Application for an environmental permit
Part B3 – New bespoke installation permit

Environment Agency

If you are applying for a new bespoke permit for an installation, fill in this part of the form, together with parts A, B2 and F1.

Please check that this is the latest version of the form available from our website.

Please read through this form and the guidance notes that go with it.

If you are applying for a permit for an intensive farm do not use this form, but complete application form part B3.5 instead.

The form can be:

1) saved onto a computer and then filled in. Please note that the form follows a logic that means questions will open or stay closed depending on a previous answer. So you may not be able to enter text in some boxes.
2) printed off and filled in by hand. Please write clearly in the answer spaces.

It will take less than three hours to fill in this part of the application form.

Contents

1 What activities are you applying for?

Fill in Table 1a below with details of all the activities listed in schedule 1 or other references (see note 1) of the Environmental Permitting Regulations (EPR) and all directly associated activities (DAAs) (in separate rows), that you propose to carry out at the installation.

Fill in a separate table for each installation you are applying for. Use a separate sheet if you have a long list and send it to us with your application form. Tell us below the reference you have given the document.

Document reference	See Op Tech Rpt ref. 5193-CAU-XX-XX-RP-V-0311

1 What activities are you applying for?, continued

Table 1a – Types of activities

Schedule 1 listed activities						
Installation name	Schedule 1 or other references (See note 1)	Description of the activity (See note 2)	Activity capacity (See note 3)	Annex I (D codes) and Annex II (R codes) and descriptions	Hazardous waste treatment capacity (if this applies) (See note 3)	Non-hazardous waste treatment capacity (if this applies) (See note 3)
If there are not enough rows, send a separate document and give the document reference number here	Put your main activity first			For installations that take waste only	For installations that take waste only	For installations that take waste only
See Act & Op Tech Report ref.						
5193-CAU-XX-XX-RP-V-0311						
Directly associated activities (See note 4) Also note: if the DAA is a Medium Combustion Plant or Specified Generator (MCP/SG) please also fill in part B2.5, (see https://www.gov.uk/government/publications/application-for-an-environmental-permit-part-b25-new-bespoke-medium-combustion-plant-and-specified-generator-permit)						
Name of DAA If there are not enough rows, send a separate document and give the document reference number here		Description of the DAA (please identify the schedule 1 activity it serves)				
For installations that take waste (See note 5 below)		Total storage capacity				
		Annual throughput (tonnes each year)				

1 What activities are you applying for?, continued

Notes

1. Quote the section number, part A1 or A2 or B, then paragraph and sub-paragraph number as shown in EPR part 2 of schedule 1, schedule 13 and 14 for Local Authority regulated activities, or schedule 25/25B for Medium Combustion Plant or Specified Generators.
2. Use the description from the relevant schedule of the regulations. Include any extra detail that you think would help to accurately describe what you want to do.
3. By 'capacity', we mean:

- the total incineration capacity (tonnes every hour) for waste incinerators
- the total landfill capacity (cubic metres) for landfills
- the total capacity (cubic metres) for the recovery of hazardous waste on land
- the total treatment capacity (tonnes each day) for waste treatment operations
- the total storage capacity (tonnes) for waste storage operations
- the processing and production capacity for manufacturing operations, or
- the thermal input capacity for combustion activities

Fill each listed activity as a separate line and give an accurate description of any other activities associated with your schedule 1 activities. You cannot have Directly Associated Activities (DAAs) as part of a mobile plant application. If the DAA is a Medium Combustion Plant or Specified Generator (MCP/SG) please fill in the table in appendix 1 question 13.

By 'total storage capacity', we mean the maximum amount of waste, in tonnes, you store on the site at any one time.

Types of waste accepted

For those installations that take waste, for each line in Table 1a (including DAAs), fill in a separate document to list those wastes you will accept on to the site for that activity. Give the List of Wastes catalogue code and description (see https://www.gov.uk/government/publications/waste-classification-technical-guidance).

If you need to exclude waste from your activity or facility by restricting the description, quantity, physical nature, hazardous properties, composition or characteristic of the waste, include these in the document. Send it to us with your application form.

Please provide the reference for each document.

You can use Table 1b as a template.

If you want to accept any waste with a code ending in 99, you must provide more information and a full description of the waste in the document, (for example, detailing the source, nature and composition of the waste). Where you only want to receive specific wastes within a waste code you can provide further details of the waste you want to receive. Where a waste is dual coded you should use both codes for the waste.

Document reference of this extra information: See Op Tech Rpt ref. 5193-CAU-XX-XX-RP-V-0311

1 What activities are you applying for?, continued

Table 1b – Template example – types of waste accepted and restrictions

Waste code	Description of the waste
Example	Example
02 01 08*	Agrochemical waste containing hazardous substances
18 01 03*	Infectious clinical waste, not contaminated with chemicals or medicines – human healthcare (may contain sharps) for alternative treatment
17 05 03*/17 06 05*	Non-hazardous soil from construction or demolition contaminated with fragments of asbestos cement sheet

1c Recovery of hazardous waste on land

Are you applying for a waste recovery activity involving the permanent deposit of inorganic hazardous waste on land for construction or land reclamation?

No ☒ Now go to question 2

Yes ☐

Have you written a waste recovery plan (WRP) that shows that you will use waste to perform the same function as non waste materials you would have used?

No You must write a WRP to support your application.

Yes

Have we advised you during pre-application discussions that we believe the activity is waste recovery?

No

Yes

Have there been any changes to your proposal since the discussions?

No

Yes

Please send us a copy of your current waste recovery plan that complies with our guidance at https://www.gov.uk/government/publications/deposit-for-recovery-operators-environmental-permits/waste-recovery-plans-and-deposit-for-recovery-permits. You need to highlight any changes you may have made since your pre-application discussions.

Document reference

Please note that there is an additional charge for the assessment or re assessment of a waste recovery plan that must be submitted as part of this application. For the charge see https://www.gov.uk/government/publications/environmental-permitting-charges-guidance/environmental-permitting-charges-guidance

2 Point source emissions to air, water and land

Fill in Table 2 below with details of the point source emissions that result from the operating techniques at each of your installations.

Fill in one table for each installation, continuing on a separate sheet if necessary.

Table 2 – Emissions (releases)

Installation name	Maw Green Landfill Soils Treatment Facility			
Point source emissions to air				
Emission point reference and location	Source	Parameter	Quantity	Unit
See Act & Op Tech Report				
Point source emissions to water (other than sewers)				
Emission point reference and location	Source	Parameter	Quantity	Unit
See Act & Op Tech Report				
Point source emissions to sewers, effluent treatment plants or other transfers off site				
Emission point reference and location	Source	Parameter	Quantity	Unit
See Act & Op Tech Report				
Point source emissions to land				
Emission point reference and location	Source	Parameter	Quantity	Unit
See Act & Op Tech Report				

You will also need to complete application form part B6 if your installation includes a point source emission(s) to:

- water
- groundwater or
- sewer

Supporting information

3 Operating techniques

3a Technical standards

Fill in Table 3a for each activity at the installation you refer to in Table 1a above and list the 'Best Available Techniques' you are planning to use. If you use the standards set out in the relevant BAT conclusion(s), BAT reference document(s) (BREF) and/or technical guidance(s) (TGN) there is no need to justify using them within your documents in Table 3a.

For Part A(2) activities refer to https://www.gov.uk/government/collections/integrated-pollution-prevention-and-control-sector-guidance-notes and for Part B and Schedule 14 activities see https://www.gov.uk/government/collections/local-air-pollution-prevention-and-control-lappc-process-guidance-notes

You must justify your decisions in a separate document if:

- there is no technical standard
- the technical guidance provides a choice of standards, or
- you plan to use another standard

This justification could include a reference to the Environmental Risk Assessment provided in part B2 (General bespoke permit) of the application form.

For each of the activities listed in Table 1a, the documents in Table 3a should summarise:

- the operations undertaken
- the measures you will use to control the emissions from your process, as identified in your risk assessment or the relevant BAT conclusions, BREF or technical guidance
- how you will meet other standards set out in the relevant BAT conclusions document, BREF or technical guidance

Table 3 – Technical standards

Fill in a separate table for each activity at the installation.

Installation name	Maw Green Landfill Soils Treatment Facility	
Description of the schedule 1 activity or directly associated activity	Best available technique (BATC, BREF or TGN reference) (see footnote below)	Document reference (if appropriate)

* Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control)

In all cases, describe the type of facility or operation you are applying for and provide site infrastructure plans, location plans and process flow diagrams or block diagrams to help describe the operations and processes undertaken. Give the document references you use for each plan, diagram and description.

Document reference: See Op Tech Rpt ref. 5193-CAU-XX-XX-RP-V-0311

3b General requirements

Fill in a separate Table 4 for each installation.

Table 4 – General requirements

Name of the installation	Maw Green Soils Treatment Facility
If the technical guidance or your risk assessment shows that emissions of substances not controlled by emission limits are an important issue, send us your plan for managing them	Document reference or references See Act & Op Tech Report
Where the technical guidance or your risk assessment shows that odours are an important issue, send us your odour management plan	Document reference or references See Act & Op Tech Report
If the technical guidance or your risk assessment shows that noise or vibration are important issues, send us your noise or vibration management plan (or both)	Document reference or references See Act & Op Tech Report

For guidance on risk assessments for your environmental permit see https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit

3c Types and amounts of raw materials

Fill in Table 5 for all schedule 1 activities. Fill in a separate table for each installation.

Table 5 – Types and amounts of raw materials

Name of the installation		Maw Green Landfill Soils Treatment Facility		
Capacity (See note 1 below)				
Schedule 1 activity	Description of raw material and composition	Maximum amount (tonnes) (See note 2 below)	Annual throughput (tonnes each year)	Description of the use of the raw material including any main hazards (include safety data sheets)

Notes

1 By 'capacity', we mean the total storage capacity (tonnes) or total treatment capacity (tonnes each day).

2 By 'maximum amount', we mean the maximum amount of raw materials on the site at any one time.

Use a separate sheet if you have a long list of raw materials, and send it to us with your application form. Please also provide the reference of this extra sheet.

Document reference: See Op Tech Rpt ref. 5193-CAU-XX-XX-RP-V-0311

3d Information for specific sectors

For some of the sectors, we need more information to be able to set appropriate conditions in the permit. This is as well as the information you may provide in sections 5, 6 and 7. For those activities listed below, you must answer the questions in the related document.

Table 6 – Questions for specific sectors

Sector	Appendix
Combustion	See the questions in appendix 1
Chemicals	See the questions in appendix 2
Incinerating waste	See the questions in appendix 3
Landfill and recovery of hazardous waste on land	See the questions in appendix 4

General information

4 Monitoring

4a Describe the measures you use for monitoring emissions by referring to each emission point in Table 2 above

You should also describe any environmental monitoring. Tell us:

- how often you use these measures
- the methods you use
- the procedures you follow to assess the measures

Document reference: See Op Tech Rpt ref. 5193-CAU-XX-XX-RP-V-0311

4b Point source emissions to air only

4b1 Has the sampling location been designed to meet BS EN 15259 clause 6.2 and 6.3?

No ☐

Yes ☐

4b2 Are the sample ports large enough for monitoring equipment and positioned in accordance with section 6 and appendix A of BS EN 15259?

No ☐

Yes ☐

4b3 Is access adjacent to the ports large enough to provide sufficient working area, support and clearance for a sample team to work safely with their equipment throughout the duration of the test?

No ☐

Yes ☐

4b4 Are the sample location(s) at least 5 HD from the stack exit

No ☐

Yes ☐

4b5 Are the sample location(s) at least 2 HD upstream from any bend or obstruction?

No ☐

Yes ☐

4b6 Are the sample location(s) at least 5 HD downstream from any bend or obstruction?

No ☐

Yes ☐

4b7 Does the sample plane have a constant cross sectional area?

No ☐

Yes ☐

4b8 If horizontal, is the duct square or rectangular (unless it is less than or equal to 0.35 m in diameter)

No ☐

Yes ☐

4b9 If you have answered 'No' to any of the questions 4b1 to 4b8 above, provide an assessment to how the standards in BS EN 15259 will be met.

Document reference of the assessment

5 Environmental impact assessment

5a Have your proposals been the subject of an environmental impact assessment under Council Directive 85/337/EEC of 27 June 1985 [Environmental Impact Assessment] (EIA)?

No ☒ Now go to question 6

Yes ☐ Please provide a copy of the environmental statement and, if the procedure has been completed:

- a copy of the planning permission
- the committee report and decision on the EIA

Document reference of the copy

6 Resource efficiency and climate change

If the site is a landfill or a recovery of hazardous waste on land activity, you only need to fill in this section if the application includes gas engines.

6a Describe the basic measures for improving how energy efficient your activities are

Document reference of the description N/A

6b Provide a breakdown of any changes to the energy your activities use up and create

Document reference of the description N/A

6c Have you entered into, or will you enter into, a climate change levy agreement?

No ☐ Describe the specific measures you use for improving your energy efficiency

Document reference of the description

Yes ☐ Please give the date you entered (or the date you expect to enter) into the agreement (DD/MM/YYYY)

Please also provide documents that prove you are taking part in the agreement.

Document reference of the proof N/A

6d Explain and justify the raw and other materials, other substances and water that you will use

Document reference of the justification N/A

6e Describe how you avoid producing waste in line with Council Directive 2008/98/EC on waste

If you produce waste, describe how you recover it. If it is technically and financially impossible to recover the waste, describe how you dispose of it while avoiding or reducing any effect it has on the environment.

Document reference of the description N/A

7 Installations that include a combustion plant (excluding waste incinerators)

7a List all your combustion plant at the site and provide thermal input and operating hours for each

Document reference N/A

7b Do any of your combustion plants have a net rated thermal input of 1 or more MW and is not an excluded MCP?

No ☐ Go to 7c

Yes ☐ Please fill in the table in appendix 1 question 13

7c Is the aggregated net thermal input of your combustion plant more than 20 MW?

No ☐

Yes ☐ Please go to appendix 1 question 11

8 How to contact us

If you need help filling in this form, please contact the person who sent it to you or contact us as shown below.

General enquiries: 03708 506 506 (Monday to Friday, 8am to 6pm)

Textphone: 03702 422 549 (Monday to Friday, 8am to 6pm)

Email: enquiries@environment-agency.gov.uk

Website: https://www.gov.uk/government/organisations/environment-agency

If you are happy with our service, please tell us. It helps us to identify good practice and encourages our staff. If you're not happy with our service, please tell us how we can improve it.

Please tell us if you need information in a different language or format (for example, in large print) so we can keep in touch with you more easily.

Feedback

(You don't have to answer this part of the form, but it will help us improve our forms if you do.)

We want to make our forms easy to fill in and our guidance notes easy to understand. Please use the space below to give us any comments you may have about this form or the guidance notes that came with it.

How long did it take you to fill in this form?

We will use your feedback to improve our forms and guidance notes, and to tell the Government how regulations could be made simpler.

Would you like a reply to your feedback?

Yes please ☐

No thank you ☐

Crystal Mark 19107
Clarity approved by Plain English Campaign

For Environment Agency use only

Date received (DD/MM/YYYY)

Payment received?

No ☐

Our reference number

Yes ☐ Amount received

£

Plain English Campaign's Crystal Mark does not apply to appendices 1 to 4.

Appendix 1 – Specific questions for the combustion sector

1 Identify the type of fuel burned in your combustion units (including when your units are started up, shut down and run as normal). If your units are dual fuelled (that is, use two types of fuel), list both the fuels you use

Fill in a separate table for each installation.

Installation reference			
Type of fuel	When run as normal	When started up	When shut down
Coal	☐	☐	☐
Gas oil	☐	☐	☐
Heavy fuel oil	☐	☐	☐
Natural gas	☐	☐	☐
WID waste	☐	☐	☐
Biomass (see notes 1 and 2 below)	☐	☐	☐
Biomass (see notes 1 and 2 below)	☐	☐	☐
Biomass (see notes 1 and 2 below)	☐	☐	☐
Biomass (see notes 1 and 2 below)	☐	☐	☐
Biomass (see notes 1 and 2 below)	☐	☐	☐
Landfill gas	☐	☐	☐
Other	☐	☐	☐

Notes

1. Not covered by Industrial Emissions Directive 2010/75/EU.
2. 'Biomass' is referred to The Renewables Obligation Order 2002 (https://www.legislation.gov.uk/uksi/2002/914/contents/made)

Give extra information if it helps to explain the fuel you use.

Document reference

Appendix 1 – Specific questions for the combustion sector, continued

2 Give the composition range of any fuels you are currently allowed to burn in your combustion plant

Fill in a separate table for each installation, continuing on a separate sheet if necessary

Fuel use and analysis					
Installation reference					
Parameter	Unit	Fuel 1	Fuel 2	Fuel 3	Fuel 4
Maximum percentage of gross thermal input	%				
Moisture	%				
Ash	% wt/wt dry				
Sulphur	% wt/wt dry				
Chlorine	% wt/wt dry				
Arsenic	% wt/wt dry				
Cadmium	% wt/wt dry				
Carbon	% wt/wt dry				
Chromium	% wt/wt dry				
Copper	% wt/wt dry				
Hydrogen	% wt/wt dry				
Lead	% wt/wt dry				
Mercury	% wt/wt dry				
Nickel	% wt/wt dry				
Nitrogen	% wt/wt dry				
Oxygen	% wt/wt dry				
Vanadium	mg/kg dry				
Zinc	mg/kg dry				
Net calorific value	MJ/kg				

Appendix 1 – Specific questions for the combustion sector, continued

3 If NOx factors are necessary for reporting purposes (that is, if you do not need to monitor emissions), please provide the factors associated with burning the relevant fuels

Fill in a separate table for each installation.

Installation reference	
Fuel	NOx factor (kgt^{-1})
Fuel 1	
Fuel 2	
Fuel 3	
Fuel 4	

Note: kgt^{-1} means kilograms of nitrogen oxides released for each tonne of fuel burned.

4 Will your combustion plant be subject to Chapter III of the Industrial Emissions Directive 2010/75/EU?

No ☐ Now fill in application form part F

Yes ☐

5 What is your plant?

an existing one ☐ A plant licensed before 1 July 1987

a new one ☐ A plant licensed on or after 1 July 1987 but before 27 November 2002, or a plant for which an application was made before 27 November 2002 and which was put into operation before 27 November 2003

a new-new one ☐ A plant for which an application was made on or after 27 November 2002

6 If you run more than one type of plant or a number of the same type of plant on your installation, please list them in the table below

Fill in a separate table for each installation.

Installation reference	
Type of plant	Number within installation
Existing	
New	
New-new	
Gas turbine (group A)	
Gas turbine (group B)	

Appendix 1 – Specific questions for the combustion sector, continued

7 If you run an existing plant, have you submitted a declaration for the 'limited life derogation' set out in Article 33 of Chapter III of the Industrial Emissions Directive?

No ☐ Now go to question 9

Yes ☐

8 Have you subsequently withdrawn your declaration?

No ☐

Yes ☐

9 List the existing large combustion plants (LCPs) which have annual mass allowances under the National Emission Reduction Plan (NERP), and those with emission limit values (ELVs) under the LCPD

Installation reference	
LCPs under NERP	LCPs with ELVs

10 Do you meet the monitoring requirements of Chapter III of the Industrial Emissions Directive?

No ☐

Yes ☐ Document reference

11 Have you carried out a cost–benefit assessment (CBA) of opportunities for cogeneration (combined heat and power) or district heating under Article 14 of the Energy Efficiency Directive?

No ☐ Please provide supporting evidence of why a CBA is not required (for example, an agreement from us)

Document reference of this evidence

Yes ☐ Please submit a copy of your CBA

Document reference of the CBA

Appendix 1 – Specific questions for the combustion sector, continued

12 Does your installation need to be combined heat and power-ready (CHP-ready)?

No ☐ Please provide supporting evidence of why a CHP-ready assessment is not required (for example, an agreement from us)

Document reference of this evidence

Yes ☐ Please provide a copy of your CHP-ready assessment

Document reference of the CHP-ready assessment

13 Information to be provided by the operator to the competent authority for each Medium Combustion Plant as identified in Annex I of Medium Combustion Plant Directive (EU/2015/2193)

MCP specific identifier*	
12-digit grid reference or latitude/longitude	
Rated thermal input (MW) of the MCP	
Type of MCP (diesel engine, gas turbine, other engine or other MCP)	
Type of fuels used: gas oil (diesel), natural gas, gaseous fuels other than natural gas, landfill gas	
Date when the new MCP was first put into operation	
Sector of activity of the MCP or the facility in which it is applied (NACE code)	
Expected number of annual operating hours of the MCP and average load in use	

Where the option of exemption under Article 6(8) is used the operator (as identified on Form A) should sign a declaration here that the MCP will not be operated more than the number of hours referred to in this paragraph	

* identifier – the MCP must be traceable via a serial number or other unique identifier, name plate, manufacturer and or model

NACE code means Nomenclature of Economic Activities and is the European statistical classification of economic activities (http://www.export.gov.il/files/EEN/ListNACEcodes.pdf).

To find out the 12-digit grid reference you can search on the UK Grid Reference Finder website at https://gridreferencefinder.com/

Appendix 2 – Specific questions for the chemical sector

1 Please provide a technical description of your activities

- The description should be enough to allow us to understand:
- the process
- the main plant and equipment used for each process
- all reactions, including significant side reactions (that is, the chemistry of the process)
- the material mass flows (including by products and side streams) and the temperatures and pressures in major vessels
- the all emission control systems (both hardware and management systems), for situations which could involve releasing a significant amount of emissions – particularly the main reactions and how they are controlled
- a comparison of the indicative BATs and benchmark emission levels standards: technical guidance notes (TGNs) (see https://www.gov.uk/government/collections/technical-guidance-for-regulated-industry-sectors-environmental-permitting); additional guidance 'The production of large volume organic chemicals' (EPR 4.01); 'Speciality organic chemicals sector' (EPR 4.02); 'Inorganic chemicals sector' (EPR 4.03); and best available techniques reference documents (BREFs) for the chemical sector

Document reference

2 If you are applying for a multi-purpose plant, do you have a multi-product protocol in place to control the changes?

No ☐

Yes ☐ Provide a copy of your protocol to accompany this application

Document reference

3 Does Chapter V of the Industrial Emissions Directive (IED) apply to your activities?

No ☐

Yes ☐ Fill in the following

3a List the activities which are controlled under the IED

Installation reference	
Activities	

3b Describe how the list of activities in question 3a above meets the requirements of the IED

Document reference

Appendix 3 – Specific questions for the waste incineration sector

If you are proposing to accept clinical waste, please complete your answer to question 3a 'Technical standards' with reference to relevant parts of our healthcare waste appropriate measures guidance (see https://www.gov.uk/guidance/healthcare-waste-appropriate-measures-for-permitted-facilities)

1a Do you run incineration plants as defined by Chapter IV of the Industrial Emissions Directive (IED)?

No ☐ You do not need to answer any other questions in this appendix

Yes ☐ IED applies

1b Are you subject to IED as

An incinerator? ☐

A co-incinerator? ☐

2 Do any of the installations contain more than one incineration line?

No ☐ Now go to question 4

Yes ☐

3 How many incineration lines are there within each installation?

Fill in a separate table for each installation.

Installation reference		
Number of incineration lines within the installation		
Reference identifiers for each line		

You must provide the information we ask for in questions 4, 5 and 6 below in separate documents. The information must at least include all the details set out in section 2 ('Key Issues') of S5.01 'Incineration of waste: additional guidance' (under the sub heading 'European legislation and your application for an EP Permit'). See https://www.gov.uk/government/collections/technical-guidance-for-regulated-industry-sectors-environmental-permitting.

You must answer questions 7 to 13 on the form below.

4 Describe how the plant is designed, equipped and will be run to make sure it meets the requirements of IED, taking into account the categories of waste which will be incinerated

Document reference

5 Describe how the heat created during the incineration and co-incineration process is recovered as far as possible (for example, through combined heat and power, creating process steam or district heating)

Document reference

Appendix 3 – Specific questions for the waste incineration sector, continued

6 Describe how you will limit the amount and harmful effects of residues and describe how they will be recycled where this is appropriate

Document reference

For each line identified in question 3, answer questions 7 to 13 below

Question 3 identifier, if necessary

7 Do you want to take advantage of the Article 45 (1)(f) allowance (see below) if the particulates, CO or TOC continuous emission monitors (CEM) fail?

No ☐

Yes ☐ This allows 'abnormal operation' of the incineration plant under certain circumstances when the CEM for releases to air have failed. Annex VI, Part 3(2) sets maximum half hourly average release levels for particulates (150 mg/m3), CO (normal ELV) and TOC (normal ELV) during abnormal operation.

Describe the other system you use to show you keep to the requirements of Article 13(4) (for example, using another CEM, providing a portable CEM to insert if the main CEM fails, and so on).

8 Do you want to replace continuous HF emission monitoring with periodic hydrogen fluoride (HF) emission monitoring by relying on continuous hydrogen chloride (HCl) monitoring as allowed by IED Annex VI, Part 6 (2.3)?

Under this you do not have to continuously monitor emissions for hydrogen fluoride if you control hydrogen chloride and keep it to a level below the HCl ELVs.

No ☐

Yes ☐ Please give your reasons for doing this

Appendix 3 – Specific questions for the waste incineration sector, continued

9 Do you want to replace continuous water vapour monitoring with pre-analysis drying of exhaust gas samples, as allowed by IED Annex VI, Part 6 (2.4)?

Under this you do not have to continuously monitor the amount of water vapour in the air released if the sampled exhaust gas is dried before the emissions are analysed.

No ☐

Yes ☐ Please give your reasons for doing this

10 Do you want to replace continuous hydrogen chloride (HCl) emission monitoring with periodic HCl emission monitoring, as allowed by IED Annex VI, Part 6 (2.5), first paragraph?

Under this you do not have to continuously monitor emissions for hydrogen chloride if you can prove that the emissions from this pollutant will never be higher than the ELVs allowed.

No ☐

Yes ☐ Please give your reasons for doing this

Appendix 3 – Specific questions for the waste incineration sector, continued

11 Do you want to replace continuous HF emission monitoring with periodic HF emission monitoring, as allowed by IED Annex VI, Part 6 (2.5), first paragraph?

Under this you do not have to continuously monitor emissions for hydrogen fluoride if you can prove that the emissions from this pollutant will never be higher than the ELVs allowed.

No ☐

Yes ☐ Please give your reasons for doing this

12 Do you want to replace continuous SO2 emission monitoring with periodic sulphur dioxide (SO2) emission monitoring, as allowed by IED Annex VI, Part 6 (2.5), first paragraph?

Under this you do not have to continuously monitor emissions for sulphur dioxide if you can prove that the emissions from this pollutant will never be higher than the ELVs allowed.

No ☐

Yes ☐ Please give your reasons for doing this

Appendix 3 – Specific questions for the waste incineration sector, continued

13 If your plant uses fluidised bed technology, do you want to apply for a derogation of the CO WID ELV to a maximum of 100 mg/m³ as an hourly average, as allowed by IED Annex VI, Part 3?

No ☐

Does not apply ☐

Yes ☐ Please give your reasons for doing this

14 Have you carried out a cost–benefit assessment (CBA) of opportunities for cogeneration (combined heat and power) or district heating under Article 14 of the Energy Efficiency Directive?

No ☐ Please provide supporting evidence of why a CBA is not required (for example, an agreement from us)

Document reference of this evidence

Yes ☐ Please submit a copy of your CBA

Document reference of the CBA

15 Does your installation need to be combined heat and power-ready (CHP-ready)?

No ☐ Please provide supporting evidence of why a CHP-ready assessment is not required (for example, an agreement from us)

Document reference of this evidence

Yes ☐ Please provide a copy of your CHP-ready assessment

Document reference of the CHP-ready assessment

Appendix 4 – Specific questions for the landfill sector and recovery of hazardous waste on land activities

1. For the landfill sector, provide your Environmental Setting and Installation Design (ESID) report and any other risk assessments to control emissions.

For recovery of hazardous waste on land activities, provide your Environmental Setting and Site Design (ESSD) report and any other risk assessments to control emissions

Document reference: ESID Addendum 5193-CAU-XX-XX-RP-V-0309

2. For recovery of hazardous waste on land activities, provide your Waste Acceptance Procedures (including Waste Acceptance Criteria)

Document reference: N/A

Refer to our guidance at

https://www.gov.uk/government/publications/deposit-for-recovery-operators-environmental-permits/waste-acceptance-procedures-for-deposit-for-recovery

3. Provide your hydrogeological risk assessment (HRA) for the site

Document reference: N/A

4. Provide your outline engineering plan for the site

Document reference: N/A

5. Provide your stability risk assessment (SRA) for the site

Document reference: N/A

6. Provide your landfill gas risk assessment (LFGRA) for the site

Document reference: N/A

We have developed guidance on these assessments and their reports which can be found at https://www.gov.uk/government/collections/environmental-permitting-landfill-sector-technical-guidance

7. For recovery of hazardous waste on land activities, have you completed a monitoring plan for the site?

No ☐ Please refer to the section of your ESSD that explains why this is unnecessary for your site

Document reference of this evidence

Yes ☐ Document reference

Appendix 4 – Specific questions for the landfill sector and recovery of hazardous waste on land activities, continued

8. Have you completed a proposed plan for closing the site and your procedures for looking after the site once it has closed?

No ☐ If you have answered 'no' for recovery of hazardous waste on land activities, refer to the section of your ESSD that explains why this is unnecessary for your site

Document reference of this evidence

Yes ☐ For landfill you must provide a closure and aftercare plan

Document reference

DOCUMENT 2.5
ENVIRONMENTAL PERMIT APPLICATION
FORM – PART C2

Application for an environmental permit
Part C2 – General – varying a bespoke permit

Environment Agency

Fill in this part of the form, together with part A and the relevant parts of C3 to C7 and part F1 or F2, if you are applying to vary (change) the conditions or any other part of the permit. Please check that this is the latest version of the form available from our website.

You only need to give us details in this application for the parts of the permit that will be affected (for example, if you are adding a new facility or changing existing ones).

Waste operation changing to installation or vice versa?

If your changes mean that a waste operation becomes an installation (or vice versa) you also need to fill in either part C3 (waste to installation) or part C4 (installation to waste).

You do not need to resend any information from your original permit application if it is not affected by your proposed changes.

Please read through this form and the guidance notes that came with it.

The form can be:

1) saved onto a computer and then filled in. Please note that the form follows a logic that means questions will open or stay closed depending on a previous answer. So you may not be able to enter text in some boxes.
2) printed off and filled in by hand. Please write clearly in the answer spaces.

It will take less than two hours to fill in this part of the application form.

Contents

1 About the permit

Note: If you are applying to convert your existing permit to a standard permit or add a standard facility you need to fill out form C1.

1a Discussions before your application

If you have had discussions with us before your application, give us the permit reference or details on a separate sheet. Tell us below the reference you have given this extra sheet.

Permit or document reference: N/A

1b Permit number

What is the permit number that this application relates to? EPR/BS7722ID

1c Site details

What is the name, address and postcode of the site?

Site name: Maw Green Landfill Site

Address: Maw Green Road
Coppenhall
Crewe
Cheshire

Postcode: CW1 5NG

2 About your proposed changes

2a Type of variation

What type of variation are you applying for?

Minor technical

Normal variation I

Substantial

2 About your proposed changes, continued

2b Changes or additions to existing activities

Please give us brief details in the box below. More detailed information can be given in Table 1 below.

See Supp Doc ref. 5193-CAU-XX-XX-RP-V-0308

Fill in Table 1 with details of all the proposed changes to current activities. In the final column of the table, give us the document reference for the proposed changes and send them to us with your filled in application form.

Fill in a separate table for each activity you are applying to vary or add. Use a separate sheet if you have a long list and send it to us with your application form. Tell us below the reference you have given this document.

Document reference: See Supp Doc ref. 5193-CAU-XX-XX-RP-V-0308

You only need to fill in one table for your mining waste operations.

2c Consolidating (combining) or updating existing permits

If your proposed change is to modernise (update) your permit, now answer 2c1; otherwise go to 2d.

If your proposed change is to consolidate (combine) a number of permits, now answer 2c2; otherwise go to 2d.

Note: In both cases we may require additional information from you about, for example, your management system. Therefore we would always advise you to talk to us before you submit any application to modernise or consolidate permits.

2c1 Do you want to have a modern style permit?

No I

Yes

2c2 Identify all the permits you want to consolidate (combine) by listing the permit numbers in Table 2 below

Table 2 – Permit numbers

2d Treating batteries

2d Are you proposing to treat batteries?

No I

Yes Tell us how you will do this and send us a copy of your explanation and tell us below the reference you have given this explanation

Document reference for the explanation

2e Ship recycling

2e1 Is your activity covered by the Ship Recycling Regulations 2015? (See the guidance notes on part C2.)

No I

Yes Tell us how you will do this. Please send us a copy of your explanation and your facility recycling plan, and tell us below the reference numbers you have given these documents

Document reference for the explanation

Document reference for the facility recycling plan

2e2 Is this a renewal of an existing authorisation covered by the Ship Recycling Regulations 2015?

No I

Yes Tell us the expiry date of your existing authorisation (DD/MM/YYYY)

2 About your proposed changes, continued

Table 1 – Changes to existing activities

Fill in Table 1 with details of all the proposed changes to current activities. In the final column of the table, give us the document reference for the proposed changes and send them to us with your filled in application form.

Name	Installation schedule 1 references	Description of the installation activity	Description of waste operation	Description of the mining waste operations	Description of water discharge activity	Description of groundwater activity	Proposed changes document reference
i.e. name of installation, waste operation, mining waste operation, water discharge activity or groundwater activity							
Example – effluent unique name					Example – treated sewage effluent		
If you do not have enough room, go to the line below or send a separate document and give us the document reference here							
See Supporting Doc							

2 About your proposed changes, continued

2f Low impact installations (installations only)

2f1 Will any changes mean that any of the regulated facilities will become low impact installations?

No I Now go to section 3

Yes If yes, tell us how you meet the conditions for a low impact installation (see the guidance notes on part C2 – Appendix 1)

Document reference

Tick the box to confirm you have filled in the low impact installation checklist in appendix 1 for each regulated facility ☐

3 Your ability as an operator

If you are applying to add waste installations or waste operations to a permit that has not previously had them, you need to fill in all of section 3.

If you are applying to consolidate (combine) two or more permits or have an updated permit you must fill in question 3d.

This section does not apply for applications to surrender a permit.

3a Relevant offences

Installations and waste operations only (see the guidance notes on part C2).

3a1 Have you, or any other relevant person, been convicted of any relevant offence?

No I Now go to question 3b

Yes Please give details below

Name of the relevant person

Title (Mr, Mrs, Miss and so on)

First name

Last name

Position held at the time of the offence

Name of the court where the case was dealt with

Date of the conviction (DD/MM/YY)

Offence and penalty set

Date any appeal against the conviction will be heard (DD/MM/YYYY)

If necessary, use a separate sheet to give us details of other relevant offences and tell us below the reference number you have given the extra sheet.

Document reference

Now go to question 3b

Please also complete the details in Appendix 2.

3b Technical ability

Specified waste management activities and waste operations only (see the guidance notes on part C1).

Please indicate which of the two schemes you are using to demonstrate you are technically competent to operate your facility and the evidence you have enclosed to demonstrate this.

ESA/EU skills

I have enclosed a copy of the current Competence Management System certificate I

CIWM/WAMITAB scheme

Please select **one** of the following:

- I have enclosed a copy of:
  - the relevant qualification certificate/s I

  or
  - evidence of deemed competence

  or

3 Your ability as an operator, continued

- Environment Agency assessment

or

- evidence of nominated manager status under the transitional provisions for previously exempt activities

and, if deemed competent or Agency-assessed, or if there is evidence of a nominated manager, or if the original qualification is over two years old:

I have enclosed a copy of the relevant current continuing competence certificate/s

For each technically competent manager please give the following information. If necessary, use a separate sheet to give us these details and tell us below the document reference you have given the extra sheet.

Title (Mr, Mrs, Miss and so on)

First name

Last name

Phone

Mobile

Email

Please provide the environmental permit number/s and site address for **all** other waste activities that the proposed technically competent manager provides technical competence for, including permits held by other operators. Continue on a separate sheet as required.

Permit number	Site address	Postcode

Document reference: See Supp Doc ref. 5193-CAU-XX-XX-RP-V-0308

Now go to question 3c

Please also complete the details in Appendix 2.

3c Finances

Installations, waste operations and mining waste operations only (see the guidance notes on part C2).

Please note that if you knowingly or carelessly make a statement that is false or misleading to help you get an environmental permit (for yourself or anyone else), you may be committing an offence under the Environmental Permitting (England and Wales) Regulations 2016.

Do you or any relevant person or a company in which you were a relevant person have current or past bankruptcy or insolvency proceedings against you?

No

Yes Please give details below, including the required set-up costs (including infrastructure), maintenance and clean up costs for the proposed facility against which a credit check may be assessed

We may want to contact a credit reference agency for a report about your business's finances.

3 Your ability as an operator, continued

Landfill, Category A mining waste facilities and mining waste facilities for hazardous waste only

How do you plan to make financial provision (to operate a landfill or a mining waste facility you need to show us that you are financially capable of meeting the obligations of closure and aftercare)?

Renewable bonds

Cash deposits with the Environment Agency

Other – provide comprehensive details

Document reference

Provide a cost profile and expenditure plan of your estimated costs throughout the aftercare period of your site.

Document plan reference

Now go to question 3d

3d Management systems

You must have an effective, written management system in place that identifies and reduces the risk of pollution. You may show this by using a certified scheme or your own system.

Your permit requires you (as the operator) to ensure that you manage and operate your activities in accordance with a written management system.

You need to be able to explain what happens at each site and which parts of the overall management system apply. For example, at some sites you may need to show you are carrying out additional measures to prevent pollution because they are nearer to sensitive locations than others.

You can find guidance on management systems on our website at www.gov.uk/government/organisations/environment-agency.

Tick this box to confirm that you have read the guidance and that your management system will meet our requirements I

What management system will you provide for your regulated facility?

ISO 14001 I

BS 8555 (Phases 1–5)

Acorn

Green dragon

Own management system

Please make sure you send us a summary of your management system with your application.

Document reference/s See Supp Doc ref. 5193-CAU-XX-XX-RP-V-0308

4 Consultation

Fill in 4a to 4c for installations and waste operations and 4d for installations only.

Could the waste operation or installation involve releasing any substance into any of the following?

4a A sewer managed by a sewerage undertaker?

No

Yes I Please name the sewerage undertaker United Utilities

4b A harbour managed by a harbour authority?

No I

Yes Please name the harbour authority

4c Directly into relevant territorial waters or coastal waters within the sea fisheries district of a local fisheries committee?

No I

Yes Please name the fisheries committee

4 Consultation, continued

4d Is the installation on a site for which:

4d1 a nuclear site licence is needed under section 1 of the Nuclear Installations Act 1965?

No I

Yes

4d2 a policy document for preventing major accidents is needed under regulation 5 of the Control of Major Accident Hazards Regulations 2015, or a safety report is needed under regulation 7 of those Regulations?

No I

Yes

5 Supporting information

5a Provide a plan or plans for the site

See the guidance notes on part C2 for what needs to be marked on the plan.

Clearly mark the site boundary or discharge point, or both. Also include site drainage plans, site layout plans, and plant design drawings/process flow diagrams (as required). (See the guidance notes on part C2.)

Document reference/s of the plans: See Supp Doc ref. 5193-CAU-XX-XX-RP-V-0308

5b Do any of the variations you plan to make need extra land to be included in the permit?

No I

Yes Please provide a site report for the extra land

Document report reference/s

5c Provide a non-technical summary of your application

Document reference of the summary: See Supp Doc ref. 5193-CAU-XX-XX-RP-V-0308

5d Risk of fire from sites storing combustible waste

Are you applying for an activity that includes the storage of combustible wastes?

(This applies to all activities excluding standalone water and groundwater discharges.)

No I Go to question 5f

Yes Go to question 5e

5e Will your variation increase the risk of a fire occurring or increase the environmental risk if a fire occurs?

See the guidance notes on part C2.

No ☐

Yes ☐ Provide a fire prevention plan. You need to highlight any changes you have made since your pre-application discussions

Document reference of the plan

5f Adding an installation

If you are applying to add an installation, tick the box to confirm that you have sent in a baseline report and provide a reference

Document reference of the report

6 Environmental risk assessment

If you need one, see the guidance notes on part C2.

Provide an assessment of any additional risks the proposed changes or additions to your regulated facilities poses to the environment as part of your application to vary this permit. The risk assessment must follow the methodology set out in 'Risk assessments for your environmental permit' at https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit or an equivalent method.

Document reference for the assessment: See Supp Doc ref. 5193-CAU-XX-XX-RP-V-0308

7 How to contact us

If you need help filling in this form, please contact the person who sent it to you or contact us as shown below.

General enquiries: 03708 506 506 (Monday to Friday, 8am to 6pm)

Textphone: 03702 422 549 (Monday to Friday, 8am to 6pm)

Email: enquiries@environment-agency.gov.uk

Website: www.gov.uk/government/organisations/environment-agency

If you are happy with our service, please tell us. It helps us to identify good practice and encourages our staff. If you're not happy with our service, please tell us how we can improve it.

Please tell us if you need information in a different language or format (for example, in large print) so we can keep in touch with you more easily.

Feedback

(You don't have to answer this part of the form, but it will help us improve our forms if you do.)

We want to make our forms easy to fill in and our guidance notes easy to understand. Please use the space below to give us any comments you may have about this form or the guidance notes that came with it.

How long did it take you to fill in this form?

We will use your feedback to improve our forms and guidance notes, and to tell the Government how regulations could be made simpler.

Would you like a reply to your feedback?

Yes please

No thank you

Crystal Mark 19110
Clarity approved by Plain English Campaign

For Environment Agency use only

Date received (DD/MM/YYYY)

Our reference number

Payment received?

No

Yes

Amount received

£

Plain English Campaign's Crystal Mark does not apply to appendix 1.

Appendix 1 – Low impact installation checklist

Installation reference				
Condition	Response			Do you meet this?
A – Management techniques	Provide references to show how your application meets A			Yes No
	References			
B – Aqueous waste	Effluent created		m^3/day	Yes No
C – Abatement systems	Provide references to show how your application meets C			Yes No
	References			
D – Groundwater	Do you plan to release any hazardous substances or non-hazardous pollutants into the ground?		Yes No	Yes No
E – Producing waste	Hazardous waste		Tonnes per year	Yes No
	Non-hazardous waste		Tonnes per year	
F – Using energy	Peak energy consumption		MW	Yes No
G – Preventing accidents	Do you have appropriate measures to prevent spills and major releases of liquids? (See 'How to comply'.)		Yes No	Yes No
	Provide references to show how your application meets G			
	References			
H – Noise	Provide references to show how your application meets H			Yes No
	References			
I – Emissions of polluting substances	Provide references to show how your application meets I			Yes No
	References			
J – Odours	Provide references to show how your application meets J			Yes No
	References			
K – History of keeping to the regulations	Say here whether you have been involved in any enforcement action as described in Compliance History Appendix 1 explanatory notes		Yes No	

Appendix 2 – Date of birth information for Relevant offences and/or Technical ability questions only

Date of birth information in this appendix will not be put onto our Public Register

Have you filled in the Relevant Offences question?

Yes I

No

Have you filled in the Technical ability question?

Yes I

No

2 Relevant Offences - date of birth information

Please give us the following details

Name: N/A

Date of birth (DD/MM/YY):

3 Technical ability - date of birth information

Name: See Supp Doc ref. 5193-CAU-XX-XX-RP-V-0308

Date of birth (DD/MM/YY):

DOCUMENT 2.6
ENVIRONMENTAL PERMIT APPLICATION
FORM – PART F1

Application for an environmental permit Part F1 – Charges and declarations

Environment Agency

Fill in this part for all applications for installations, waste operations, mining waste operations, water discharges, point source groundwater discharges and groundwater discharges onto land. Please check that this is the latest version of the form available from our website.

Please read through this form and the guidance notes that came with it.

The form can be:

1) **saved onto a computer and then filled in. Please note that the form follows a logic that means questions will open or stay closed depending on a previous answer. So you may not be able to enter text in some boxes.**
2) **printed off and filled in by hand. Please write clearly in the answer spaces.**

It will take less than two hours to fill in this part of the application form.

Contents

Each individual who is applying for their name to appear on the permit must complete the declaration in section 5. You will have to print a separate copy of the declaration page for each additional individual to complete.

1 Working out charges

You must fill in this section.

You have to submit an application fee with your application. You can find out the charge by searching for 'Environment Agency charging scheme and guidance: environmental permits' at www.gov.uk/government/organisations/environment-agency.

Please remember that the charges are revised on 1 April each year and that there is an annual subsistence charge to cover the costs we incur in the ongoing regulation of the permit.

Table 1 – Type of application (fill number of activity being applied for in each column)

Installation	Waste	Mining waste	Medium Combustion Plant (MCP)/Specified Generator (SG)	Water discharge/point source discharge to groundwater	Groundwater spreading onto land
x1					

Table 2 – Charge type (A)

Charge activity reference	Charge activity description	What are you applying to do? E.g. new, minor variation, normal variation, substantial variation, surrender, low risk surrender, transfer	Amount
e.g. 1.17.3	e.g. Sect 5.2 landfill for hazardous waste	e.g. transfer	e.g. £5,561
1.16.1.2	Sect 5.3 (a)(ii) hazardous waste installation -	variation - adding activity	£ 16,001.00
	physico-chemical treatment		
Total A			£ 16,001.00

1 Working out charges (you must fill in this section), continued

Table 3 – Additional assessment charges (B)

Part 1.19 Charges for plans and assessments			Tick appropriate
Reference	Plan or assessment	Charge	
1.19.1	Waste recovery plan	£1,231	
1.19.2	Habitats assessment (except where the application activity is a flood risk activity)	£779	I
1.19.3	Fire prevention plan (except where the application activity is a farming installation)	£1,241	
1.19.4	Pests management plan (except where the application activity is a farming installation)	£1,241	
1.19.5	Emissions management plan (except where the application activity is a farming installation)	£1,241	I
1.19.6	Odour management plan (except where the application activity is a farming installation)	£1,246	
1.19.7	Noise and vibration management plan (except where the application activity is a farming installation)	£1,246	
1.19.8	Ammonia emissions risk assessment (intensive farming applications only)	£620	
1.19.9	Dust and bio-aerosol management plan (intensive farming applications only)	£620	
	Advertising	£500	
Total B			£ 2,020.00

Total charges

Total A plus total B £ 18,021.00

2 Payment

Tick below to show how you have paid.

Cheque

Postal order

Cash Tick below to confirm you are enclosing cash with the application

Credit or debit card

Electronic transfer (for example, BACS) I

Remittance number PSCAPPMAWG5193

Date paid (DD/MM/YYYY) 06/01/2023

How to pay

Paying by cheque, postal order or cash

Cheque details

Cheque made payable to

Cheque number

Amount £

You should make cheques or postal orders payable to 'Environment Agency' and make sure they have 'A/c Payee' written across them if it is not already printed on.

Please write the name of your company and application reference number on the back of your cheque or postal order. **We will not** accept cheques with a future date on them.

We do not recommend sending cash through the post. If you cannot avoid this, please use a recorded delivery postal service and enclose your application reference details. Please tick the box below to confirm you are enclosing cash.

I have enclosed cash with my application ☐

2 Payment, continued

Paying by credit or debit card

If you are paying by credit or debit card we can call you. We will destroy your card details once we have processed your payment. We can accept payments by Visa, MasterCard or Maestro card only.

Please call me to arrange payment by debit or debit card ☐

Paying by electronic transfer BACS reference

If you choose to pay by electronic transfer you will need to use the following information to make your payment.

Company name	Environment Agency
Company address	SSCL (Environment Agency), PO Box 797, Newport Gwent, NP10 8FZ
Bank	RBS/NatWest
Address	London Corporate Service Centre, CPB Services, 2nd Floor, 280 Bishopsgate, London EC2M 4RB
Sort code	60-70-80
Account number	10014411
Account name	EA RECEIPTS
Payment reference number	PSCAPPXXXXXYYY

You need to create your own reference number. It should begin with PSCAPP (to reflect that the application is for a permitted activity) and it should include the first five letters of the company name (replacing the X's in the above reference number) and a unique numerical identifier (replacing the Y's in the above reference number). The reference number that you supply will appear on our bank statements.

If you are making your payment from outside the United Kingdom, it must be in sterling. Our IBAN number is GB23NWK60708010014411 and our SWIFTBIC number is NWBKGB2L.

If you do not quote your reference number, there may be a delay in processing your payment and application.

Provide a unique reference number for the application, i.e. do not only use the company name only: PSCAPPMAWG5193

State who is paying (full name and whether this is the agent/ applicant/other): Provectus Soils Management Limited

Fee paid: £ 18,021.00

Date payment sent (DD/MM/YYYY): 06/01/2023

Now read section 3 below

You should also email your payment details and reference number to ea_fsc_ar@gov.sscl.com.

3 Privacy notice

The Environment Agency runs the environmental permit application service.

We are the data controller for this service. A data controller determines how and why personal information is processed.

Our personal information charter explains:

- your rights
- what we do with your personal information

We're allowed to process your personal information because we have official authority as the environmental regulator. We need this information to carry out a task in the public interest that is set out in law. As the data controller, when you apply for an environmental permit, we have a legal obligation to process your personal data under the Environmental Permitting Regulations. The second lawful basis for processing your personal data is to comply with this legal obligation.

We need your personal information to process your environmental permit application. If you do not give us this information we cannot issue a permit to you. After we've issued a permit to you, we use your personal information:

- to check that you're complying with your permit
- during any potential enforcement action

What personal information we collect

If you're the individual applicant, director or company secretary of a company applying or a technically competent manager we need your:

- name
- date of birth

3 Privacy notice, continued

- address
- email address

If you're the agent, consultant, employee responsible for the activity or the employee responsible for billing and invoicing we need your:

- name
- address
- email address

If you're the applicant we need details of any:

- convictions
- bankruptcy

We also collect any questions or feedback you leave, including your email address if you contact us.

Your responsibility with other people's personal information

If you've included personal information about other people on your application, you must tell them. You must provide them with a copy of this privacy notice so that they know how their personal information will be used.

What we do with your personal information

We use your personal information to help us decide whether to issue you with a permit.

The information (except dates of birth) is available online on our consultation website during the consultation period. This website is available to everyone so your information may be seen outside the European Economic Area.

After consultation we put all the information (except dates of birth) you give us in your application on our public register.

If you can demonstrate that any information you send us is commercially or industrially confidential, we'll consider withholding that information from our public register.

If you think that the information you'll send us may be a threat to national security you must contact the Secretary Of State before you apply. You must still send us that information with your application. We will not include this information on our public register unless the Secretary of State decides it can be included.

See the environmental permitting guidance for guidance on national security.

We may use your email address to contact you for user research to improve our service. You don't have to take part in the research.

Where your personal information is processed and stored

We store and process your personal information on servers in the UK. We will not host your personal information outside the European Economic Area.

We do not use your personal information to make an automated decision or for automated profiling.

How long we keep your personal information

We keep your personal information while your permit is in use and for 7 years after you surrender your permit. If the permit is for a landfill site, we keep the data for 10 years after surrender.

Removing personal information from the public register

We will remove your personal information from the public register if:

- you withdraw your application
- we refuse your application and the time limit for appealing the decision has expired or an appeal is dismissed
- the information is no longer relevant for public participation purposes under the Environmental Permitting Regulations

Contact

Our Data Protection Team gives independent advice. They monitor how the Environment Agency uses your personal information.

If you have questions or concerns about how we process personal information, or to make a complaint or request relating to data protection, please contact:

Address: Data Protection Team
Environment Agency
Horizon House
Deanery Road
Bristol
BS1 5AH

3 Privacy notice, continued

Email: dataprotection@environment-agency.gov.uk

You can also make a complaint to the Information Commissioner's Office (ICO).

The ICO is the supervisory authority for data protection legislation. The ICO website has a full list of your rights under data protection legislation.

Now read section 4 below

4 Confidentiality and national security

Confidentiality

We will normally put all the information in your application on a public register of environmental information. However, we may not include certain information in the public register if this is in the interests of national security, or because the information is confidential.

You can ask for information to be made confidential by enclosing a letter with your application giving your reasons. If we agree with your request, we will tell you and not include the information in the public register. If we do not agree with your request, we will let you know how to appeal against our decision, or you can withdraw your application. You can find guidance on confidentiality in 'Environmental permitting guidance: core guidance', published by Defra and available via our website at www.gov.uk/government/organisations/environment-agency.

Only tick the box below if you wish to claim confidentiality for your application

Please treat the information in my application as confidential

National security

You can tell the Secretary of State that you believe including information on a public register would not be in the interests of national security. You must enclose a letter with your application telling us that you have told the Secretary of State and you must still include the information in your application. We will not include the information in the public register unless the Secretary of State decides that it should be included.

You can find guidance on national security in 'Environmental permitting guidance: core guidance', published by Defra and available via our website at www.gov.uk/government/organisations/environment-agency.

You cannot apply for national security via this application.

Now fill in section 5

5 Declaration

If you knowingly or carelessly make a statement that is false or misleading to help you get an environmental permit (for yourself or anyone else), you may be committing an offence under the Environmental Permitting (England and Wales) Regulations 2016.

A relevant person should make the declaration (see the guidance notes on part F1). An agent acting on behalf of an applicant is NOT a relevant person.

Each individual (or individual trustee) who is applying for their name to appear on the permit must complete this declaration. You will have to print a separate copy of this page for each additional individual to complete.

If you are transferring all or part of your permit, both you and the person receiving the permit must make the declaration. You must fill in the declaration directly below; the person receiving the permit must fill in the declaration under the heading 'For transfers only'.

Note: we will issue a letter to both current and new holders to confirm the transfer. If you are changing address we will need to send this letter to your new address; therefore please tell us your new address in a separate letter.

If you are unable to trace one or more of the current permit holders please see below under the transfers declaration.

I declare that the information in this application is true to the best of my knowledge and belief. I understand that this application may be refused or approval withdrawn if I give false or incomplete information.

If you deliberately make a statement that is false or misleading in order to get approval you may be prosecuted.

I confirm that my standard facility will fully meet the rules that I have applied for (this only applies if the application includes standard facilities)

Tick this box to confirm that you understand and agree with the declaration above, then fill in the details below (you do not have to provide a signature as well) I

Tick this box if you do not want us to use information from any ecological survey that you have supplied with your application (for further information please see the guidance notes on part F1)

5 Declaration, continued

Name

Title (Mr, Mrs, Miss and so on)	Mr
First name	Vicente Federico
Last name	Orts-Llopis
on behalf of (if relevant; for example, a company or organisation and so on)	3C Waste Limited
Position (if relevant; for example, in a company or organisation and so on)	Director
Today's date (DD/MM/YYYY)	10/01/2023

For transfers only – declaration for person receiving the permit

A relevant person should make the declaration (see the guidance notes on part F1). An agent acting on behalf of an applicant is NOT a relevant person.

I declare that the information in this application to transfer an environmental permit to me is true to the best of my knowledge and belief. I understand that this application may be refused or approval withdrawn if I give false or incomplete information.

Note: If you cannot trace a person or persons holding the permit you may be able to transfer the permit without their declaration as above. Please contact us to discuss this and supply evidence in your application to confirm you are unable to trace one or all of the permit holders.

If you deliberately make a statement that is false or misleading in order to get approval you may be prosecuted.

Tick this box to confirm that you understand and agree with the declaration above, then fill in the details below (you do not have to provide a signature as well)

Name

Title (Mr, Mrs, Miss and so on)	
First name	
Last name	
on behalf of (if relevant; for example, a company or organisation and so on)	
Position (if relevant; for example, in a company or organisation and so on)	
Today's date (DD/MM/YYYY)	

Now go to section 6

6 Application checklist

You must fill in this section.

If your application is not complete we will return it to you. If you aren't sure about what you need to send, speak to us before you submit your application.

You must do the following:

Complete legibly all parts of this form that are relevant to you and your activities	I
Identify relevant supporting information in the form and send it with the application	I
List all the documents you are sending in the table below. If necessary, continue on a separate sheet. This separate sheet also needs to have a reference number and you should include it in the table below	I
For new permits or any changes to the site plan, provide a plan that meets the standards given in the guidance note on part F1	I
Provide a supporting letter for any claim that information is confidential	
Get the declaration completed by a relevant person (not an agent)	I
Send the correct fee	I

6 Application checklist, continued

Question reference	Document title	Document reference
Part A Q5c	Supporting Document	5193-CAU-XX-XX-RP-V-0308
Part C2 Q1b, 2a, 2b, 3a, 3b		
3c, 3d, 4, 5a, 5b, 5c, 5d, 5f		
Q6 & Appendix 2		
Part F1		
Part C3 all questions	Operating Techniques Report	5193-CAU-XX-XX-RP-V-0311
Part C2 Q5c	Best Available Techniques (BAT) Review	5193-CAU-XX-XX-RP-V-0312
Part C2 Q6	Amenity & Accidents Risk Assessment	5193-CAU-XX-XX-RP-V-0310
Part C2 Q5b, 5c, Part B3	Environmental Setting & Installation Design Adden	5193-CAU-XX-XX-RP-V-0309
App 4 Q1		
Part B3 Q3b	Dust & Emissions Management Plan	5193-CAU-XX-XX-RP-V-0313

7 How to contact us

If you need help filling in this form, please contact the person who sent it to you or contact us as shown below.

General enquiries: 03708 506 506 (Monday to Friday, 8am to 6pm)

Textphone: 03702 422549 (Monday to Friday, 8am to 6pm)

Email: enquiries@environment-agency.gov.uk

Website: www.gov.uk/government/organisations/environment-agency

If you are happy with our service, please tell us. It helps us to identify good practice and encourages our staff. If you're not happy with our service, or you would like us to review a decision we have made, please let us know. More information on how to do this is available at: https://www.gov.uk/government/organisations/environment-agency/about/complaints-procedure.

Please tell us if you need information in a different language or format (for example, in large print) so we can keep in touch with you more easily.

8 Where to send your application

For how many copies to send see the guidance note on part F1.

Please send your filled in application form to:

For water discharges by email to PSC-WaterQuality@environment-agency.gov.uk

For waste and installations by email to PSC@environment-agency.gov.uk

Or

Permitting Support, NPS Sheffield
Quadrant 2
99 Parkway Avenue
Parkway Business Park
Sheffield
S9 4WF

Do you want all information to be sent to you by email?

Please tick this box if you wish to have all communication about this application sent via email (we will use the details provided in part A) I

Feedback

(You don't have to answer this part of the form, but it will help us improve our forms if you do.)

We want to make our forms easy to fill in and our guidance notes easy to understand. Please use the space below to give us any comments you may have about this form or the guidance notes that came with it.

How long did it take you to fill in this form?

We will use your feedback to improve our forms and guidance notes, and to tell the Government how regulations could be made simpler.

Would you like a reply to your feedback?

Yes please

No thank you

For Environment Agency use only

Date received (DD/MM/YYYY)

Our reference number

Payment received?

No

Yes

Amount received

£

DOCUMENT 2.7
ENVIRONMENTAL PERMIT VARIATION APPLICATION, SUPPORTING DOCUMENT

Caulmert Limited

Engineering, Environmental & Planning Consultancy Services

Maw Green Landfill Soils Treatment Facility

3C Waste Limited

Environmental Permit Variation Application

Supporting Document

Prepared by:

Caulmert Limited

Office: Strelley Hall, Main Street, Strelley, Nottingham, NG8 6PE
Tel: 01773 749 132
Email: andystocks@caulmert.com
Web: www.caulmert.com

Document Reference: 5193-CAU-XX-XX-RP-V-0308.A0.C1

January 2023

APPROVAL RECORD

Site:	Maw Green Landfill Soils Treatment Facility
Client:	3C Waste Limited
Project Title:	Environmental Permit Variation Application
Document Title:	Supporting Document
Document Ref:	5193-CAU-XX-XX-RP-V-0308.A0.C1
Report Status:	**Final**
Project Manager:	Andy Stocks
Caulmert Limited:	Strelley Hall, Main Street, Strelley, Nottingham, NG8 6PE

Author	Samantha Hayden Environmental Consultant	**Date**	09/12/2022
Reviewer	Andy Stocks Director of Environment	**Date**	09/12/2022
Approved	Andy Stocks Director of Environment	**Date**	09/12/2022

Revision Log			
Revision	**Description of Change**	**Approved**	**Effective Date**
C1	Initial Release	AS	10/01/2023

DISCLAIMER

This report has been prepared by Caulmert Limited with all reasonable skill, care and diligence in accordance with the instruction of the above named client and within the terms and conditions of the Contract with the Client.

The report is for the sole use of the above named Client and Caulmert Limited shall not be held responsible for any use of the report or its content for any purpose other than that for which it was prepared and provided to the Client.

Caulmert Limited accepts no responsibility of whatever nature to any third parties who may have been made aware of or have acted in the knowledge of the report or its contents.

Supporting Document

TABLE OF CONTENTS

DRAWINGS

5193-CAU-XX-XX-DR-V-1805 Proposed Site Layout Plan
5193-CAU-XX-XX-DR-V-1807 New Treatment Area Location

APPENDICES

Appendix 1 Management System Summary
Appendix 2 TCM certificates & Dates of Birth

1.0 INTRODUCTION

1.1 Application Context

1.1.1 3C Waste Limited (a wholly owned subsidiary of FCC Environment (UK) Limited) have appointed Caulmert Limited to prepare an environmental permit variation application to vary the existing Maw Green Landfill permit ref. EPR/BS7722ID to add a Section 5.3A(1)(a)(ii) activity to include for the treatment of hazardous asbestos-impacted soils by pre-screening and removing visible bound asbestos fragments.

1.1.2 The treatment of soils will be by pre-screening and handpicking of bonded asbestos and is to include an additional area for storage and treatment of solely asbestos contaminated wastes, separate to the current STF area for bioremediation. The proposed area for asbestos handling will measure approximately 4,100m^2 and will be located to the west of the current STF bioremediation area. This new area remains within the existing Maw Green Landfill permit boundary and so no extra land is required. A small portion of the new treatment area is to be located on top of the permanently capped landfill mass, as shown in drawing ref. 5193-CAU-XX-XX-DR-V-1807, however this has been considered in the design of the treatment pad.

1.1.3 There is a significant proportion of construction waste suitable for restoration use that contains incidental fragments of bound asbestos. This has previously been exported from the local region to one of our other soil treatment facilities for treatment and reuse. The site will accept hazardous asbestos-impacted soils for treatment to remove bound asbestos fragments and so recover the soils as a non-hazardous waste for use in restoration of the Maw Green Landfill. Asbestos fragments will be double bagged by hand, stored in a lockable skip and subsequently sent to a suitably licensed hazardous waste disposal facility (landfill). Asbestos-impacted soils will not be accepted for treatment if they contain friable asbestos, insulation or fibre concentrations that could generate airborne fibres at concentrations above the threshold limit of 0.01 f/ml. Incoming soils will be tested for asbestos fibres prior to treatment against thresholds of <0.1% for chrysotile and <0.01% for mixed or amphibole asbestos types. These asbestos fibre criteria have been demonstrated as suitable for waste acceptance limits on our other soil treatment facility to enable asbestos levels in air to be below 0.0005f/ml which is the current published WHO air quality standard for Europe. Any soils exceeding these limits or containing unbound asbestos/insulation will be rejected from site.

1.1.4 This activity is currently being undertaken under a mobile plant deployment by Provectus at Maw Green STF for the treatment of asbestos in soils, and asbestos monitoring is undertaken of airborne asbestos fibres at the site.

1.1.5 The monitoring data indicates airborne emissions are always below the detection limit of 0.0005 f/ml (see Treatment Process Description & BAT Review document ref. 5193-CAU-XX-XX-RP-0V-0312 for monitoring results and discussion). Therefore, this permit variation for Maw Green is to formalise the asbestos-soils treatment activity to be included as a permitted activity at the STF within the permit.

1.1.6 The bioremediation process at the existing STF will not change. The treated soils are used primarily in the restoration of Maw Green Landfill Site. The storage of hazardous waste at the site is already covered by listed activity within the permit: Section 5.6 Part A (1)(a) temporary storage of hazardous waste with a total capacity exceeding 50 tonnes.

1.2 Document structure

1.2.1 This Supporting Document has been prepared to provide additional information to support the information provided in Parts A, C2 and F1 of the environmental permit application forms for varying a bespoke installation permit. Answers to Part B3 are covered in the Activities & Operating Techniques Report document ref. 5193-CAU-XX-XX-RP-V-0311.

1.2.2 To aid cross-referencing between this document and the application forms, the various issues are presented in the same order as in the application forms and the headings in this document include the specific question number to which the information relates.

2.0 PART A – ABOUT YOU

2.1 Q5c Details of Directors

2.1.1 Details of directors for 3C Waste Limited (a wholly owned subsidiary of FCC Environment (UK) Limited) are as detailed in Table 1 below:

Table 1 – Directors Details

Name of Directors
Vicente Federico Orts-Llopis
Paul Taylor

2.1.2 Date of birth information for Directors and Company Secretaries are necessary for new permit applications or transferring a permit only, therefore this section of Part A form is not required for this application.

3.0 PART C2 – GENERAL: VARYING A BESPOKE PERMIT

3.1 Q1b Permit Number

3.1.1 The environmental permit to which this variation relates is permit ref. EPR/ BS7722ID for Maw Green Landfill Site installation. This includes the Soils Treatment Facility (STF) currently operating at the site.

3.2 Q2a Type of Variation

3.2.1 This application is being made as a Variation involving the addition of a listed activity to Schedule 1 of the Permit and the appropriate fee will be paid to the Environment Agency.

3.3 Q2b (Table 1) Changes or additions to existing activities

3.3.1 It is proposed to add a separate additional listed activity to permit ref. EPR/BS7722ID for the treatment and storage of soils contaminated with asbestos at the Soils Treatment Facility (STF) at Maw Green Landfill Site:

- Section 5.3A(1)(a)(ii) Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving physico-chemical treatment.

3.3.2 This permit application is for a new treatment activity on an additional area of land adjacent to the existing STF area but within the existing permit boundary. The treatment of the asbestos in soils will consist of pre-screening and handpicking of bonded asbestos, including for the storage of solely asbestos contaminated wastes prior to treatment. The proposed area will be in a separate area to the west of the existing STF area for bioremediation.

3.4 Q3a Relevant offences

3.4.1 There are no relevant offences of relevant persons that require declaration.

3.5 Q3b Technical ability

3.5.1 FCC Environment (UK) Limited (of which 3C Waste Limited is a wholly owned subsidiary) has introduced a Competency Management System (CMS) which has been certified by its accrediting body LRQA and is attached as Appendix 1:

Competency Management System – Energy & Utility Skills (Private Standard) Version 4

3.5.2 The Competency Management System is an alternative certification to the Certificate of Technical Competence (COTC) / Technically Competent Management (TCM) regime for demonstrating competence at sites with environmental permits. Whilst 3C Waste Limited will operate the site, Provectus Remediation Limited will provide technical assistance for the operation of the STF as required. Provectus technical staff that are to be involved with these activities are Jonathan Owens and Andrew Clee, whom are holders of the relevant COTC qualifications, and copies of their certificates are included in Appendix 2.

3.5.3 Details of other permitted waste activities for which Jonathan and Andrew currently also have TCM responsibilities are detailed in Table 2 below:

Table 2 – TCM Details

TCM	Permit Number	Site Address and Postcode
Jonathan Owens	EPR/EB363AK/A001 EAWML105284	Provectus Remediation Ltd. Mobile Plant Eling Wharf
Andrew Clee	EPR/WP3330BZ EPR/WP3330BZ	Edwin Richards Soil Treatment Facility, Rowley (B65 9DS) Welbeck Soil Treatment Facility, Wakefield (WF6 2JA)

3.5.4 The TCM Dates of Birth are included within Appendix 2 and due to confidentiality are not to be included on the Public Register.

3.6 Q3c Finances

3.6.1 There are no relevant current or past bankruptcy or insolvency proceedings that require declaration.

3.7 Q3d Management systems

3.7.1 FCC Environment (UK) Limited has implemented an accredited Environmental Management System (EMS) across the whole company and its subsidiaries to control the operations at their sites. Maw Green Landfill, Soil Treatment Facility and associated activities on site are managed by the operator in accordance with the management system which meets the standards set out in the Environment Agency Guidance 'Develop a management system: environmental permits' (last updated 31st August 2022). The management of the operations will continue to be in line with ISO14001 standard for environmental management. A summary of the EMS and certificates is included within document ref. 5193-CAU-XX-XX-RP-V-0315 in Appendix 1.

3.8 Q4 Sewerage Undertaker

3.8.1 A Trade Effluent Discharge Consent (TEDC) is in place for the Soils Treatment Facility (STF) at Maw Green Landfill Site under reference DPID: SC593201PROV01, issued to Provectus Soils Management Limited. The TEDC allows wastewater solely from the soil treatment facility (bioremediation process) to be discharged to foul sewer at a point of discharge situated at a private pipeline leading to Groby Road (MH: 3201). The new hazardous soils storage and treatment pad will be constructed from crushed concrete with underlying geo-composite clay liner (GCL). These will have sealed drainage where all surface waters will fall into and be directed to a pumping chamber before being pumped across site to the existing water treatment plant for subsequent discharge.

3.8.2 Water is reused on site where possible. All surfaces used to treat or store waste benefit from an underlying impermeable clay liner below the crushed concrete hardstanding. There are no direct releases off-site other than via the engineered surface water management system. All collected surface water drains to settlement tanks prior to sand and carbon filtration. The treated water from the treatment system is then pumped to a consented foul sewer. The surface water drainage system can be isolated in the event of a spill or contamination.

3.8.3 Asbestos and other restricted substances will continue to be tested for in treated waters prior to discharging any waste waters to sewer, as per limits within the discharge consent. Water monitoring from asbestos soils processing and storage areas at Edwin Richards Quarry, in Rowley Regis, Mobile Plant operation, a similar site operated by FCC, has not detected asbestos fibres to be present in effluent from asbestos processing areas (see Appendix 5 the Treatment Process Description & BAT Review document ref. 5193-CAU-XX-XX-RP-V-0312) and therefore, no abatement of asbestos in effluent is proposed for the asbestos in soils treatment pad.

3.9 Q5a Provide a plan or plans for the site

3.9.1 The Site Layout Plan for the STF has been amended to include the new additional asbestos-impacted soils treatment and storage area and is attached as drawing ref. 5193-CAU-XX-XX-DR-V-1805. The Plan shows the layout of the proposed area to the west of the current STF area for bioremediation, where asbestos picking and storage of asbestos contaminated soils will occur.

3.10 Q5b Site Report for any Extra land

3.10.1 No extra land will be added to the permitted area as a result of this permit variation as the area to the west of the current STF that is proposed for the asbestos screening and picking is already within the existing Maw Green Landfill permit boundary. However, the proposed area for the treatment and storage of asbestos contaminated soils does extend into a new area within the permit boundary where currently no activities are undertaken. As part of best practice, a Site Condition Report (SCR) has been produced within an addendum to the Environmental Setting and Installation Design (ESID) report, to cover the proposed treatment and storage area, which is separate from the existing STF area. The SCR is within the 2022 ESID addendum included within this application as document ref. 5193-CAU-XX-XX-RP-V-0309. It should be noted that, due to space constraints on site, part of the new treatment area will sit on top of permanently capped landfill which is detailed and assessed within the ESID addendum.

3.10.2 The proposed area for the treatment and storage of asbestos contaminated soils will have a surface constructed of crushed concrete and an impermeable geo-composite clay liner (GCL) beneath, with installed drainage that will direct surface water run-off towards a pumping chamber on the north-eastern side of the new STF area, before being pumped across the existing STF area to the water treatment system.

3.11 Q5c Provide a Non-Technical Summary

3.11.1 Maw Green Landfill Site is located off Maw Green Road, Coppenhall, Crewe, Cheshire, postcode CW1 5NG, and is approximately 2km north of the centre of Crewe.

3.11.2 Environmental permit ref. EPR/BS7722ID is a bespoke installation permit for the Maw Green Landfill Site and associated activities, which includes the Soil Treatment Facility (STF).

3.11.3 It is proposed to add the following listed activity to permit ref. EPR/BS7722ID for the treatment and storage of soils contaminated with asbestos at the Soils Treatment Facility (STF) at Maw Green Landfill Site, as follows:

- Section 5.3A(1)(a)(ii) Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving physico-chemical treatment.

Proposed Operations

3.11.4 The treatment of soils will be by 3-way screen and handpicking of bonded asbestos and is to include an additional area for the storage of solely asbestos contaminated wastes, separate to the current STF area. The proposed area for asbestos handling is located to the west of the current STF, however is within the existing Maw Green Landfill permit boundary, with a small portion of the new treatment area to be located on top of the permanently capped landfill mass.

3.11.5 This activity is currently being undertaken under a mobile plant permit deployment by Provectus at Maw Green STF for the treatment of asbestos in soils, and asbestos monitoring is undertaken of airborne asbestos fibres at the site.

3.11.6 It is now proposed to regularise the treatment of asbestos in to be included as a permitted activity at the STF within the existing permit boundary.

3.11.7 The monitoring of operations undertaking the mobile plant deployment demonstrates airborne emissions from several static monitoring points to be consistently below the detection limit of <0.0005 f/ml.

3.11.8 Soil suitable for restoration will be retained on site for restoration of the landfill. Unsuitable material will be removed from the site.

3.11.9 The bioremediation process at the existing STF will not change. The treated soils are used primarily in the restoration of Maw Green Landfill Site. The storage of hazardous waste at the site is already covered by listed activity within the permit: Section 5.6 Part A (1)(a) temporary storage of hazardous waste with a total capacity exceeding 50 tonnes.

3.11.10 The operator has recently applied to vary their permit to remove the 30,000 tonnes per annum restriction for hazardous waste to allow an overall tonnage limit of 50,000 tonnes per annum (tpa) of hazardous or non-hazardous waste.

3.11.11 This application proposes new hazardous waste codes to be included in the permit for the STF for the acceptance of bonded asbestos contaminated soils:

- 17 05 03* soil and stones containing hazardous substances.
- 17 06 05* construction materials containing asbestos.

3.11.12 Waste code 17 05 03* will be restricted to those wastes which contain identifiable pieces of bonded asbestos – any particle size that can be identified as potentially being asbestos by a competent person if examined by the naked eye. Waste code 17 06 05* will be restricted to wastes containing discrete pieces of bonded asbestos within the soil matrix only.

3.11.13 The bioremediation process will remain the same at the existing STF, utilising industry standard biopile technology. The bioremediation of the soils will continue to operate through the use of biopiles and moisture control, the addition of suitable nutrients to the soil and forced air extraction to encourage micro-organism growth, leading to the breakdown of hydrocarbons into by-products such as carbon dioxide and water vapour. If any treated soils from the asbestos treatment process are found to be impacted by hydrocarbons also, post-treatment, they can be sent to the bioremediation process for further remediation prior to use in the restoration of Maw Green Landfill.

3.11.14 A flow diagram showing the proposed treatment activities for asbestos-impacted soils at Maw Green STF is shown in Figure 1 below:

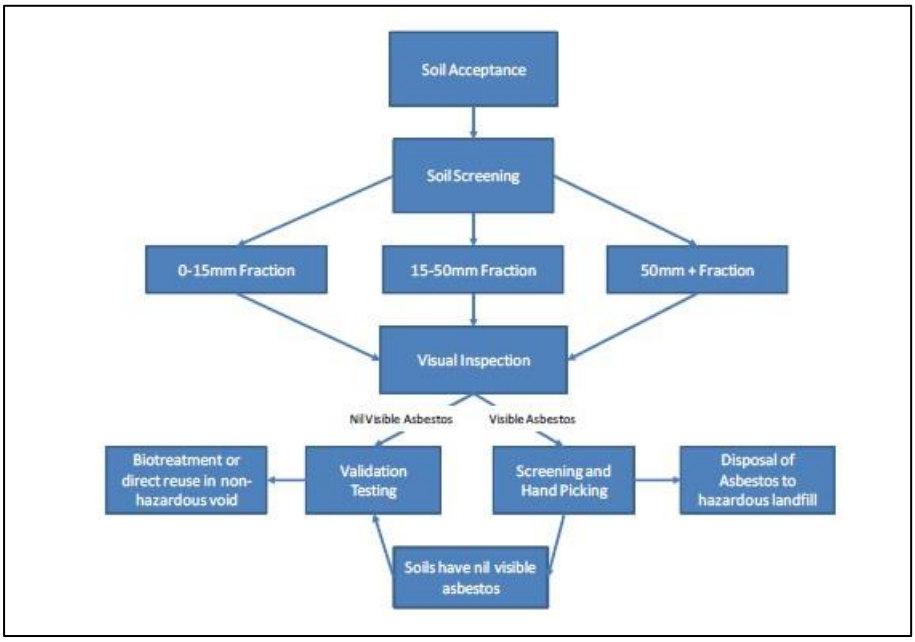


Figure 1 – Soil Treatment Overview

Pre-Acceptance

3.11.15 Pre-acceptance testing is carried out to confirm that the soil does not contain asbestos fibres above >0.1% for chrysotile and >0.01% for other forms of asbestos to ensure that airborne

asbestos fibres cannot be generated at concentrations above the HSE clearance/reoccupation limit of 0.01f/ml at the treatment equipment location and an agreed background reference level at the site boundary. Until this initial reception testing has been completed, the soils will remain sheeted. Following compliance with the waste acceptance limits confirming that there are no unacceptable asbestos fibre concentrations, the soil is formally accepted and can be stored un-sheeted and will undergo pre-screening and handpicking for bonded asbestos fragments. Soils containing asbestos of >0.1% for chrysotile and >0.01% for other asbestos types, that are observed to contain asbestos concentrations in excess of the waste acceptance limits, will be rejected from site.

Pre-screening and Hand-picking of asbestos contaminated soils

3.11.16 A mechanical screener will be used to remove oversize material from bonded asbestos containing soils. Soils will be screened using a three-way screener. The screened material is then passed through the picking station to allow the removal of any bound asbestos debris. This is to remove larger items (e.g. lumps of concrete) to reduce the potential of damage to the picking station and make hand picking of asbestos debris more effective.

3.11.17 The screener currently used under the mobile plant deployment is unmodified. Trials on enclosed screeners with a HEPA filter and uncovered screeners with general dust suppression have shown no difference in emissions as they all meet the method detection limit of <0.0005f/ml (see Treatment Process Description and BAT Review report ref. 5193-CAU-XX-XX-RP-V-0312). However, the use of enclosed screeners is far slower, prone to significant downtime and uses significantly more energy due to reduced throughput for no environmental benefit. The use of standard dust suppression with a propriety surfactant has been shown to be entirely effective as secondary mitigation to the waste acceptance criteria, Where Scanning Electron Microscopy (SEM) testing is undertaken this will ensure that the asbestos concentrations in air are below 0.0005f/ml. This approach and reduced detection limit for the asbestos monitoring meets the well-established principle of reducing emissions to be as low as reasonably practicable.

3.11.18 The process in the picking station will involve a manual sorting process by trained operatives who will remove visible fragments of asbestos from the materials from the conveyor. Asbestos picked from the conveyor will be placed by hand in individual polythene bags located inside the picking station beside the trained operatives. When the bags are either full, or the end of the working day is achieved, the polythene bag will be placed into a second bag and sealed using a taped swan neck. The double bagged asbestos will be taken outside and placed by hand into the on-site enclosed lockable asbestos skip. Used PPE from the picking station and direct working areas will be double bagged using the same approach as asbestos containing material (ACM) debris and placed into the enclosed lockable asbestos skip.

3.11.19 A Category B trained supervisor will regularly check the labelled, lockable asbestos waste skip and will arrange for the collection and delivery of new asbestos skips when the existing skip has reached 75% capacity. This is to ensure that there is no risk of the skip becoming over

capacity and unable to accept further bagged asbestos. This will form part of the daily site checks.

3.11.20 The out-going conveyor will drop the hand-picked picked processed soils, and the drop height will be minimised to reduce any agitation of the soils. A dust suppression system will be in place at the site that will consist of misting sprays with overlapping spray arcs, identical to the approved suppression system on the operator's other sites that can be used to continually dampen stockpiles during loading and unloading activities. Further detail on controls and mitigation for the release of emissions from the proposed activities are provided in the Dust & Emissions Management Plan, document ref. 5193-CAU-XX-XX-RP-V-0313.

Post Treatment Verification Sampling

3.11.21 Post Treatment Verification Sampling will be carried out to ensure soils treated at the Soil Treatment Facility (STF) meet the waste acceptance criteria to enable their use for the restoration of the landfill.

3.11.22 The sampling of soils will be performed by the STF technician or project manager. The procedure uses composite sampling methods as provided in BS812. For batches where treatment has been completed the sampling frequency will be 1/500t of treated soil.

3.11.23 Soils that do not meet the acceptance criteria will be treated further (if deemed viable) or removed from site for treatment/disposal at a suitable permitted facility.

3.11.24 The work instruction in soil analysis STC WI006 provides the analysis suite for soil batches that are being validated for reuse. The sampling frequency used is 1/500t. The reason for this is that the soils that are treated at the site are from a number of sources and once reception sampling is completed these are combined into batches to form a heterogenous stockpile. Treatment is undertaken on the biopiles, and batch size can vary significantly with over 10,000t occasionally being tested for disposal as treatment is deemed completed when all samples in a batch meet the reuse criteria.

3.11.25 The treated soils are sampled on a 1/500t frequency. This sampling frequency is chosen so that it meets the general principles contained within EA guidance document 'dispose of waste to landfill' April 2021 (https://www.gov.uk/guidance/dispose-of-waste-to-landfill).

3.11.26 The site-specific risk assessment for the restoration area where treated soils are to be reused, including appropriate soil treatment targets has been completed and agreed with the Environment Agency for the reuse of treated soils at the site.

3.11.27 Treated soils will be transferred onto the landfill for reuse in accordance with the approved restoration plan for Maw Green Landfill Site.

Emissions Monitoring

3.11.28 Monitoring for airborne asbestos emissions will be undertaken to ensure that operations do not result in fibre emissions detected above limits stated, or above the background reference

level of <0.0005f/ml. All soils with solid asbestos containing materials (ACM) are covered with tarpaulins or other suitable cover awaiting reception testing results. Soils are to be received on the treatment pad and sampled into discrete stockpiles based upon the site of origin.

3.11.29 Airborne asbestos concentrations have been monitored both within, and directly adjacent to the picking station at the operator's other sites. There is no increase in asbestos concentrations above the method detection limit of either <0.01f/ml or <0.0005f/ml within the internal atmosphere of the soil screener and picking stations monitored, nor ambient air immediately outside of the picking station. This monitoring has been undertaken since the operator commenced the treatment of bound asbestos contaminated soils. All air monitoring data has been submitted to the Environment Agency and approved as being compliant with the site's permit for each site. See Appendices 3 and 4 of the 'Treatment Process Description & BAT Review report ref. 5193-CAU-XX-XX-RP-V-0312 for air monitoring data at Maw Green Landfill Mobile Plant and Edwin Richards Quarry Mobile Plant). In order to further validate the results of the monitoring undertaken to date, an independent review of asbestos treatment and storage of asbestos contaminated soils is being undertaken at the Maw Green and Edwin Richards sites. This will be forwarded to the Environment Agency following publication.

3.11.30 Notwithstanding the evidence that there are no elevated airborne asbestos emissions within the soil screener and picking stations of the above sites, as an additional control measure, there will be a series of spray rails on the incoming and outgoing conveyor to effectively capture and contain particulate emissions. This would act as secondary containment for any particulate emissions.

3.11.31 Once the soils are treated and bound asbestos fragments removed, they no longer pose a risk to human health. The soil screening has not been observed to increase concentrations of asbestos fibres within the soil, on the contrary validation results are frequently observed to have lower asbestos fibre results than the original waste description. These soils either move to the soil storage area awaiting reuse in the restoration scheme or are placed into the bioremediation process should elevated TPH concentrations remain present that are either hazardous or above the restoration criteria (rare circumstance).

Drainage

3.11.32 The new hazardous soils storage and treatment pad for asbestos-impacted soils will be constructed from crushed concrete with underlying geo-composite clay liner (GCL). The treatment pads will be designed to have a fall towards a main water collection drain to ensure that water is continually drained from the pads. Water is unable to leave the downgradient periphery of the pads by lateral flow due to the presence of a containment bund of 300mm height. Water is unable to migrate to underlying controlled waters due to the presence of an engineered pad with an impermeable geo-composite clay liner (GCL) that will have a design permeability of 1×10^{-9} m/s as a minimum.

3.11.33 The sealed drainage will ensure all surface waters will fall and be collected on site and they are directed towards a pumping chamber on the north-eastern side of the new area, before

being pumped across to the existing water treatment system. Asbestos and other restricted substances will continue to be tested for prior to discharging any waste waters to sewer, as per limits within the discharge consent. Asbestos in soils is only accepted in a bound form, this means that it is held in a cement matrix as well as being present in soil. The presence of a bound matrix and soil has previously been expected to prevent the release of asbestos fibres into soil porewater. Fibre concentrations in soil are generally not detected at or below the detection limit of <0.001% in received soils. Water monitoring from asbestos process areas at Edwin Richards Quarry in Rowley Regis Mobile Plant operation for treatment of asbestos soils has not detected asbestos fibres to be present in effluent from asbestos processing areas (see Appendix 5 of the 'Treatment Process Description & BAT Review report ref. 5193-CAU-XX-XX-RP-V-0312). Therefore, no abatement of asbestos in effluent is proposed.

Application Documents

3.11.34 The following reports including risk assessments and management plans relevant to the proposed activity have been provided to accompany this permit variation:

- Amenity & Accidents Risk Assessment ref. 5193-CAU-XX-XX-RP-V-0310
- Addendum to the original Environmental Setting and Installation Design (ESID) report ref. 5193--CAU-XX-XX-RP-V-0309 (including Site Condition Report)
- Dust & Emissions Management Plan (DEMP) ref. 5193-CAU-XX-XX-RP-V-0313

3.11.35 A Best Available Techniques (BAT) Review ref. 5193-CAU-XX-XX-RP-V-0312 has been undertaken to confirm compliance of the proposed new contaminated soils activity at Maw Green Landfill with BAT Conclusions for waste treatment, in accordance with the Industrial Emissions Directive (IED) 2010/75/EU.

3.11.36 Maw Green Landfill, the Soil Treatment Facility and the associated activities on site are managed by the operator in accordance with a management system which meets the standards set in the Environment Agency Guidance 'Develop a management system: environmental permit' (last updated 31st August 2022). Where required, the operator will update the site-specific procedures and documents to control the proposed operations at the site, including adding the control measures within the ARA, DEMP and OMP for this application to the operating techniques at the site. A summary of the Management system is detailed in Appendix 1.

3.12 Q5d Risk of fire from combustible waste

3.12.1 The asbestos contaminated soils are not combustible wastes and so this is not considered further.

3.13 Q5f Adding an installation

3.13.1 This application seeks to add an additional listed activity to the existing landfill permit only and so this question is not considered further.

3.14 Q6: Environmental Risk Assessment

3.14.1 An environmental risk assessment of the proposed activity has been included within the Amenity & Accidents Risk Assessment ref. 5193-CAU-XX-XX-RP-V-0310.

3.15 Appendix 2 – Date of birth information for Technical Ability

3.15.1 The TCM managers for Provectus Limited remain unchanged but are detailed below and their dates of birth are provided in Appendix 2 and are to be excluded from the Public Register:

- Jonathan Owens (see appendix 2 for DOB)
- Andrew Clee (see appendix 2 for DOB).

4.0 PART B3 – VARIATION TO A BESPOKE INSTALLATION PERMIT

4.1.1 Please see the Activities & Operating Techniques report ref. 5193-CAU-XX-XX-RP-V-0311 for answers relating to Part B3 application form.

5.0 PART F1 – CHARGES & DECLARATIONS

5.1.1 The application fee relates to changes in the following activities:

- Section 5.3 Part A(1)(a)(ii) Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving physico-chemical treatment.

5.1.2 As per Environment Agency Charging Scheme 2022/23, the charging ref. 1.16.1.2 applies to the above Section 5.3 activity to be added to the permit, and for the addition of the above activity a new permit application charge applies, as below. Temporary storage of hazardous waste is already permitted at the site:

Table 3 - Environment Agency variation fees

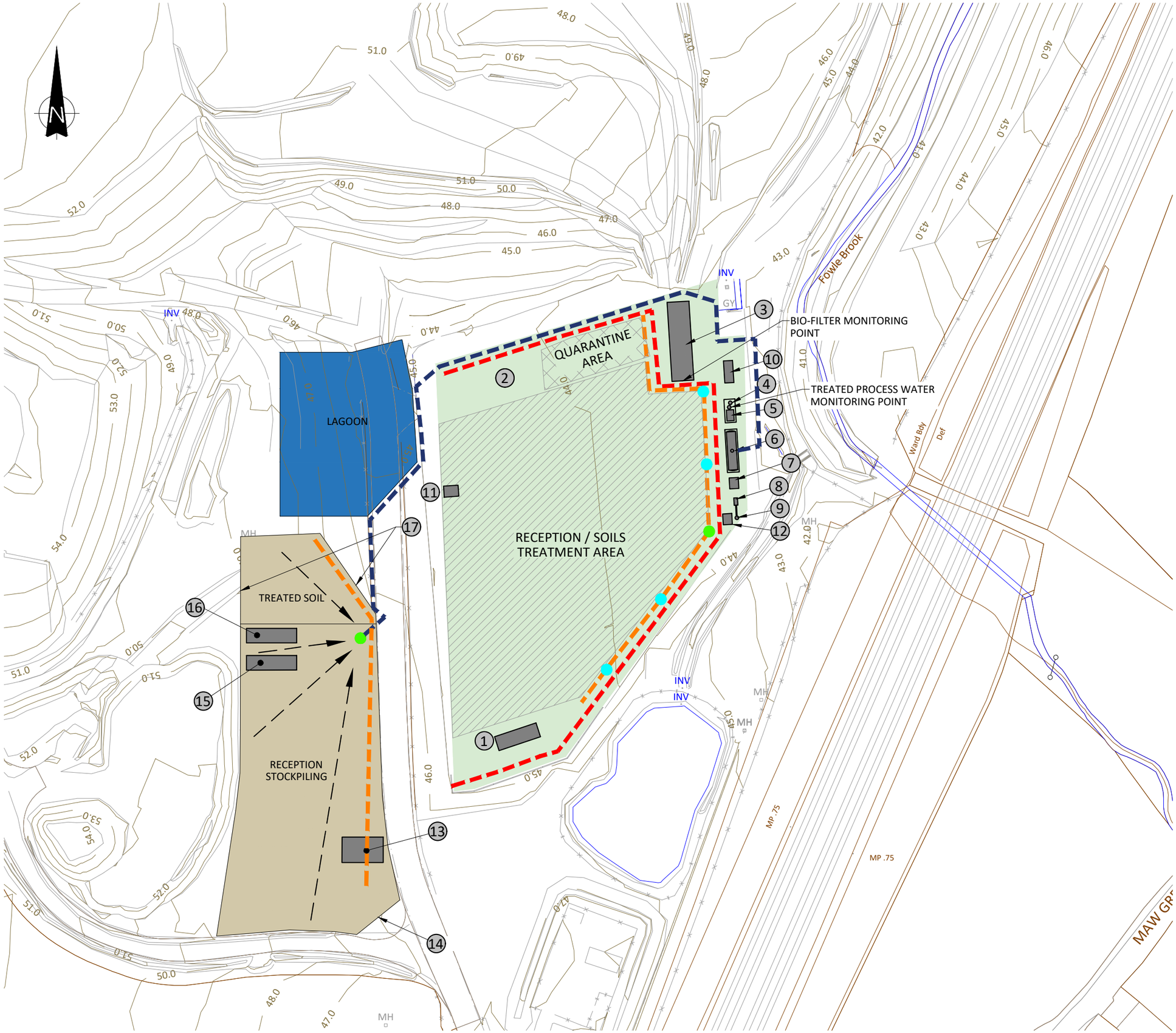
Charging Ref.	Description	Fee
1.16.1.2	Section 5.3 (a)(ii) – hazardous waste installation – physico-chemical treatment.	£16,001
-	Habitats Assessment	£779
-	Dust & Emissions Management Plan	£1,241
	Total	**£18,021**

5.1.3 A BACS payment for the amount of **£18,021** has been made to the Environment Agency under BACS reference: **PSCAPPMAWG5193**. This may have been made under a bulk payment.

DRAWINGS

5193-CAU-XX-XX-DR-V-1805 Site Layout Plan

5193-CAU-XX-XX-DR-V-1807 New Treatment Area Location



LEGEND

- CONCRETE IMPERMEABLE PAVING
- CRUSHED CONCRETE SITE SURFACING WITH GEO-COMPOSITE CLAY LINER (GCL)
- BOUNDARY KERB LINE
- WATER DRAINAGE PIPE
- DISCHARGE LINE
- FALL OF PAD
- DRAINAGE GULLY
- PUMPING CHAMBER
- 1 SITE OFFICE
- 2 NUTRIENT STORAGE
- 3 BIOFILTER
- 4 GRANULAR ACTIVATED CARBON FILTERS
- 5 TRANSFER TANK
- 6 PROCESS WATER SETTLEMENT TANK
- 7 10ft CONTAINER WITH CONTROL PANEL
- 8 BLOWER
- 9 AIR WATER SEPERATOR
- 10 20ft TOOL STORE
- 11 FUEL STORAGE
- 12 3WV
- 13 DECONTAMINATION UNIT
- 14 RECEPTION ENTRANCE AND EXIT
- 15 SOIL SCREENER
- 16 PICKING STATION
- 17 PLANT ENTRANCE AND EXIT

REV	MODIFICATIONS	BY	RE	AP	DATE
P02	UPDATED TO CLIENT INSTRUCTION	EJD	SH	SH	13.12.22
P01	ISSUED FOR INFORMATION	EJD	SH	SH	20.10.22

PURPOSE OF ISSUE: FOR INFORMATION
STATUS: S2

CLIENT: 3C WASTE LIMITED

PROJECT: MAW GREEN SOILS TREATMENT FACILITY PERMIT VARIATION

TITLE: PROPOSED SITE LAYOUT PLAN

DESIGNED BY	DRAWN BY	REVIEWED BY	AUTHORISED BY
EJD	EJD	SH	SH

DATE	SCALE @ A3	JOB REF:	REVISION
19.10.2022	1:1000	5193	P02

DRAWING NUMBER: 5193-CAU-XX-XX-DR-V-1805

Caulmert engineering environmental planning

Registered Office: InTec, Parc Menai, Bangor, Gwynedd, LL57 4FG Company Registered No: 06716319

LEGEND

- CRUSHED CONCRETE SITE SURFACING WITH GEO-COMPOSITE CLAY LINER (GCL)
- PERMANENTLY CAPPED LANDFILL

REV	MODIFICATIONS	BY	RE	AP	DATE
P01	ISSUED FOR INFORMATION	EJD	SH	SH	21.10.22

PURPOSE OF ISSUE: FOR INFORMATION
STATUS: S2

CLIENT: 3C WASTE LIMITED

PROJECT: MAW GREEN SOILS TREATMENT FACILITY PERMIT VARIATION

TITLE: NEW TREATMENT AREA LOCATION

DESIGNED BY	DRAWN BY	REVIEWED BY	AUTHORISED BY
EJD	EJD	SH	SH

DATE	SCALE @ A3	JOB REF:	REVISION
20.10.2022	1:500	5193	P01

DRAWING NUMBER: 5193-CAU-XX-XX-DR-V-1807

Caulmert
engineering environmental planning

Registered Office: InTec, Parc Menai, Bangor, Gwynedd, LL57 4FG Company Registered No: 06716319

APPENDIX 1

Management System Summary

Caulmert Limited

Engineering, Environmental & Planning Consultancy Services

Maw Green Landfill Soils Treatment Facility

3C Waste Limited

Environmental Permit Variation Application

Management System Summary

Prepared by:

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Document Reference: 5193-CAU-XX-XX-RP-V-0315.A0.C1

January 2023

APPROVAL RECORD

Site: Maw Green Landfill Soils Treatment Facility

Client: 3C Waste Limited

Project Title: Environmental Permit Variation Application

Document Title: Management System Summary

Document Ref: 5193-CAU-XX-XX-RP-V-0315.A0.C1

Report Status: **Final**

Project Manager: Andy Stocks

Caulmert Limited: Strelley Hall, Main Street, Strelley, Nottingham, NG8 6PE

Author	Samantha Hayden Environmental Consultant	**Date**	12/12/2022
Reviewer	Andy Stocks Director of Environment	**Date**	12/12/2022
Approved	Andy Stocks Director of Environment	**Date**	12/12/2022

Revision Log			
Revision	**Description of Change**	**Approved**	**Effective Date**
C1	Initial Release	AS	05/01/2023

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Management System Summary

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APPENDICES

1.0 INTRODUCTION

1.1.1 3C Waste Limited are a wholly owned subsidiary of FCC Environment (UK) Ltd (hereafter referred to as the 'operator') who operate Maw Green Landfill Site and Soils Treatment Facility (STF), located approximately 2km to the north of Crewe.

1.1.2 Caulmert Limited have been appointed by the operator to prepare an application to vary the permit to add an activity to allow for the treatment and storage of contaminated soils containing asbestos at the Soil Treatment Facility (STF) within Maw Green Landfill Site. The operator proposes to undertake the activity to the west of the existing STF area, within the existing landfill permit boundary.

1.1.3 The operator has developed a management structure and a site-specific Environmental Management System (EMS) accredited to ISO 14001. The EMS will be part of the facility's overall management system and will establish an organisational structure, responsibilities, practices, procedures and resources for achieving, reviewing and maintaining the company's commitment to environmental protection. Copies of ISO certificates are contained in Appendix 1 of this document.

1.1.4 The operation of an EMS is an assurance to the regulator, neighbouring businesses, stakeholders, and others alike that the facility operation is undertaken in strict compliance with the regulations in force and with the management seeking continual improvements. It requires the company to work in a transparent way, to maintain and improve the confidence of regulators and neighbours, and to have a proactive approach to environmental improvement.

2.0 MANAGEMENT SYSTEM

2.1 Overview

2.1.1 The operator already benefits from an environmental management system accredited to ISO14001 and a quality management system accredited to ISO 9001 to control the existing operations at the site.

2.1.2 The EMS defines the sites management structure, as well as setting out the roles and responsibilities of all staff. The development of the EMS will also include:

- An Environmental Policy;
- Health and Safety Procedures; and
- An operational guidance manual which will include process plant operating procedures for both standard and emergency conditions.

2.1.3 To ensure appropriate operation of the Soils Treatment Facility, the operator will develop documented management procedures and written work instructions which incorporate environmental considerations into the construction and operation of the facility.

2.1.4 The management system will also incorporate a number of other procedures and documents, which are used in the current operations of the site. These will be updated where applicable to incorporate the activities associated with the additional wastes.

2.2 Identifying and minimising risks of pollution

2.2.1 An environmental risk assessment has been carried out for the purpose of this variation which assesses the environmental risks from the activities proposed to be covered under the permit (document reference 5193-CAU-XX-XX-RP-V-0310).

2.2.2 The risk assessment was also used as a tool for identifying the risk management measures that are important in minimising the risks of pollution. The identified risk management measures are considered to be the minimum technical standards which the site should operate to.

2.2.3 A plan showing the sensitive receptors around the site and a site layout plan have also been prepared as part of this permit variation application.

2.3 Operations and maintenance

2.3.1 With regards to the proposed changes, the control measures identified within document reference 5193-CAU-XX-XX-RP-V-0310, will form the technical standards for the site. Any new operational procedures needing to be developed for the site will incorporate these technical standards as a minimum.

2.3.2 A Planned Preventative Maintenance programme (PPM) will be employed on site to minimise the risk to safety, health and the environment by ensuring that all appropriate items and elements within the site are serviced and inspected on a regular basis or to the manufacturers' maintenance schedules.

2.3.3 An inventory of the plant will be kept on site together with details on routine maintenance. Each item of plant will have a dedicated Maintenance log. These measures will reduce the likelihood of plant failure.

2.3.4 All site staff will be suitably trained and will report any such incidents to the Site Manager.

2.3.5 Specific procedures relevant to this will be:

- STC WI 001 Quote Generation Procedure
- STC WI 002 Soil Reception Procedure
- STC WI 003 Soil Characterisation Procedure
- STC WI 004 Soil Treatment and Monitoring Procedure
- STC WI 005 Soil Turnover
- STC WI 006 Soil Analysis
- STC WI 007 Environmental Monitoring
- STC WI 008 Biofilter Maintenance and Monitoring
- STC WI 009 Process Water Monitoring
- STC WI 010 Pad and Equipment Maintenance
- STC WI 011 Processing of Asbestos Contaminated Soils
- STC WI 012 Soil Rejection Procedure
- STC WI 013 Soil Disposal Procedure
- STC WI 014 GCL Pad Maintenance
- IMS-PRO-093 Amenity Impact Control Procedure
- IMS-PRO-094 Waste Handling Procedure
- IMS-UG-031 Waste Acceptance Guidance
- IMS-PRO-164 Compliance Testing Procedure
- IMS-FRM-191 Waste Sampling Plan
- IMS-PRO-101 Monthly Site Inspection Procedure
- IMS-UG-016 Environmental Permit Installation Checks Guidance
- IMS-UG-018 Environmental Aspects Assessment Guide

2.4 Accidents/Incidents and Non-Conformances

2.4.1 The operator will develop an accident management plan which:

- identifies the likelihood and consequence of accidents;
- identifies actions to prevent accidents and mitigate any consequences;
- documented procedures for handling, investigating, communicating and reporting actual or potential non-compliance with operating procedures or any emission limits;

- documented procedures for handling, investigating, communicating and reporting environmental complaints and implementation of appropriate actions; and,
- documented procedures for investigating incidents, (and near misses) including identifying suitable corrective action and following up.

2.4.2 To ensure ongoing conformance to the management requirements and a system of continuous improvement, the operator will have periodic audits undertaken by independent auditors.

2.4.3 Any incidents or non-conformances will be recorded in the daily site records. A daily site inspection is carried out by a technically competent manager. Staff are also encouraged to report any issues to a competent manager.

2.4.4 Specific procedures relevant to this will be:

- IMS-FRM-019 Environmental Aspects and Impacts Form
- IMS-FRM-025 Daily Monitoring Form
- IMS-FRM-037 Fire Risk Assessment Report
- IMS-FRM-065 Environmental Monitoring Non-Conformance Form
- IMS-FRM-068 Emergency Management Plan
- IMS-PRO-005 CAR Response Procedure
- IMS-PRO-013 Accident and Incident Reporting Procedure
- IMS-PRO-014 Preventive and Corrective Action
- IMS-PRO-016 Aspects and Impacts Procedure
- IMS-PRO-031 Fire Prevention Procedure
- IMS-PRO-051 Environmental Installation Checks Procedure
- IMS-PRO-093 Amenity Impact Control Procedure
- IMS-PRO-101 Monthly Site Inspection Procedure
- IMS-UG-015 Permit Breach Notification Guidance
- IMS-UG-016 Environmental Permit Installation Checks Guidance
- IMS-UG-017 Landfill Monitoring and Analysis Guidance
- IMS-UG-018 Environmental Aspects Assessment Guide
- IMS-PRO-017 Environment Incident Reporting Procedure
- IMS-PRO-067 Lessons Learnt Procedure

2.5 Complaints

2.5.1 The company has a Complaints Procedure, which forms part of the management system for the site. Specific procedures relevant to this will be:

- IMS-FRM-001 You Said We Did Form

2.6 Staff training and competence

2.6.1 The documented managements systems will include training requirements for all relevant staff which cover:

- awareness of the regulatory implications of the Permit for the activity and their work activities;
- awareness of all potential environmental effects from operation under normal and abnormal circumstances;
- awareness of the need to report deviation from the Permit; and
- prevention of accidental emissions and action to be taken when accidental emissions occur.

2.6.2 The skills and competencies necessary for key posts should be documented and records of training needs and training received for these posts maintained. The key posts will include contractors and those purchasing equipment and materials.

2.6.3 The potential environmental risks posed by the work of contractors should be assessed and instructions provided to contractors about protecting the environment while working on site.

2.6.4 Where industry standards or codes of practice for training exist they should be complied with.

2.6.5 Training is provided so that all workers have a satisfactory understanding of their duties in relation to environmental and health & safety issues on site.

2.6.6 Specific procedures relevant to this will be:

- IMS-PRO-001 Training - Planning Procedure
- IMS-PRO-003 Training - Employee New and Existing Procedure
- IMS-PRO-029 Agency Worker Induction Procedure
- IMS-PRO-103 Change of Manager Handover Induction Procedure
- IMS-FRM-101 Change of Manager Form
- IMS-FRM-017 Agency Worker Induction Checklist
- IMS-PRO-067 Lessons Learnt Procedure
- IMS-FRM-060 Working with Waste Form

2.6.7 FCC Environment has recently introduced a Competency Management System (CMS), which has been certified by its accrediting body (Appendix 1).

2.6.8 The Competency Management System is an alternative mechanism to the Certificate of Technical Competence (COTC) / Technically Competent Management (TCM) regime for demonstrating competence at sites with environmental permits.

2.6.9 Primarily, employees who are part of the CMS Scheme (Managers, Supervisors, Technicians, Advisors etc) are required to:

- Satisfactorily complete their CMS assessments within the timeframe set out by their assessor,
- Review and maintain their competency through a process of Continued Professional Development (CPD), i.e. attendance on both Permit Compliance and Duty of Care courses which should be refreshed every 3 years.
- Submit CPD records during IDS review for discussion with line manager
- Be familiar with and operate in accordance with the requirements of the relevant IMS procedures (detailed below) and their associated user guides and forms.
- Update relevant site documents and procedures including management plans and working plans to reflect the changes

2.6.10 Management procedures relating to the competency scheme are:

- IMS-FRM-170 CMS Standardisation Meeting Agenda
- IMS-POL-007 Competence Management System Policy 2019
- IMS-PRO-086 Continued Professional Development Procedure
- IMS-PRO-087 CMS Planning Procedure
- IMS-PRO-168 Performance Monitoring And Measurement Procedure
- IMS-UG-030 CMS User Guide
- IMS-UG-054 CMS Assessment Strategy User Guide
- IMS-UG-055 Introduction To Task Books

2.6.11 A copy of the Competency Management System Policy is contained within Appendix 1.

2.7 Odour, dust, noise and emissions management

2.7.1 The management system includes measures that will be taken to manage odour, dust, noise and emissions.

2.7.2 In addition, the technical standards proposed for the management of dust, odour, noise and other emissions, which were identified through the following documents for this application, will form part of the management system for the site:

- Amenity & Accidents Risk Assessment ref. 5193-CAU-XX-XX-RP-V-0310
- Dust & Emissions Management Plan ref. 5193-CAU-XX-XX-RP-V-0313
- Odour Management Plan ref. 5193-CAU-XX-XX-RP-V-0314

2.7.3 The management measures are supported by the daily checks which are carried out by the technically competent managers who will consider the most appropriate action to take.

2.7.4 Specific procedures relevant to this will be:

- STC WI 004 Soil Treatment and Process Monitoring Procedure
- STC WI 007 Environmental Monitoring
- STC WI 008 Biofilter Maintenance and Monitoring
- STC WI 009 Process Water Monitoring
- STC WI 010 Pad and Equipment Maintenance
- STC WI 011 Processing of Asbestos Contaminated Soils
- STC WI 014 GCL Pad Maintenance
- IMS-FRM-019 Environmental Aspects and Impacts Form
- IMS-FRM-025 Daily Monitoring Form
- IMS-FRM-065 Environmental Monitoring Non-Conformance Form
- IMS-FRM-068 Emergency Management Plan
- IMS-PRO-005 CAR Response Procedure
- IMS-PRO-013 Accident and Incident Reporting Procedure
- IMS-PRO-014 Preventive and Corrective Action
- IMS-PRO-016 Aspects and Impacts Procedure
- IMS-PRO-044 Environmental Monitoring Procedure
- IMS-PRO-051 Environmental Installation Checks Procedure
- IMS-PRO-062 Control of Noise at Work Procedure
- IMS-PRO-089 Waste Acceptance Procedure
- IMS-PRO-093 Amenity Impact Control Procedure
- IMS-PRO-094 Waste Handling Procedure
- IMS-PRO-101 Monthly Site Inspection Procedure
- IMS-UG-015 Permit Breach Notification Guidance
- IMS-UG-016 Environmental Permit Installation Checks Guidance
- IMS-UG-017 Landfill Monitoring and Analysis Guidance
- IMS-UG-018 Environmental Aspects Assessment Guide

2.8 Documentation of legislative and other requirements

2.8.1 Copies of planning permissions, environmental permits and other relevant permissions are kept either as paper records or electronically.

2.8.2 The technically competent managers keep up-to-date with other legal requirements and changes to relevant environmental legislation through trade magazines and the Environment Agency website.

- IMS-UG-042 Site Filing System Guidance
- IMS-UG-006 Information Area Guide
- IMS-UG-001 IMS1 Document Library User Guide

2.9 Management reviews

2.9.1 Management periodically review the environmental performance of the company through their review of environmental audit reports and the daily site records.

2.9.2 The environmental policy statement is also reviewed periodically to ensure it reflects the company's operations and its environmental objectives.

2.9.3 Specific procedures relevant to this will be:

- IMS-PRO-067 Lessons Learnt Procedure
- IMS-FRM-007 FCC Objectives and Target Report Template
- IMS-PRO-006 Management Review Procedure
- IMS-FRM-003 Management Review Agenda
- IMS-FRM-004 Management Review Meeting Minutes Template
- IMS-FRM-007 FCC Objectives and Target Report Template

APPENDIX 1

CMS and EMS Certificates

Certificate of Registration

ENVIRONMENTAL MANAGEMENT SYSTEM - ISO 14001:2015

This is to certify that:

FCC Environment (UK) Ltd
3 Sidings Court
White Rose Way
Doncaster
DN4 5NU
United Kingdom

Holds Certificate Number: EMS 592767

and operates an Environmental Management System which complies with the requirements of ISO 14001:2015 for the following scope:

Recycling, waste management and quarrying activities at operational recycling/waste management sites, vehicle depots, workshops and quarries.

For and on behalf of BSI:

Matt Page, Managing Director Assurance - UK & Ireland

Original Registration Date: 2010-07-18
Effective Date: 2022-02-12
Latest Revision Date: 2022-04-04
Expiry Date: 2025-02-11

UKAS MANAGEMENT SYSTEMS 0003

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Certificate No: EMS 592767

Location	Registered Activities
FCC Environment (UK) Ltd 3 Sidings Court White Rose Way Doncaster DN4 5NU United Kingdom	Office
FCC Environment (UK) Ltd Rawcliffe Road Airmyn Goole DN14 6XB United Kingdom	HWRC
FCC Environment (UK) Ltd Oaklands Gravel Pit Common Road Aldeby Beccles NR34 0BL United Kingdom	Landfill
FCC Environment (UK) Ltd Cotes Park Industrial Estate Cotes Park Lane Somercotes Alfreton DE55 4NJ United Kingdom	Transfer Station & MRF
FCC Environment (UK) Ltd Allerton Park Knaresborough HG5 0SD United Kingdom	Landfill
FCC Environment (UK) Ltd Laverstock Road 20/20 Business Park Allington Maidstone ME16 0LE United Kingdom	Transfer Station and EFW

Original Registration Date: 2010-07-18
Effective Date: 2022-02-12
Latest Revision Date: 2022-04-04
Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment (UK) Ltd Armthorpe Road Pot Hill Doncaster DN2 5QB United Kingdom	HWRC
FCC Environment (UK) Ltd Thwaite Flat Barrow-in-Furness LA14 4QH United Kingdom	Landfill and Transfer Station
FCC Environment (UK) Ltd East Winch Road Mill Drove Blackborough End Peterborough PE32 1SW United Kingdom	Landfill and MRF
FCC Environment (UK) Ltd Alsing Road Tinsley Sheffield S9 1HF United Kingdom	Liquid Waste Treatment
FCC Environment (UK) Ltd Guernsey Road Bletchley Milton Keynes MK3 5FR United Kingdom	Landfill.
FCC Environment (UK) Ltd Bootham Lane Dunscroft Doncaster DN7 4JT United Kingdom	HWRC

Original Registration Date: 2010-07-18
Latest Revision Date: 2022-04-04

Effective Date: 2022-02-12
Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment (UK) Ltd Slippery Gowt Lane Wyberton Boston PE21 7AA United Kingdom	HWRC
FCC Environment (UK) Ltd York Road Burton Salmon Leeds LS25 5JW United Kingdom	Quarry
FCC Environment (UK) Ltd Brymbo Site, Off Solvay Bank Wrexham Road Broughton Wrexham LL11 5NR United Kingdom	HWRC
FCC Environment (UK) Ltd Bryn Lane Wrexham Industrial Estate Bry Wrexham LL13 9UT United Kingdom	HWRC, Composting (IVC), TS & MRF
FCC Environment (UK) Ltd Weston Lane Bubbenhall Coventry CV8 3BN United Kingdom	Landfill
FCC Environment (UK) Ltd Station Farm Brampton Road Buckden St. Neots PE19 5UH United Kingdom	Landfill

Original Registration Date: 2010-07-18
Effective Date: 2022-02-12
Latest Revision Date: 2022-04-04
Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment (UK) Ltd Marfleet Lane Hull HU9 5SD United Kingdom	HWRC
FCC Environment (UK) Ltd Federation Road Stoke-on-Trent ST6 4HU United Kingdom	HWRC
FCC Environment (UK) Ltd Rougham Road Bury St. Edmunds IP33 2RN United Kingdom	HWRC
FCC Environment (UK) Ltd Brackley Lane Calvert Buckingham MK18 2HF United Kingdom	Landfill
FCC Environment (UK) Ltd Bentley Moor Lane Adwick-le-Street Doncaster DN6 7BD United Kingdom	HWRC
FCC Environment (UK) Ltd Moor Lane Carnaby Bridlington YO16 4UU United Kingdom	Transfer Station
FCC Environment (UK) Ltd Barbot Hall Cottage Greasbrough Road Rotherham S61 4QL United Kingdom	HWRC

Original Registration Date: 2010-07-18
Effective Date: 2022-02-12
Latest Revision Date: 2022-04-04
Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment (UK) Ltd Atherton Wigan M46 9BP United Kingdom	HWRC
FCC Environment (UK) Ltd Sheepbridge Business Park Sheepbridge Chesterfield S41 9QD United Kingdom	Transfer Station
FCC Environment (UK) Ltd Chirk Landfill Pen-y-Bent Works Pentre Wrexham LL14 5AR United Kingdom	Landfill
FCC Environment (UK) Ltd Off Crabtree Road Stainby Grantham NG33 5QT United Kingdom	Landfill
FCC Environment (UK) Ltd Crookhill Road Conisbrough Doncaster DN12 2AE United Kingdom	HWRC
FCC Environment (UK) Ltd Longwater Business Park Costessey Norwich NR5 0TL United Kingdom	Transfer Station

Original Registration Date: 2010-07-18
Latest Revision Date: 2022-04-04

Effective Date: 2022-02-12
Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment (UK) Ltd Gawsworth Macclesfield SK11 9QP United Kingdom	Landfill, Leachate Treatment Plant, Transfer Pad and Transfer Station
FCC Environment (UK) Ltd Daneshill Road Lound Retford DN22 8RB United Kingdom	Landfill
FCC Environment (UK) Ltd Raynesway Park Drive Derby DE21 7BA United Kingdom	Transfer Station.
FCC Environment (UK) Ltd Linch Hill Stanton Harcourt Oxford OX29 5BB United Kingdom	Landfill, Transfer Station and HWRC
FCC Environment (UK) Ltd Welland Road Dogsthorpe Peterborough PE1 3TD United Kingdom	Landfill
FCC Environment (UK) Ltd Kelleythorpe Industrial Estate Driffield YO25 9DJ United Kingdom	HWRC
FCC Environment (UK) Ltd Incinerator Road Off Meadow Lane Nottingham NG2 3JH United Kingdom	EfW

Original Registration Date: 2010-07-18
Latest Revision Date: 2022-04-04

Effective Date: 2022-02-12
Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment (UK) Ltd Eaton Green Road Luton LU2 9HB United Kingdom	HWRC
FCC Environment (UK) Ltd Starnhill Close Ecclesfield Sheffield S35 9TG United Kingdom	Liquid Waste Treatment
FCC Environment (UK) Ltd Portway Road Rowley Regis Warley B65 9BT United Kingdom	Landfill and Soils Treatment Centre
FCC Environment (UK) Ltd Carr Road Felixstowe IP11 3UT United Kingdom	HWRC
FCC Environment (UK) Ltd Unit 4 Gamma Terrace Masterlord Village West Rd, Ransomes Euro Park Ipswich IP3 9FF United Kingdom	Contract Office
FCC Environment (UK) Ltd Market Weighton Road Holme-on-Spalding-Moor York YO43 4ED United Kingdom	Landfill & HWRC

Original Registration Date: 2010-07-18
Effective Date: 2022-02-12
Latest Revision Date: 2022-04-04
Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment (UK) Ltd Nicholas Lane Goldthorpe Barnsley S63 9AS United Kingdom	HWRC
FCC Environment (UK) Ltd Ince Lane Wimbolds Trafford Chester CH2 4JP United Kingdom	Landfill & Composting
FCC Environment (UK) Ltd Croakett Way Hadleigh Ipswich IP7 6AH United Kingdom	HWRC
FCC Environment (UK) Ltd Homefield Road Haverhill CB9 8QP United Kingdom	Transfer Station
FCC Environment (UK) Ltd Coupals Road Haverhill CB9 7UR United Kingdom	HWRC
FCC Environment (UK) Ltd Atwick Road Hornsea HU18 1DZ United Kingdom	HWRC
FCC Environment (UK) Ltd Ferriby Road Hessle HU13 0JE United Kingdom	HWRC

Original Registration Date: 2010-07-18
Effective Date: 2022-02-12
Latest Revision Date: 2022-04-04
Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment (UK) Ltd Queens Road Immingham DN40 1QR United Kingdom	Landfill and RO Plant
FCC Environment (UK) Ltd Portmans Walk Ipswich IP1 2DW United Kingdom	HWRC
FCC Environment (UK) Ltd Tuttle Hill Nuneaton CV10 0HU United Kingdom	HWRC
FCC Environment (UK) Ltd Tattershall Road Kirkby-on-Bain LN10 6YN United Kingdom	Landfill & HWRC
FCC Environment (UK) Ltd Makerfield Way Ince Wigan WN2 2PP United Kingdom	HWRC, Transfer Station MRF and Leachate Treatment Plant
FCC Environment (UK) Ltd Knostrop Lane Knostrop Leeds LS9 0PJ United Kingdom	Liquid Waste Treatment
FCC Environment (UK) Ltd Pottergate Leadenham Lincoln LN5 0QF United Kingdom	Landfill & pre-treatment facility

Original Registration Date: 2010-07-18
Latest Revision Date: 2022-04-04

Effective Date: 2022-02-12
Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment (UK) Ltd Lovers Lane Leiston IP16 4UJ United Kingdom	HWRC
FCC Environment (UK) Ltd Lidget Lane Ravenfield Rotherham S65 4LY United Kingdom	HWRC
FCC Environment (UK) Ltd Dixon House Joseph Noble Road Lillyhall Workington CA14 4JH United Kingdom	Landfill & Leachate Treatment Plant
FCC Environment (UK) Ltd Abergele Road Llanddulas Conwy LL22 8HP United Kingdom	Landfill
FCC Environment (UK) Ltd Longshot Industrial Estate Longshot Lane Bracknell RG12 1RL United Kingdom	HWRC, Transfer Station, MRF and Depot
FCC Environment (UK) Ltd South Lowestoft Industrial Estate Lowestoft NR33 7NF United Kingdom	HWRC and Transfer Station
FCC Environment (UK) Ltd Kingsway Luton LU4 8AU United Kingdom	Transfer Station and MRF

Original Registration Date: 2010-07-18

Effective Date: 2022-02-12

Latest Revision Date: 2022-04-04

Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment (UK) Ltd Common Road North Anston Rotherham S25 4AH United Kingdom	HWRC
FCC Environment (UK) Ltd Maw Green Road Coppenhall Crewe CW1 5NG United Kingdom	Landfill and Soil Treatment
FCC Environment (UK) Ltd Middlemarch LF Middlemarsh Burgh le Marsh PE24 5AD United Kingdom	Landfill
FCC Environment (UK) Ltd Off A1065 Mildenhall IP28 7JQ United Kingdom	HWRC
FCC Environment (UK) Ltd Butt Lane Milton Cambridge CB24 6DQ United Kingdom	Landfill
FCC Environment (UK) Ltd Whisby Road North Hykeham Lincoln LN6 3QZ United Kingdom	Landfill and IBA

Original Registration Date: 2010-07-18
Effective Date: 2022-02-12
Latest Revision Date: 2022-04-04
Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment (UK) Ltd Lower Road Brambledown Isle of Sheppey ME12 3AJ United Kingdom	Landfill
FCC Environment (UK) Ltd Walney Road Barrow-in-Furness LA14 5UY United Kingdom	Depot and MRF
FCC Environment (UK) Ltd Sheffield Road Springvale Penistone Barnsley S36 6HJ United Kingdom	HWRC
FCC Environment (UK) Ltd Station Road Southfleet DA13 9PA United Kingdom	HWRC, Transfer Station & Depot
FCC Environment (UK) Ltd Plas Madoc Site Wynnstay Industrial Estate Acrefair Wrexham LL14 3ES United Kingdom	HWRC
FCC Environment (UK) Ltd Burnby Lane Pocklington York YO42 1UJ United Kingdom	HWRC

Original Registration Date: 2010-07-18
Effective Date: 2022-02-12
Latest Revision Date: 2022-04-04
Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment (UK) Ltd Staithes Road Preston Hull HU12 8TD United Kingdom	HWRC
FCC Environment (UK) Ltd Progress Way Luton LU4 9TR United Kingdom	HWRC
FCC Environment (UK) Ltd Tivetshall St. Margaret Diss NR15 2BA United Kingdom	Transfer Station
FCC Environment (UK) Ltd Rhyd Y Fro Pontardawe Swansea SA8 4RX United Kingdom	Landfill
FCC Environment (UK) Ltd Freckenham Bury St. Edmunds IP28 8LG United Kingdom	Transfer Station & Composting
FCC Environment (UK) Ltd Chorley Road Standish Wigan WN1 2XJ United Kingdom	Landfill
FCC Environment (UK) Ltd Bankwood Lane Industrial Estate Rossington Doncaster DN11 0PS United Kingdom	HWRC

Original Registration Date: 2010-07-18

Effective Date: 2022-02-12

Latest Revision Date: 2022-04-04

Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment (UK) Ltd Shipdham Airfield Industrial Estate Dereham IP25 7SD United Kingdom	Transfer Station
FCC Environment (UK) Ltd Slag Lane Wigan WA3 1BT United Kingdom	HWRC
FCC Environment (UK) Ltd Smallmead Island Road Reading RG2 0RP United Kingdom	Office
FCC Environment (UK) Ltd Smithies Lane Smithies Barnsley S71 1NL United Kingdom	HWRC
FCC Environment (UK) Ltd Springwell Lane Balby Doncaster DN4 9AX United Kingdom	HWRC
FCC Environment (UK) Ltd Grange Lane Cotham NG24 3JJ United Kingdom	Landfill
FCC Environment (UK) Ltd Old Bury Road Stowmarket IP14 1JQ United Kingdom	HWRC

Original Registration Date: 2010-07-18
Effective Date: 2022-02-12
Latest Revision Date: 2022-04-04
Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment (UK) Ltd Sandy Lane Sudbury CO10 7HG United Kingdom	HWRC
FCC Environment (UK) Ltd Appleford Sidings Sutton Courtenay Abingdon OX14 4PJ United Kingdom	Composting, transfer station and transport office
FCC Environment (UK) Ltd Sutton Fields Industrial Estate Kingston Upon Hull HU7 0XF United Kingdom	HWRC
FCC Environment (UK) Ltd Swanton Road Mill Cross Norwich NR2 4LH United Kingdom	HWRC & Transfer Station
FCC Environment (UK) Ltd Burrell Way Thetford IP24 3QS United Kingdom	Transfer Station
FCC Environment (UK) Ltd Warren Vale Road Rawmarsh Rotherham S62 7RW United Kingdom	HWRC
FCC Environment (UK) Ltd Weel Road Weel Beverley HU17 0SQ United Kingdom	HWRC

Original Registration Date: 2010-07-18
Latest Revision Date: 2022-04-04

Effective Date: 2022-02-12
Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment (UK) Ltd Boundary Lane Normanton WF6 2JA United Kingdom	Landfill
FCC Environment (UK) Ltd Kettering Road Weldon NN17 3JG United Kingdom	Landfill
FCC Environment (UK) Ltd West Street Worsbrough Barnsley S70 5DJ United Kingdom	HWRC
FCC Environment (UK) Ltd Alco Waste Management Stephenson Industrial Eastate Willowholme Carlisle CA2 5RS United Kingdom	Transfer Station, MRF, Collections and Kerbside Recycling
FCC Environment (UK) Ltd Cleveland Street Hull HU8 7AU United Kingdom	Transfer Station
FCC Environment (UK) Ltd Wiltshire Road Industrial Estate Wiltshire Road Hull HU4 6PA United Kingdom	HWRC
FCC Environment (UK) Ltd Coleby Road Weston Halton Winterton DN15 9AP United Kingdom	Landfill & Leachate Treatment Plant

Original Registration Date: 2010-07-18
Effective Date: 2022-02-12
Latest Revision Date: 2022-04-04
Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment (UK) Ltd Coleby Road Weston Halton Winterton DN15 9AP United Kingdom	Landfill
FCC Environment (UK) Ltd Hull Road Withernsea HU19 2EE United Kingdom	HWRC
FCC Environment (UK) Ltd Solway House Moss Bay Road Workington CA14 3XH United Kingdom	Collections, Recycling, MOT Station, Street Cleansing
FCC Environment (UK) Ltd Meikle Drumgray Road Greengairs Airdrie ML6 7TD United Kingdom	Landfill
FCC Environment (UK) Ltd Welham Lane Game Farm Welham Lane Great Bowden Leicester LE16 7FN United Kingdom	Transfer station
FCC Environment (UK) Ltd Grafton Depot Ross Road Redhill Hereford HR2 8BH United Kingdom	Depot

Original Registration Date: 2010-07-18

Effective Date: 2022-02-12

Latest Revision Date: 2022-04-04

Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment (UK) Ltd Hameldown Business Park Hameldown Road Okehampton EX20 1FL United Kingdom	Depot
FCC Environment (UK) Ltd West Wiltshire Service Centre Riverway Depot Trowbridge BA14 8LL United Kingdom	Depot
FCC Environment (UK) Ltd Unit 1 Dawes Way, Off Abbey View Road Pinvin Pershore WR10 2FD United Kingdom	Depot
FCC Environment (UK) Ltd Barnsdale Bar Quarry Long Lane Kirk Smeaton Pontefract WF8 3JX United Kingdom	Quarrying
FCC Environment (UK) Ltd Darrington Leys Cridling Stubbs Knottingley WF11 0AH United Kingdom	Quarrying
FCC Environment (UK) Ltd Hensall Sand Quarry New Road Hensall DN14 0RD United Kingdom	Quarrying

Original Registration Date: 2010-07-18

Effective Date: 2022-02-12

Latest Revision Date: 2022-04-04

Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment (UK) Ltd Amersham London Road East Amersham HP7 9DT United Kingdom	HWRC
FCC Environment (UK) Ltd Aston Clinton Household Waste Recycling College Road North Aston Clinton HP22 5EZ United Kingdom	HWRC
FCC Environment (UK) Ltd Aylesbury Household Waste Recycling Rabans Close Rabans Lane Industrial Area Aylesbury HP19 8RS United Kingdom	HWRC
FCC Environment (UK) Ltd Beaconsfield Household Waste Recycling A40 London Road Lower Pyebushes Beaconsfield HP9 2XB United Kingdom	HWRC
FCC Environment (UK) Ltd Bledlow Ridge Household Waste Recycling Wigans Lane Bledlow Ridge High Wycombe HP14 4BH United Kingdom	HWRC

Original Registration Date: 2010-07-18

Effective Date: 2022-02-12

Latest Revision Date: 2022-04-04

Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment (UK) Ltd Buckingham Household Waste Recycling Yonder Slade Buckingham Industrial Estate Buckingham MK18 1RZ United Kingdom	HWRC
FCC Environment (UK) Ltd Burnham Household Waste Recycling Crowpiece Lane Farnham Royal Slough SL2 3TG United Kingdom	HWRC
FCC Environment (UK) Ltd Chesham Household Waste Recycling Latimer Road Chesham HP5 1TL United Kingdom	HWRC
FCC Environmental (UK) Ltd High Wycombe Household Waste Recycling Clay Lane Booker Marlow SL7 3DJ United Kingdom	HWRC
FCC Environment (UK) Ltd Langley Household Waste Recycling Langley Park Road Langley Slough SL3 6DD United Kingdom	HWRC

Original Registration Date: 2010-07-18

Effective Date: 2022-02-12

Latest Revision Date: 2022-04-04

Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment (UK) Ltd Foxhall Road Brightwell Ipswich IP10 0HT United Kingdom	Operation of a HWRC
FCC Environment (UK) Ltd Newcastle Staffs CC HWRC Leycett Lane Leycett Newcastle ST5 6AD United Kingdom	HWRC
FCC Environment (UK) Ltd Uttoxeter Staffs CC HWRC Pennycroft Lane Uttoxeter ST14 7BW United Kingdom	HWRC
FCC Environment (UK) Ltd Lincoln EfW Whisby Road North Hykeham Lincoln LN6 3QW United Kingdom	EfW
FCC Environment (UK) Ltd 5 Chapterhouse Close Ellesmere Port CH65 4EP United Kingdom	MRF
FCC Environment (UK) Ltd Greatmoor EfW Greatmoor Road Woodham Aylesbury HP18 0QE United Kingdom	EfW

Original Registration Date: 2010-07-18
Latest Revision Date: 2022-04-04

Effective Date: 2022-02-12
Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment (UK) Ltd Unit 81 Bison Place Moss Side Industrial Estate Leyland PR26 7QR United Kingdom	Collections (Depot)
FCC Environment (UK) Ltd High Heavens Transfer Station Clay Lane Booker High Wycombe SL7 3DJ United Kingdom	Transfer Station
FCC Environment (UK) Ltd Stretton Way Huyton Industrial Estate Huyton Merseyside L36 6JF United Kingdom	MRF
FCC Recycling (UK) Briton Ferry Briton Ferry Industrial Estate Neath Port Talbot SA11 2HQ United Kingdom	HWRC & Transfer Station
FCC Recycling (UK) Sundridge Hill Cuxton Rochester ME2 1LF United Kingdom	Recycling, waste management and quarrying activities at operational recycling/waste management sites, vehicle depots, workshops and quarries.
FCC Recycling (UK) Margam Street Cymmer Neath Port Tablot SA13 3EE United Kingdom	Recycling, waste management and quarrying activities at operational recycling/waste management sites, vehicle depots, workshops and quarries.

Original Registration Date: 2010-07-18
Latest Revision Date: 2022-04-04

Effective Date: 2022-02-12
Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Recycling (UK) Portway Road Rowley Regis Warley B65 9BT United Kingdom	Recycling, waste management and quarrying activities at operational recycling/waste management sites, vehicle depots, workshops and quarries.
FCC Recycling (UK) Broad Oak Road Canterbury CT2 0PR United Kingdom	Recycling, waste management and quarrying activities at operational recycling/waste management sites, vehicle depots, workshops and quarries.
FCC Recycling (UK) North Orbital Road Watford WD25 0PR United Kingdom	Transfer Station & Depot
FCC Recycling (UK) Dark Lane Burton Rossett LL12 0AE United Kingdom	Landfill
FCC Recycling (UK) Gardden Lodge Tatham Road Ruabon LL14 6RF United Kingdom	Landfill
FCC Recycling (UK) Pools Road Witchford CB6 2JE United Kingdom	Landfill
FCC Recycling (UK) Burymead Road Hitchin SG5 1RT United Kingdom	Transfer Station

Original Registration Date: 2010-07-18
Latest Revision Date: 2022-04-04

Effective Date: 2022-02-12
Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment (UK) Limited Mill Lane Arlesey SG15 6RF United Kingdom	Landfill
FCC Environment (UK) Limited Forrest Way Off Old Liverpool Road Sankey Bridges Warrington WA4 6YZ United Kingdom	Landfill
FCC Environment (UK) Limited Long Lane Kirk Smeaton Pontefract WF8 3JX United Kingdom	Landfill
FCC Environment (UK) Limited Brailwood Road Bilsthorpe Newark NG22 8UA United Kingdom	Landfill
FCC Environment (UK) Limited Woburn Road Brogborough MK43 0TN United Kingdom	Landfill
FCC Environment (UK) Limited Main Street Newhall Swadlincote Derbyshire DE11 0TP United Kingdom	Landfill

Original Registration Date: 2010-07-18
Latest Revision Date: 2022-04-04

Effective Date: 2022-02-12
Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment (UK) Limited Ollerton Road Arnold Nottinghamshire NG5 8PR United Kingdom	Landfill
FCC Environment (UK) Limited Bridlington Bay Road Carnaby Bridlington North Yorkshire YO16 4UU United Kingdom	Landfill
FCC Environment (UK) Limited Bacup Road Cliviger Burnley Lancashire BB11 3RL United Kingdom	Leachate Treatment Plant
FCC Environment (UK) Limited Drummond Moor Rosewell Midlothian EH26 8QF United Kingdom	Landfill
FCC Environment (UK) Limited The Oakery Lodge Road Feltwell Thetford Norfolk IP26 4DR United Kingdom	Landfill
FCC Environment (UK) Limited Lea Road Gainsborough Lincolnshire DN21 1AP United Kingdom	Landfill

Original Registration Date: 2010-07-18
Latest Revision Date: 2022-04-04

Effective Date: 2022-02-12
Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment (UK) Limited Bradley Court Road Hermitage Newbury Berkshire RG18 9XZ United Kingdom	Landfill
FCC Environment (UK) Limited London Road Louth Lincolnshire LN11 9QP United Kingdom	Landfill
FCC Environment (UK) Limited Hundred Road March Cambridgeshire PE15 8QN United Kingdom	Landfill
FCC Environment (UK) Limited Straight Lane Skelbrooke Doncaster South Yorkshire DN6 8LX United Kingdom	Landfill
FCC Environment (UK) Limited Hall Lane Staveley Derbyshire S43 3TP United Kingdom	Landfill
FCC Environment (UK) Limited Green Lane Stewartby Bedfordshire MK43 9LY United Kingdom	Landfill & Leachate Treatment Plant

Original Registration Date: 2010-07-18
Latest Revision Date: 2022-04-04

Effective Date: 2022-02-12
Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment (UK) Limited Thurcroft Landfill Cumwell Lane Rotherham South Yorkshire S66 8PU United Kingdom	Landfill
FCC Environment (UK) Limited Thorpe Road Whisby Lincolnshire LN6 9BT United Kingdom	HWRC
FCC Environment (UK) Limited Bridge Street Leominster Herefordshire HR6 8EA United Kingdom	Depot
FCC Environment (UK) Limited Chelveston Renewable Energy Park Wellingborough Northamptonshire NN9 6AN United Kingdom	Transfer Station
FCC Environment (UK) Limited Bootham Lane Landfill Dunscroft Doncaster DN7 4JT United Kingdom	Landfill
FCC Environment (UK) Limited Lidice Road Goole DN14 6XL United Kingdom	Transfer Station

Original Registration Date: 2010-07-18
Latest Revision Date: 2022-04-04

Effective Date: 2022-02-12
Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment Peterborough HWRC Dodson House Fengate PE1 5XG United Kingdom	Recycling, waste management and quarrying activities at operational recycling/waste management sites, vehicle depots, workshops and quarries.
FCC Environment Ivybridge Collections Bridge Court Ermington Road Ivybridge PL21 9EY United Kingdom	Depot
FCC Environment Torr Quarry TS East Allington Kingsbridge TQ9 7QQ United Kingdom	Transfer Station & Depot
FCC Environment Amesbury HWRC Mills Way Amesbury Salisbury SP4 7RX United Kingdom	HWRC
FCC Environment Devizes HWRC Hopton Industrial Estate Hopton Road Devizes SN10 2EU United Kingdom	The provision of a Household Waste Recycling Centre service.
FCC Environment Devizes Transport & Office Hopton Industrial Estate Hopton Road Devizes SN10 2EU United Kingdom	The provision of a waste collection service from company operated HWRCs for onward transportation to waste receiving sites. Administration related to the operation of company operated HWRCs.

Original Registration Date: 2010-07-18
Latest Revision Date: 2022-04-04

Effective Date: 2022-02-12
Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment Marlborough HWRC Marlborough Business Park Salisbury Road Marlborough SN4 4AN United Kingdom	Recycling, waste management and quarrying activities at operational recycling/waste management sites, vehicle depots, workshops and quarries.
FCC Environment Melksham HWRC Lancaster Road Bowerhill Ind Estate Melksham SN12 6QT United Kingdom	HWRC
FCC Environment Salisbury HWRC Stephenson Road Churchfields Ind Estate Salisbury SP2 7NP United Kingdom	Recycling, waste management and quarrying activities at operational recycling/waste management sites, vehicle depots, workshops and quarries.
FCC Environment Stanton St Quintin HWRC Sutton Benger Road Chippenham SN14 6BD United Kingdom	HWRC
FCC Environment Trowbridge HWRC Canal Road Trowbridge BA14 8RQ United Kingdom	Recycling, waste management and quarrying activities at operational recycling/waste management sites, vehicle depots, workshops and quarries.
FCC Environment Warminster HWRC Furnax Lane Warminster BA12 8PE United Kingdom	HWRC

Original Registration Date: 2010-07-18
Effective Date: 2022-02-12
Latest Revision Date: 2022-04-04
Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment Avely LF Sandy lane Avely RM15 4XL United Kingdom	Landfill
FCC Environment Barnstone Bar LF Coach Gap Lane Nottingham NG13 9HP United Kingdom	Recycling, waste management and quarrying activities at operational recycling/waste management sites, vehicle depots, workshops and quarries.
FCC Environment Dorket Head LF Woodborough Lane Arnold NG5 8PZ United Kingdom	Landfill
FCC Emvironment Humberfield LF Ferriby Road Hessle HU13 0JL United Kingdom	Landfill
FCC Environment Offham LF Whiteladies Teston Road West Malling ME19 5NR United Kingdom	Landfill
FCC Environment Ongar LF Mill Lane High Ongar CM5 9RQ United Kingdom	Landfill

Original Registration Date: 2010-07-18
Effective Date: 2022-02-12
Latest Revision Date: 2022-04-04
Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment Salthouse Road Barrow-in-Furness LA14 2AG United Kingdom	Depot
FCC Environment Stangate LF Quarry Hill Road Borough Green TN15 8RQ United Kingdom	Landfill
FCC Environment Sutton Courtenay LF Appleford Sidings Abingdon OX14 4PW United Kingdom	Landfill
FCC Environment Kaimes LF Kirknewton EH17 8EF United Kingdom	Landfill
FCC Environment Oatslie LF Oatslie sand Oit Cleugh Road Roslin EH25 9QN United Kingdom	Landfill
FCC Environment Sutton LF Huthwaite Road Sutton-in-Ashfield NG17 2NW United Kingdom	Landfill

Original Registration Date: 2010-07-18
Effective Date: 2022-02-12
Latest Revision Date: 2022-04-04
Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment Collections 44-46 Broomhill Road Bonnybridge Falkirk FK4 2AN United Kingdom	Depot
FCC Environment Haye Down Industrial Estate Nr Tavistock PL19 0NN United Kingdom	Depot
FCC Environment Edinburgh & Midlothian Residual Waste Facility Former Millerhill Mashalling Yard Whitehill Road Edinburgh EH22 1SX United Kingdom	EfW
FCC Environment Plot 6 Atlantic Estate Barry CF63 3RF United Kingdom	HWRC
FCC Environment Unit 55 Gluepot Road Llandow Trading Estate Llandow CF71 7PB United Kingdom	HWRC
FCC Environment Marlborough Business Park Salisbury Road Marlborough SN8 4AE United Kingdom	HWRC

Original Registration Date: 2010-07-18
Effective Date: 2022-02-12
Latest Revision Date: 2022-04-04
Expiry Date: 2025-02-11

Certificate No: EMS 592767

Location	Registered Activities
FCC Environment Dodson House Fengate Peterborough PE1 5FS United Kingdom	HWRC
FCC Environment Stephenson Road Churchfields Industrial Estate Salisbury SP2 7BU United Kingdom	HWRC
FCC Environment Panteg Way New Inn Pontypool NP4 0LS United Kingdom	HWRC, Transfer Station and Re-use Shop

Original Registration Date: 2010-07-18
Effective Date: 2022-02-12
Latest Revision Date: 2022-04-04
Expiry Date: 2025-02-11

Current Issue Date: 21 April 2022
Expiry Date: 13 March 2024
Certificate Identity Number: 10440205

Original approval(s):
CMS - 14 March 2018

Certificate of Approval

This is to certify that the Management System of:

FCC Recycling (UK) Limited t/a FCC Environment (UK) Ltd

3 Sidings Court, White Rose Way, Doncaster, DN4 5NU, United Kingdom

has been approved by LRQA to the following standards:

Competence Management System - Energy & Utility Skills (Private Standard) Version 4

Approval Number(s): CMS – 00014056

The scope of this approval is applicable to:

The operation of a Competence Management System for the management and operation of FCC sites with a waste management permit or exemption, excluding those associated with Liquid/Chemical Waste Treatment, Quarries, Energy from Waste and Collection Sites.

David Derrick

Area Operations Manager UK & Ireland

Issued by: LRQA Limited

UKAS MANAGEMENT SYSTEMS
0001

Environment

Competence Management System (CMS) Policy

At FCC Environment we are committed to securing a competent workforce proficient in the delivery of their role responsibilities and ensuring compliance with all relevant legal & regulatory requirements.

FCC has chosen to implement the Operator Competence System developed by Energy & Utility Skills (EU Skills) and Environmental Services Association (ESA) 'Competence Management System' (CMS). The CMS is approved by DEFRA and the Environment Agency to satisfy the Environmental Permit competency requirement. This policy, along with the associated procedures, upholds our application of the Energy & Utility Skills Council Standard for Competence Management (CMS) and affirms our method for delivering technical competence across our operational activities. The FCC Competency Management System shall support; The Environmental Permitting Regulations.

People Focus

The FCC CMS will assure the company, individuals and external bodies that the workforce is competent and that competence for upholding regulatory requirements, process safety, and environmental protection in the workplace will be maintained. Through consistent assessment practice, we will evaluate knowledge, understanding & individual application of permit regulation and our management system procedures. Where skills gaps are identified we will be investing in our people and encouraging excellence, delivering training, experience and opportunities for development & progression. Our commitment to the CMS system will be communicated to employees across the business via designated communication links and it will formally recognise individual capabilities and contributions to the organisation.

Doing the Right Thing

We will set up designated methods to communicate our commitment to the CMS and monitor its effectiveness via a comprehensive Internal Quality Assurance program. Furthermore we will monitor our company compliance results and ensure regular review of our CMS to reflect the current scope and to capture any modifications to permit requirements, company objectives or changes in legislation.

The objectives of the CMS will be set annually to measure progress towards continuous improvement and meeting our commitments under the system.

The active scope for the CMS is:-

- To implement the CMS where there is a legislative requirement for technical competence cover on FCC's permitted and exempt facilities; (Landfill / HWRC / TS / MRF / Compost / WTD / IVC / MBT) by employing a phased assessment of competence of Managers, Supervisors Leachate Tehnicians and Landfill Compliance Advisors

The current CMS Objectives are to:-

- Approve the required criteria (Task Book) for assessment of candidates
  - Landfill Compliance Advisors
  - Leachate Technicians
- Review & revise (as required) Task Books to ensure the content of the CMS remains sufficient and relevant to all permit and legal requirements
- Review Assessment Practice to ensure standardisation and quality
- Review the effectiveness of the CMS in association with SHEQ reporting
- These objectives will be measured, monitored and progressed within senior management meetings and reported, along with any actions within the monthly CMS Report.

The CMS Targets are:-

- To complete stage 2 of CMS assessment of our supervisors at the permitted facilities, as listed above, by March 2019
- Complete Internal Quality Assurance of Stage 2 Assessments by September 2019

Ensure Conti Professional Development is maintained for all CMS certified employees

To comdlete the assessment of Landfill Compliance Advisors by February 2020

To ident a, prove the required competence criteria (Task Book) for Leachate Technicians

Paul Taylor
Chief Executive Office
FCC Environment)

Date:

WWW.CAULMERT.COM

Registered Office: InTec, Parc Menai, Bangor, Gwynedd, LL57 4FG
Tel: 01248 672666
Email: contact@caulmert.com
Web: www.caulmert.com

APPENDIX 2

TCM Certificates & Dates of Birth

wamitab

Certificate No. OCC4246

Operator Competence Certificate

Qualification Title:

Managing Physical & Chemical Treatment - Hazardous Waste : Remediation of Contaminated Land - 4MPTHR

This Certificate is awarded to

Andrew Clee

Awarded: 22/10/2013

Authorised

CIWM Chief Executive Officer

The Chartered Institution of Wastes Management

This certificate is jointly awarded by WAMITAB and the Chartered Institution of Wastes Management (CIWM) and provides evidence to meet the Operator Competence requirements of the Environmental Permitting (EP) Regulations, which came into force on 6 April 2008.

00041135

wamitab

Certificate No: 13134

CERTIFICATE OF TECHNICAL COMPETENCE

This Certificate confirms that

Andrew Clee

Has demonstrated the standard of technical competence required for the management of a facility of the type set out below

Facility Type

Level 4 in Waste Management Operations - Managing

Treatment Hazardous Waste (Remediation 4TMHCL)

Authorising Signatures:

Chief Executive Officer

Director:

Date of issue: 22 October 2013

00020194

Continuing Competence Certificate

This certificate confirms that

Andrew Clee

Has met the relevant requirements of the Continuing Competence scheme for the following award(s) which will remain current for two years from 25/11/2021

TMH	Treatment - Hazardous Waste
TMNH	Treatment - Non Hazardous Waste
CLR	Contaminated Land Remediation

Expiry Date:

Verification date: 24/11/2021

Authorised:

Learner ID: 19274

Certificate No.: 5189050

Date of Issue: 25/11/2021

Director of Qualifications and Standards

CIWM Chief Executive Officer

The Chartered Institution of Wastes Management

WAMITAB

WASTE MANAGEMENT INDUSTRY TRAINING AND ADVISORY BOARD

CERTIFICATE No: 05700

CERTIFICATE OF TECHNICAL COMPETENCE

Jonathan Owens

has demonstrated the standard of technical competence required for the management of a facility of the type set out below

Level 4 in Waste Management Operations

Managing Treatment Hazardous Waste (4TMH)

Date of issue: 26 January 2004

Continuing Competence Certificate

This certificate confirms that

Jonathan Owens

Has met the relevant requirements of the Continuing Competence scheme for the following award(s) which will remain current for two years from 10/11/2022

TMH	Treatment - Hazardous Waste
CLR	Contaminated Land Remediation

Verification date: 03/11/2022

Authorised:

Learner ID: 10242

Certificate No.: 5210963

Date of Issue: 10/11/2022

CIWM Chief Executive Officer

The Chartered Institution of Wastes Management

Scan code on reverse to authenticate that this is a genuine paper

Maw Green Landfill Site - Variation Application

Soil Treatment Facility

Technical Persons Date of Birth

Name of TCM (Provectus Limited)	Date of birth
Jonathon Owens	08/11/1973
Andrew Clee	23/07/1985

WWW.CAULMERT.COM

Caulmert
engineering environmental planning

Registered Office: InTec, Parc Menai, Bangor, Gwynedd, LL57 4FG
Tel: 01248 672666
Email: contact@caulmert.com
Web: www.caulmert.com

DOCUMENT 2.8
ENVIRONMENTAL PERMIT VARIATION APPLICATION, ENVIRONMENTAL SETTING AND INSTALLATION DESIGN - ADDENDUM 2022

Caulmert Limited

Engineering, Environmental & Planning Consultancy Services

Maw Green Landfill Soils Treatment Facility

3C Waste Limited

Environmental Setting and Installation Design - Addendum 2022

Environmental Permit Variation Application

Prepared by:

Caulmert Limited
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Tel: 01773 749 132
Email: andystocks@caulmert.com
Web: www.caulmert.com

Document Reference: 5193-CAU-XX-XX-RP-V-0309.A0.C1

January 2023

APPROVAL RECORD

Site: Maw Green Landfill Soils Treatment Facility

Client: 3C Waste Limited

Project Title: Environmental Setting and Installation Design - Addendum 2022

Document Title: Environmental Permit Variation Application

Document Ref: 5193-CAU-XX-XX-RP-V-0309.A0.C1

Report Status: **Final**

Project Manager: Andy Stocks

Caulmert Limited: Strelley Hall, Main Street, Strelley, Nottingham, NG8 6PE

Author	Samantha Hayden Environmental Consultant	**Date**	09/12/2022
Reviewer	Andy Stocks Director of Environment	**Date**	09/12/2022
Approved	Andy Stocks Director of Environment	**Date**	09/12/2022

Revision Log			
Revision	**Description of Change**	**Approved**	**Effective Date**
C1	Updated ESID addendum report reference number from 3695-CAU-XX-XX-RP-V-0305 to 5193-CAU-XX-XX-RP-V-0302. Minor amendments to text to reflect permit variation application. Updated site layout plan attached.	AS	14/12/2021
C2	Updated ESID addendum report reference number from 5193-CAU-XX-XX-RP-V-0309. Minor amendments to text to reflect permit variation application, an updated site layout plan and a revised Site Condition Report for additional STF area to west.	AS	10/01/2023

DISCLAIMER

This report has been prepared by Caulmert Limited with all reasonable skill, care and diligence in accordance with the instruction of the above named client and within the terms and conditions of the Contract with the Client.

The report is for the sole use of the above named Client and Caulmert Limited shall not be held responsible for any use of the report or its content for any purpose other than that for which it was prepared and provided to the Client. Caulmert Limited accepts no responsibility of whatever nature to any third parties who may have been made aware of or have acted in the knowledge of the report or its contents. No part of this document may be copied or reproduced without the prior written approval of Caulmert Limited.

Environmental Permit Variation Application

TABLE OF CONTENTS

DRAWINGS

5193-CAU-XX-XX-DR-V-1804	Sensitive Receptor Plan
5193-CAU-XX-XX-DR-V-1805	Proposed Site Layout Plan
5193-CAU-XX-XX-DR-V-1807	New Treatment Area Location
FCC drawing ref. '124A340 Plan 2'	Maw Green Landfill Site Annual Site Plan 2022
FCC drawing ref. '124E232 Plan 4A'	Maw Green Landfill Site Environmental Monitoring Plan

APPENDICES

Appendix 1 Site Condition Report 2022

Appendix 2 ESID Report 2003 SLR Ref. 4D-197-178/ESID

1.0 INTRODUCTION

1.1 Report Context

1.1.1 This report is intended as an updated addendum to the existing Environmental Setting and Installation Design (ESID) report (2003 SLR Ref. 4D-197-178/ESID) for Maw Green Landfill Site and existing 2019 ESID addendum (Caulmert ref. 5193-CAU-XX-XX-RP-V-0302) for the Soil Treatment Facility (STF) at Maw Green.

1.1.2 3C Waste Limited ('the operator'), a wholly owned subsidiary of FCC Environment (UK) Limited, have appointed Caulmert Limited to prepare an environmental permit variation application to vary the existing Maw Green Landfill permit ref. EPR/BS7722ID to add a Section 5.3A(1)(a)(ii) activity to include for the treatment of asbestos in soil. The treatment of soils will be by 3-way screen and handpicking of bound asbestos and is to include an additional area for storage and treatment of solely asbestos contaminated wastes, separate to the current STF bioremediation area. The proposed area for asbestos handling is located to the west of the current STF, however is still within the existing Maw Green Landfill permit boundary.

1.1.3 No changes to the existing ESID for the landfill are required as it is considered the landfill site setting has not changed. The existing ESID report was produced by SLR to support the Maw Green Landfill PPC Application in October 2003. A 2019 ESID addendum was later produced to support a permit variation application for the addition of the then-proposed Soil Treatment Facility (STF) at the site (bioremediation area), which is now installed.

1.1.4 This updated 2022 ESID addendum is included as part of a permit variation application to include for the proposed treatment and storage area for asbestos contaminated soils at the Maw Green STF, adjacent to the existing bioremediation area. It should be noted that, due to space constraints on site, part of the new treatment area will sit on top of permanently capped landfill (see drawing ref. 5193-CAU-XX-XX-DR-V-1807) and the effects of this are also assessed in this report.

1.1.5 The 2003 ESID report details the nearby receptors of the landfill which were updated within the 2019 permit variation application to reflect the addition of the STF to the site. The nearby sensitive receptors have now been updated again as part of this application in the Amenity & Accidents Risk Assessment document ref. 5193-CAU-XX-XX-RP-V-0301 (attached to this application).

1.2 Installation Details

1.2.1 The STF is located at Maw Green Landfill Site, in Coppenhall, Crewe, under environmental permit ref. EPR/BS7722ID. The location of the STF is within the current permit boundary and this application is not seeking to extend the permit boundary. The STF sits within the south-eastern corner of the landfill site. The location of the new proposed treatment and storage area for asbestos contaminated soils is shown on updated Site Layout Plan drawing

ref. 5193-CAU-XX-XX-DR-V-1805. The most recent 'Annual Site Plan 2022' for Maw Green Landfill is attached as FCC drawing ref. '124A340 Plan 2'.

Bioremediation

1.2.2 There are no changes to the bioremediation process as part of this permit variation.

1.2.3 The maximum bioremediation treatment time for soils at the STF is 6 months in general, with the majority being treated in periods of between 8-16 weeks. The STF facility is currently designed to handle up to 50,000 tonnes per annum over a 10-year period. The existing bioremediation treatment area of the STF is to remain as 6,800m^2 with a total storage volume of 38,000 tonnes at any one time.

1.2.4 The existing STF area for the bioremediation of soils is situated on the former compost pad at the site, which is an impermeable pavement to prevent run-off. Drainage to these areas of impermeable pavement are provided by a sealed drainage system which ensures no liquid can run off the pavement other than via the drainage system, and that all liquids entering the system shall be collected in a sealed sump and sent to the water treatment system, and then discharged to sewer following treatment.

Asbestos Soils Treatment

1.2.5 The proposed new area for the treatment and storage of asbestos contaminated soils is to be on a treatment pad approximately 4,100m^2 in size. Treatment will consist of a 3-way screen, conveyor and hand-picking of bound asbestos fragments within an enclosed mobile picking station. The treatment pad will be constructed of crushed concrete with a geo-composite clay liner (GCL) with a permeability of 1 x 10^{-9} m/s, with an installed drainage system that directs surface water run-off to a pumping chamber in the north-east corner of the area before being pumped across to the existing water treatment plant in the eastern STF area. Following treatment, water is discharged to sewer in accordance with the agreed discharge consent in place at Maw Green Landfill Site.

2.0 SOURCE TERM CHARACTERISATION

2.1 Bioremediation Process

2.1.1 The source term characterisation details provided in the 2003 ESID for the landfill remain valid with regards to historical development and landfill for non-hazardous waste, however the area for the storage and treatment of soils was previously permitted for composting of green waste.

2.1.2 The existing STF stores and treats non-hazardous and hazardous soils prior to enabling their use as restoration materials for the landfill. Treatment of the soils involves treatment and removal of organic and inorganic contaminants by a bioremediation process, as detailed below. There will be no change to the existing bioremediation process. The organic contaminants within the waste soils that are treated by the bioremediation process at the STF predominantly comprise (but are not limited to) the following:

- A range of petroleum hydrocarbons (e.g. petrol, heating fuel, diesel, used oils, crude oil)
- Polycyclic aromatic hydrocarbons (PAHs)
- Creosote
- Phenols
- Chlorinated solvents and other volatile organic compounds (VOCs)

2.2 Asbestos Soils Treatment

2.2.1 The new activity to be added to the permit as part of this permit variation includes removing bound asbestos fragments that are removed by 3-way screen and hand-picking in the new proposed area of the STF. Hazardous soils containing bound asbestos will undergo a preassessment to confirm that there are no chrysotile fibres >0.1% and other forms of asbestos >0.01%, and also that airborne asbestos concentrations are within the agreed background reference levels for acceptance at the site. Upon satisfactory results, the soils will then undergo pre-screening and hand-picking before being used in restoration of the landfill.

2.2.2 A mechanical three-way screener will be used to remove oversize material from asbestos containing soils. The screened material is then passed through the picking station to allow the removal of any bound asbestos debris. This is to remove larger items (e.g. lumps of concrete) to reduce the potential of damage to the picking station and make hand picking of asbestos debris more effective. Airborne asbestos fibre monitoring will be undertaken, as per current operations for the existing mobile plant deployment at Maw Green.

2.2.3 The screener currently used under the mobile plant deployment is unmodified. Trials on enclosed screeners with a HEPA filter and uncovered screeners with general dust suppression have shown no difference in emissions as they all meet the method detection limit of <0.0005f/ml. However, the use of enclosed screeners is far slower, prone to significant downtime and uses significantly more energy due to reduced throughput for no

environmental benefit. The use of standard dust suppression with a propriety surfactant has been shown to be entirely effective as secondary mitigation to the waste acceptance criteria. The picking station will be an enclosed mobile unit for hand-picking of bound asbestos fragments by trained site operatives. Monitoring for airborne asbestos emissions will be undertaken in ambient air in close proximity to the operating plant to ensure that operations do not result in fibre emissions detected above limits stated, or above the background reference levels of <0.0005f/ml. All soils with solid asbestos containing materials (ACM) are covered whilst awaiting reception testing results. Once the soils are treated, they no longer pose a risk to human health from asbestos content and can be treated as non-hazardous.

2.2.4 As a result of the proposed additional treatment and storage area for asbestos contaminated soils, the source term has been updated to include for this source term at the site.

Waste Volumes

2.2.5 There is no change to the hazardous and non-hazardous waste volumes to be accepted or stored at the landfill or the STF as a result of this permit variation.

Waste Types

2.2.6 It is proposed to add the following hazardous waste types for treatment and storage of asbestos in soils in the new area of the STF:

- 17 05 03* soil and stones containing hazardous substances.
- 17 06 05* construction materials containing asbestos.

2.2.7 Waste code 17 05 03* will be restricted to those wastes which contain identifiable pieces of bonded asbestos – any particle size that can be identified as potentially being asbestos by a competent person if examined by the naked eye. Waste code 17 06 05* will be restricted to wastes containing discrete pieces of bonded asbestos within the soil matrix only.

2.2.8 There will be no other changes to existing waste types accepted at the Maw Green Landfill Site for landfilling or restoration, or at the STF for bioremediation treatment.

Environmental Issues

2.2.9 It is maintained that the proposed new STF area for the treatment and storage of asbestos contaminated wastes will not result in significant or adverse environmental effects due to the nature and scale of the operations.

2.2.10 Airborne asbestos fibre monitoring is already undertaken for the existing mobile plant deployment at Maw Green for the treatment of asbestos-impacted soils with uncovered screener. Airborne dust samples were supplied on gridded MCE membrane filters and were tested in a laboratory using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS). The test results are contained within the

'Treatment Process Description & BAT Review' report ref. 5193-CAU-XX-XX-RP-V-0312, included within this application. The Maw Green asbestos monitoring results provided by the operator from between August and November 2022 shows no discernible asbestos fibre emissions detected, with all results at or below the limit of detection of 0.0005f/ml, with one concentration above this threshold of 0.0006f/ml; this is still well below the anticipated 0.01 f/ml permit threshold limit.

2.2.11 Similarly, the same mobile plant operation is being undertaken as a licenced deployment by Provectus at Edwin Richards Quarry soils treatment facility, for the physico-chemical treatment of hazardous asbestos-impacted soils using a screener plant and hand-picking of bonded asbestos (see the 'Treatment Process Description & BAT Review' report ref. 5193-CAU-XX-XX-RP-V-0312, included within this application). This operation is undertaken within a building, and airborne dust and asbestos fibre monitoring is undertaken inside the building, with samples tested at the laboratory for the presence of asbestos fibres. The monitoring results obtained from both within the building and at the screener deck, using either covered or uncovered screener, were similar and were significantly below the permit threshold of <0.01 f/ml and were observed to be below or close to the limit of 0.0005f/ml. It was concluded the absence of measurable asbestos emissions from the soil screening operation meant that a review of abatement measures could not be made other than to conclude that the waste acceptance approach at the site is entirely successful in preventing airborne asbestos emissions exceeding permit thresholds.

2.2.12 With reference to the above monitoring results obtained from the Maw Green current deployment operations and those at Edwin Richards Quarry soil treatment facility, it can be concluded that provided the operator undertakes the same stringent waste acceptance procedures and operational procedures as currently at Maw Green and also as shown at Edwin Richards, then the risk of airborne asbestos emissions being produced at the site is negligible. This will ensure both the environment and human health of workers and nearby sensitive receptors is protected.

2.2.13 In order to further validate the results of the monitoring undertaken to date an independent review of asbestos treatment and storage of asbestos contaminated soils, is being undertaken at the Maw Green and Edwin Richards sites. This will be forwarded to the Environment Agency following publication.

2.2.14 As part of the permit variation application an Amenity & Accidents Risk Assessment ref. 5205-CAU-XX-XX-RP-V-0310 has been undertaken to assess the impacts on local sensitive receptors in terms of odour, noise, dust and fugitive emissions. A Dust & Emissions Management Plan (DEMP) ref. 5205-CAU-XX-XX-RP-V-0313, and an Odour Management Plan (OMP) ref. 5205-CAU-XX-XX-RP-V-0314 have also been produced covering the proposed activities, detailing dust and odour control measures to be implemented at the site.

Landfill Gas & Leachate Risk Assessment

2.2.15 This assessment reviews whether there is any additional risk from landfill gas or leachate squeezing to sensitive receptors as a result of installing part of the new asbestos soils treatment and storage pad on top of the permanently capped landfill at Maw Green. The extent of the treatment pad is shown on drawing ref. 5193-CAU-XX-XX-DR-V-1807. Due to space constraints at the site, this has been considered necessary and the risks are considered below.

2.2.16 The placement of the treatment and storage pad and associated additional weight of stored material, treatment plant and mobile plant on the landfill cap has the potential to affect the cap integrity, particularly once settlement of the pad has occurred, and also cause a 'squeezing effect' due to the weight of the pad on the landfill mass (including gas and leachate) below.

2.2.17 The risks due to landfill gas from the current site development has been addressed in the previous ESID report, however this provides an additional assessment scenario specifically related to the construction and operation of the new treatment and storage pad in the proposed location.

Landfill Gas

2.2.18 The proposed new treatment and storage pad at the STF will be approximately 4,100m^2 in size and constructed of crushed concrete and an underlying geo-composite clay liner (GCL) with installed drainage. Part of this new pad will be overlying the permanently capped landfill and so underlying landfilled waste has the potential to deform due to the placement of additional weight above. This in turn may cause gas to be squeezed from voids in the compressed areas and create gas pressure gradients to areas away from the zone of compression. The gas generation and flow will subsequently balance with the new weight and pressure of the deposited materials. The following sections present considerations of the short-term impact of this activity on the distribution of landfill gas to ensure that risks are adequately addressed.

2.2.19 The short-term impact would be that the increased loading may generate a pressure gradient leading to advective gas flow away from the area of compression and into the voids in the surrounding waste. The distance that the gas could migrate depends on the availability of inter-connected pores within the waste mass providing a pathway and is impossible to predict accurately due to the heterogeneity of the waste.

2.2.20 The potential impact of such increased gas pressure gradients differs depending on the area of the site where they occur. The area of landfill to be affected, with reference to the 2003 ESID report and attached drawing 'Annual Site Plan 2022' ref. 124A340 Plan 2, is the eastern margin of Phase 1, which is the oldest cell, landfilled in the 1980s and 1990s, is a land-raise, with a natural clay barrier liner and a clay cap, and likely to contain a heterogenous mix of wastes. Due to the age of the wastes in this area, it is likely the majority of settlement has occurred, and the waste is declining source term, producing less gas viable for abstraction. The nearest leachate well to the area affected is LC1.03 (as shown on the attached FCC

'Environmental Monitoring Plan ref. 124E232 Plan 4A (dated 11.03.20), which according to FCC's monitoring data is a 10.08m deep well. From this is it can be surmised that the depth of waste in this area is at least 10m deep from the surface of the capped landform.

2.2.21 Based on environmental plans for the landfill in-waste gas infrastructure, the new STF area does not affect nearby gas wells therefore no additional wells will be required to be drilled.

2.2.22 The risk of gas migration off site as a result of the proposed activities is not considered to be significant provided the existing gas control measures remain effective. To ensure that risks are managed adequately, gas extraction in the area proposed to be installed with the treatment pad should be carefully managed to match the increased gas flow from this area, if this occurs. Any increases observed in methane concentrations in the perimeter wells near to the proposed new treatment pad should trigger a review of the efficiency of gas extraction within that area. It is considered that these actions would mitigate adequately any impact that the proposed activities may have on the short-term behaviour of landfill gas at the site.

Leachate

2.2.23 It is considered the risk to leachate squeezing from the construction and operation of the proposed storage and treatment pad on the margin of Phase 1 of the Maw Green Landfill to be very low. Due to the age of the wastes, as discussed above in Section 2.1.20, it is likely most settlement has already occurred within the waste mass and the additional weight above this area unlikely to cause significant squeezing.

2.2.24 In addition, the treatment pad will be constructed of crushed concrete with a geo-composite clay liner (GCL) with a permeability of 1×10^{-9} m/s, with an installed drainage system that directs surface water run-off to a pumping chamber in the north-east corner of the area before being pumped across to the existing water treatment plant in the eastern STF area. The area where the treatment pad is to be located, above the landfill cap of Phase 1, will be situated on top of an existing 1m minimum thick engineered clay cap, which will provide a second layer of an impermeable barrier to the downward migration of surface water and rainfall. Therefore, it is likely the generation rate of leachate in this area is likely to decrease and reduce the risks posed by leachate in this area.

<u>Treatment Pad Engineering</u>

2.2.25 The operator will ensure the treatment pad will be constructed to prevent shearing of the landfill cap in Phase 1(below), and potential settlement of the area , by carefully designing the pad to limit differential settlement and spread the weight evenly across the landfill cap surface.

3.0 PATHWAY AND RECEPTOR TERM CHARACTERISATION

3.1 Overview

3.1.1 The pathway and receptor term characterisation within the initial 2003 ESID remains valid for the landfill site for: climate, geology, hydrology, hydrogeology and surface water. See attached 2003 ESID report SLR Ref. 4D-197-178/ESID in Appendix 2.

3.1.2 The sensitive receptors and pathways specifically relating to the STF are detailed within the Amenity & Accidents Risk Assessment report ref. 5193-CAU-XX-XX-RP-V-0310, included within the permit variation documents.

4.0 SITE CONDITION REPORT

4.1 Overview

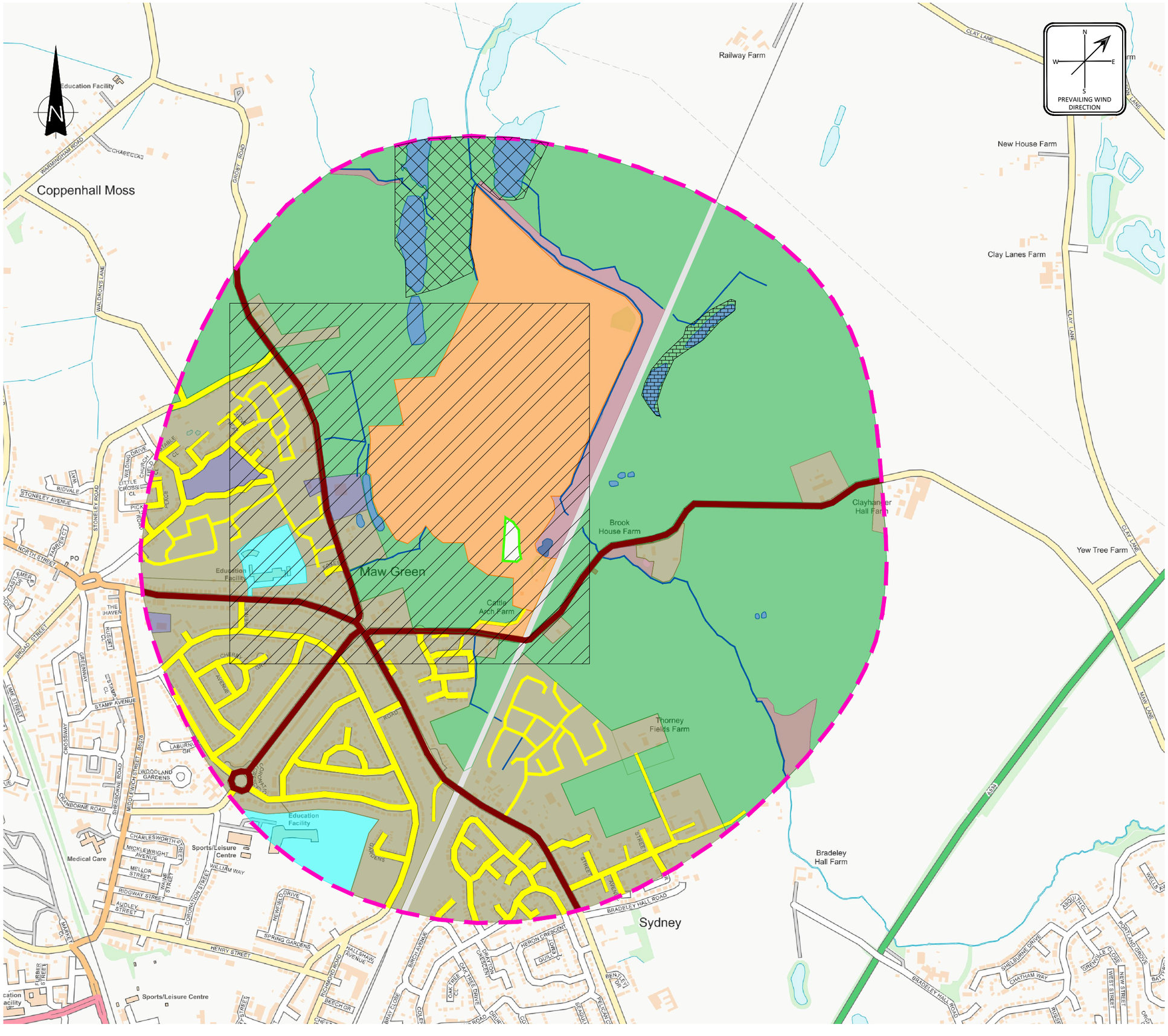
4.1.1 A Site Condition Report was produced as part of a 2019 permit variation for permit ref. EPR/BS7722ID, to add a contaminated soils treatment facility (STF), within the footprint of the former composting facility, within the permit boundary of the existing Maw Green Landfill Site. The STF is now installed and there are no changes proposed to the existing soils bioremediation site operations as a result of this permit variation application.

4.2 Proposed Operations

4.2.1 It is proposed to install a new treatment and storage STF area to the west of the current STF bioremediation area, for the treatment and storage of asbestos contaminated soils, which requires a small part of the treatment pad to be installed on top of the permanently capped landfill mass. Therefore, an updated site condition report is attached as Appendix 1, to account for this additional area. The new STF area is located within the existing Maw Green Landfill permit boundary, and therefore it is not proposed to add additional land to the permit.

DRAWINGS

5193-CAU-XX-XX-DR-V-1804	Sensitive Receptor Plan
5193-CAU-XX-XX-DR-V-1805	Proposed Site Layout Plan
5193-CAU-XX-XX-DR-V-1807	New Treatment Area Location
FCC drawing ref. '124A340 Plan 2'	Maw Green Landfill Site Annual Site Plan 2022
FCC drawing ref. '124E232 Plan 4A'	Maw Green Landfill Site Environmental Monitoring Plan



LEGEND

- ACTIVITY BOUNDARY
- 1000m OFFSET
- SURFACE WATER
- WOODLAND
- COMMERCIAL
- LANDFILL SITE
- RESIDENTIAL
- MAJOR ROAD
- MINOR ROAD
- RAIL
- AGRICULTURAL
- EDUCATIONAL
- RECREATIONAL
- SSSI
- PROTECTED SPECIES - NON FISH
- LOCAL WILDLIFE SITE

REV	MODIFICATIONS	BY	RE	AP	DATE
P01	ISSUED FOR INFORMATION	EJD	SH	SH	19.10.22

PURPOSE OF ISSUE: FOR INFORMATION

STATUS: S2

CLIENT: 3C WASTE LIMITED

PROJECT: MAW GREEN SOILS TREATMENT FACILITY

TITLE: NEW TREATMENT AREA SENSITIVE RECEPTORS PLAN

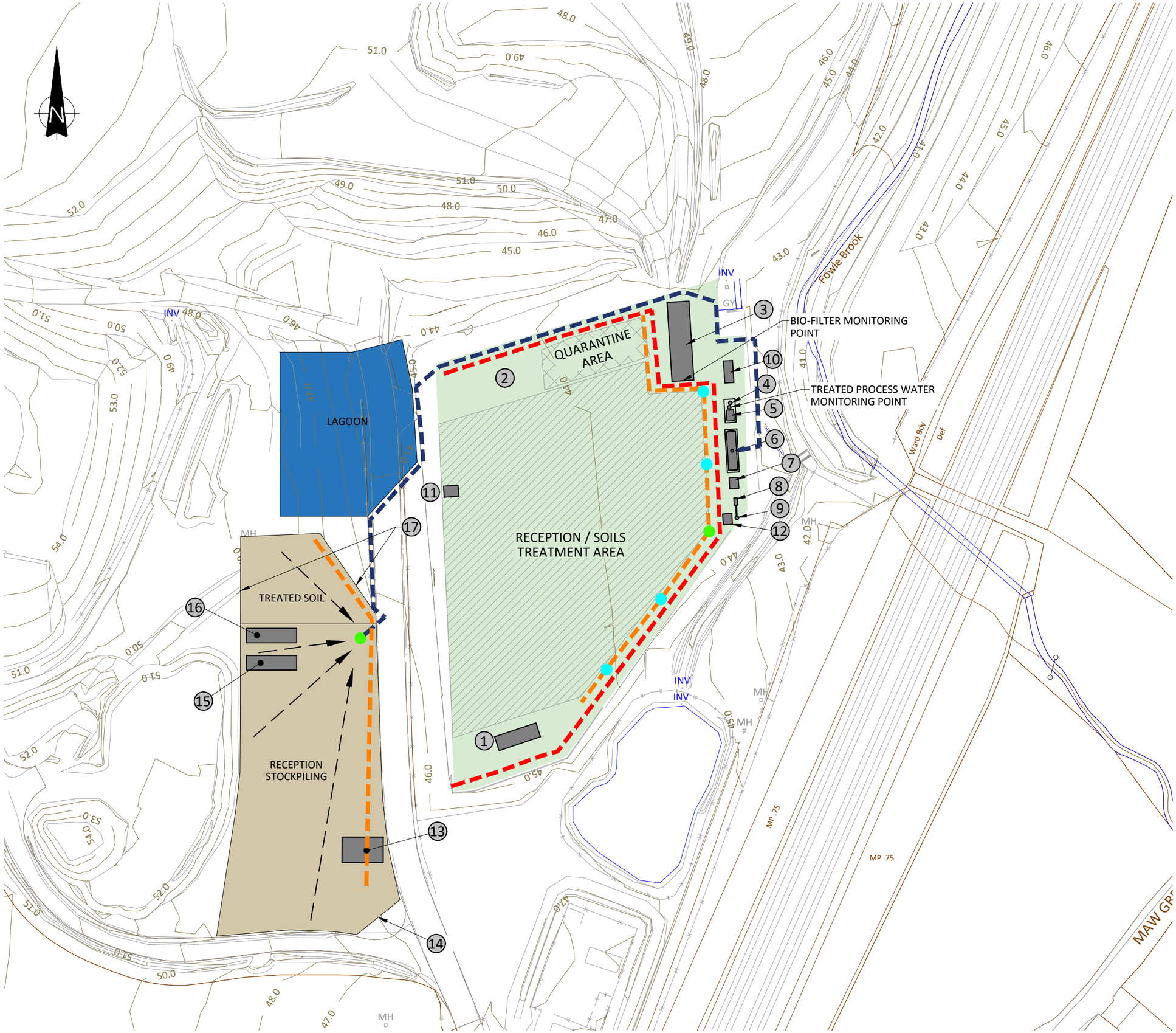
DESIGNED BY	DRAWN BY	REVIEWED BY	AUTHORISED BY
EJD	EJD	SH	SH

DATE	SCALE @ A3	JOB REF:	REVISION
18.10.2022	1:10000	5193	P01

DRAWING NUMBER: 5193-CAU-XX-XX-DR-V-1804

Caulmert engineering environmental planning

Registered Office: InTec, Parc Menai, Bangor, Gwynedd, LL57 4FG Company Registered No: 06716319



LEGEND

- CONCRETE IMPERMEABLE PAVING
- CRUSHED CONCRETE SITE SURFACING WITH GEO-COMPOSITE CLAY LINER (GCL)
- BOUNDARY KERB LINE
- WATER DRAINAGE PIPE
- DISCHARGE LINE
- FALL OF PAD
- DRAINAGE GULLY
- PUMPING CHAMBER
- 1 SITE OFFICE
- 2 NUTRIENT STORAGE
- 3 BIOFILTER
- 4 GRANULAR ACTIVATED CARBON FILTERS
- 5 TRANSFER TANK
- 6 PROCESS WATER SETTLEMENT TANK
- 7 10ft CONTAINER WITH CONTROL PANEL
- 8 BLOWER
- 9 AIR WATER SEPERATOR
- 10 20ft TOOL STORE
- 11 FUEL STORAGE
- 12 3WV
- 13 DECONTAMINATION UNIT
- 14 RECEPTION ENTRANCE AND EXIT
- 15 SOIL SCREENER
- 16 PICKING STATION
- 17 PLANT ENTRANCE AND EXIT

REV	MODIFICATIONS	BY	RE	AP	DATE
P02	UPDATED TO CLIENT INSTRUCTION	EJD	SH	SH	13.12.22
P01	ISSUED FOR INFORMATION	EJD	SH	SH	20.10.22

PURPOSE OF ISSUE: FOR INFORMATION
STATUS: S2

CLIENT: 3C WASTE LIMITED

PROJECT: MAW GREEN SOILS TREATMENT FACILITY PERMIT VARIATION

TITLE: PROPOSED SITE LAYOUT PLAN

DESIGNED BY	DRAWN BY	REVIEWED BY	AUTHORISED BY
EJD	EJD	SH	SH

DATE	SCALE @ A3	JOB REF:	REVISION
19.10.2022	1:1000	5193	P02

DRAWING NUMBER: 5193-CAU-XX-XX-DR-V-1805

Caulmert
engineering environmental planning

Registered Office: InTec, Parc Menai, Bangor, Gwynedd, LL57 4FG Company Registered No: 06716319

LEGEND

- CRUSHED CONCRETE SITE SURFACING WITH GEO-COMPOSITE CLAY LINER (GCL)
- PERMANENTLY CAPPED LANDFILL

REV	MODIFICATIONS	BY	RE	AP	DATE
P01	ISSUED FOR INFORMATION	EJD	SH	SH	21.10.22

PURPOSE OF ISSUE: FOR INFORMATION
STATUS: S2

CLIENT: 3C WASTE LIMITED

PROJECT: MAW GREEN SOILS TREATMENT FACILITY PERMIT VARIATION

TITLE: NEW TREATMENT AREA LOCATION

DESIGNED BY	DRAWN BY	REVIEWED BY	AUTHORISED BY
EJD	EJD	SH	SH

DATE	SCALE @ A3	JOB REF:	REVISION
20.10.2022	1:500	5193	P01

DRAWING NUMBER: 5193-CAU-XX-XX-DR-V-1807

Caulmert
engineering environmental planning

Registered Office: InTec, Parc Menai, Bangor, Gwynedd, LL57 4FG Company Registered No: 06716319


Site
MAW GREEN
LANDFILL SITE
Drawing Title:
Annual Site Plan
2022
Drawn By:
BS
Checked By:
LH
Date:
20.01.22
Scale:
1:2500
Paper Size:
A3
Status:
FINAL
Revision:
Drawing No:
124A340
Plan Number:
PLAN 2

358300N

LEGEND:

- Landfill Gas Monitoring Borehole
- Landfill Gas Surface Monitoring Point
- Combined Gas/ Groundwater Monitoring Point
- Gas Flare Stack
- Landfill Gas Extraction/ Leachate Monitoring Point
- Condensate Unit (Knock-out Pot)
- Gas Manifold
- Groundwater Monitoring Borehole
- Groundwater Pumping Point
- Surface Water Monitoring Point
- Leachate Collection Point
- Leachate Monitoring Point
- Leachate Recirculation Point
- Leachate Collection Sump
- Leachate Discharge Sampling Point
- Leachate Detection Point
- Underdrainage Monitoring Point
- Settlement Monitoring Point
- Drain/ Dewatering Tank
- Valve
- Spike Wells
- Dust Points
- As-built Cell Footprint

NOTES:

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

2. DO NOT SCALE FROM THIS DRAWING.

3. ANY ANOMALIES IDENTIFIED WITH THE DETAILS SHOWN ON THIS DRAWING ARE TO BE BROUGHT TO THE ATTENTION OF FCC ENVIRONMENT (UK) LIMITED PRIOR TO CONSTRUCTION WORKS COMMENCING.

Site:
MAW GREEN
LANDFILL SITE

Drawing Title:
Environmental Monitoring Plan

Drawn By:	Checked By:	Date:	Scale:	Paper Size:
BS	CS	11.03.20	1:3000	A2
Status:	Revision:	Drawing No:		Plan Number:
FINAL	D	124E232		PLAN 4A

APPENDIX 1

Site Condition Report 2022

1.0 SITE CONDITION REPORT 2022

1.1 Background

1.1.1 It is proposed to add an area of land for a new proposed activity at the Soils Treatment Facility (STF) area at Maw Green Landfill, for the treatment and storage of asbestos contaminated hazardous soils, which will be within the permit boundary of the existing Maw Green Landfill permit ref. EPR/BS7722ID.

1.1.2 The proposed area of land for the new activity at the STF will still be within the south-eastern area of the current footprint of Maw Green Landfill Site. The new area will be adjacent to the existing STF area used for the bioremediation of soils, and a small portion of the total new area will sit on the permanently capped landfill mass to the west.

1.1.3 The Maw Green Site is located approximately 2km northeast of Crewe city centre, adjacent to a railway line, with access gained from Maw Green Road to the south. The centre of the new STF area ('the site') is at National Grid Reference (NGR) SJ 71789 57326, to the west of the existing STF, across the haul road.

1.2 Template for Site Condition Reports

1.2.1 The EA guidance on Site Condition Reports (Horizontal Guidance Note H5) sets out the requirements to prepare and maintain a site condition report for facilities that are regulated under the Environmental Permitting Regulations over the lifetime of the site.

1.2.2 A Site Condition Report template is provided within the guidance. The template is divided into sections to be completed at different life stages of the regulated facility:

Sections 1-3 to be completed and submitted with applications for new facilities: This should include a description of the condition of the land at permit issue and a description of permitted activities at the site.

Sections 4-7 to be maintained during the life of the site: This should include a description of any changes to the activities and any changes to the use or production of dangerous substances at the facility. It should also include records of inspections for all pollution prevention measures, pollution incidents that may have had an impact on land and environmental monitoring.

Sections 8-10 to be completed and submitted with surrender applications: This should include a description of site decommissioning and removal of pollution risk and, where relevant, reference data and details of any remediation. Finally, it should include a 'statement of site condition' that is based on the information provided in the previous sections of the report.

1.2.3 To support the permit variation application, Sections 1 to 3 of the Environment Agency's Site Condition Report Template is addressed below.

1.3 Site Details

1.3.1 The details of the operator and the site are as follows:

Name of operator	3C Waste Limited
Activity address	Soils Treatment Facility, Maw Green Landfill Site, Maw Green Road, Coppenhall, Crewe, CW1 5NG
National grid reference	SJ 71789 57326

1.3.2 In the context of this report, 'the site' refers to the new proposed STF area, for the treatment and storage of asbestos soils, to the west of the existing STF soils bioremediation area.

1.3.3 The site will consist of an area of the STF for the storage and treatment of bound asbestos contaminated soils. The proposed site boundary and layout can be seen from drawing 5193-CAU-XX-XX-DR-V-1805 attached to this 2022 ESID report.

1.4 Site Plans

1.4.1 Site plans showing details of the site and its surroundings are included as part of the application for the facility which include the following detail:

- Site location, the area covered by the site condition report and the location and nature of the activities on the site.
- Locations of receptors, sources of emissions/releases, and monitoring points.
- Site drainage.
- Site surfacing.

1.4.2 The list of drawings included is provided in the table below and are attached to this 2022 ESID report:

Drawing reference	Title
5193-CAU-XX-XX-DR-V-1804	Sensitive Receptor Plan
5193-CAU-XX-XX-DR-V-1805	Updated Site Layout Plan
5193-CAU-XX-XX-DR-V-1807	New Treatment Area Location

1.5 Condition of the land at permit issue

1.5.1 The information presented within this section is based on information obtained from the Environment Agency's website, DEFRA Magic Maps website, the British Geological Survey

(BGS) GeoIndex and other publicly available information and previous permit applications for the site.

Geology

1.5.2 The geology stated in the original 2003 ESID remains valid and is summarised as follows:

1.5.3 The site is situated in the central part of the Cheshire Triassic Basin. Strata of the Mercia Mudstone Group underlie the site. Immediately beneath the site is the Wilkesley Halite Formation. Beneath this is a mudstone, below which is the Northwich Halite Formation and another mudstone. The base of the Mercia Mudstone Group is marked by the Tarporley Siltstone Formation and the Group overlies the Sherwood Sandstone Group. The Triassic strata are overlain by a thick sequence of glacial and post glacial deposits, as shown on the 1:50,000 scale geological map. In the vicinity of the site, glacial till is indicated as predominant. This till is described as firm to stiff, red-brown to blue grey, fairly plastic with varying proportions of rock fragments, rounded pebbles and high clay content sand and silt.

Hydrogeology

1.5.4 The site is located on Devensian Glacial Till deposits (silt, clay, sands and gravels) classified by the Environment Agency as a Secondary (undifferentiated) Aquifer. The superficial deposits are underlain by the Wilkesley Halite Member (Halite and Mudstone) of the Mercia Mudstone Group, which has not been given aquifer status by the Environment Agency.

1.5.5 There are no Source Protection Zones (SPZs) within 2km of the site, with the nearest SPZ (Zone III) located over 8km away to the southeast.

Surface waters

1.5.6 The closest surface water feature is a stream, Fowle Brook, to the 140m to the east-northeast of the site, which runs parallel to the railway line along the northeast site boundary. The Fowle Brook was diverted around the east of the Maw Green Landfill Site and is classified by the Environment Agency as a main river and joins up with the River Wheelock further north.

1.5.7 Approximately 530m to the northwest is a pond, which is located directly south of the water features which constitute Sandbach Flashes SSSI (which are 615m northwest of the site). Brook House Pools are located approximately 400m to the north, north-east of the site.

1.5.8 The site is not located within a flood risk zone.

Topography

1.5.9 The site is in a low-lying area, with general ground elevations around 45m Above Ordnance Datum (AOD). The ground rises very gently to both the west and the east, indicating that the site lies in a wide, open valley. The Fowle Brook flows through this valley in a northerly direction. This brook has been diverted around the site.

1.6 Sensitive Sites

1.6.1 A search was conducted for habitats and environmental receptors within a 2km radius of the site. The sensitive receptors are shown on attached drawing ref. 5193-CAU-XX-XX-DR-V-1804.

1.6.2 From a review of the Magic Maps website the site is not within 2km of any of the following designated sites: Areas of Outstanding Natural Beauty (AONBs), Local Nature Reserves (LNRs), National Nature Reserves (NNRs), Ramsar sites, Special Areas of Conservation (SACs), Special Protection Areas (SPAs), or any Scheduled Monuments and World Heritage Sites.

1.6.3 Sandbach Flashes Site of Special Scientific Interest (SSSI) is located approximately 615m north-northwest of the proposed site. The Sandbach Flashes are made up of 14 live units, which are all found north of the site within a 5km radius. The 3 units within 900m of the site are in favourable condition (closest 615m NNW), with 8 units north of this in an unfavourable (no change) condition, one unit being unfavourable declining, and one more unit 3.4km north being in favourable condition. Sandbach Flashes are defined according to Natural England as:

'Sandbach Flashes is a site of physiographical and biological importance. It consists of a series of pools formed as a result of subsidence due to the solution of underlying salt deposits. The water varies from freshwater, chemically similar to other Cheshire meres, to highly saline. Inland saline habitats are extremely rare and are of considerable interest because of the unusual associations of plants and animals. Most of the flashes are surrounded by semi-improved or improved grassland. Fodens Flash is partly surrounded by an important area of wet woodland.'

1.6.4 It is understood that these flashes are the result of subsidence caused by natural or anthropogenic halite dissolution at depth and it is further understood that water within these flashes ranges from fresh to saline due to the present of saline springs in some pools. There is no evidence of any such springs in the immediate vicinity of the site.

1.6.5 Two Local Wildlife Sites (LWSs) have also been identified nearby: Brook House Pools approximately 400m north-northeast, and also Clay Lane Verges approximately 1.5km to the northeast of the site.

1.7 Pollution History

Pollution incidents

1.7.1 The Environment Agency publishes data on reported pollution incidents which were categorised as either 'significant' or 'major'.

1.7.2 There are no major pollution incidents recorded within 5km of the site boundary.

Historic land-uses

1.7.3 Historical activities on site were summarised in the 2003 ESID site condition report for the wider Maw Green Landfill Site. The historic land uses have been summarised below:

Date	Description	Source
1909-1910	Surrounding land is primarily agricultural with four farms around the north and western perimeter, and the hamlet of Maw Green to the south. Site is bounded to the east by the Crewe-Manchester railway line. A brick and pipe works is shown 250m south of Groby Farm on the western perimeter of what is now the site. A lake appears 750m east of Oaktree Farm. Groby Fox Covert (small wooded area) is located 420m south west of Oaktree Farm. Marshy ground appears on the east side of Groby Fox Covert.	OS County Series, 1:2,500 scale
1911	Hospital for infectious diseases appears 1km to the south west of site. Hall O'Shaw Brickworks lies 1km south of site.	OS County Series, 1:10,560 scale
1954	Area to the south west of Maw Green is beginning to be developed for urban use, marked as Coppenhall.	OS County Series, 1:10,560 scale
1959	Castle Arch Farm has appeared 200m south of site.	OS National Grid Series, 1:2,500 scale
1968	Area to the south west of Maw Green is now recorded as fully developed as an area of housing. 500m north of site a series of lakes have appeared. Foden Farm and 'works' have appeared 200m west of site. Acton House has appeared 100m south of Groby Farm on the western site boundary.	OS County Series, 1:10,560 scale
1992	North of site refuse tip has appeared. The lakes/standing water bodies to the north have changed in shape slightly and have grown.	OS National Grid Series, 1:10,000 scale

Evidence of existing or historic contamination

1.7.4 The nearby 'works' (manure works and meat processing plant) located 200m west of the wider landfill site could be considered a possible source of contamination, however this is at quite a distance from the proposed new area of the STF, in the south-eastern portion of the landfill site permitted area.

1.7.5 The proposed site area is currently permitted as part of the wider Maw Green Landfill facility operated by 3C Waste Limited and is to be used for the treatment (hand-picking of bound asbestos) and temporary storage of asbestos contaminated soils prior to treatment. The area will have a crushed concrete site surface installed with an underlying geo-composite clay liner and installed sealed drainage system. A small strip of the western-most area of the new proposed STF area will be situated on top of the permanently capped landfill mass. This area , according to the 2003 ESID, is the oldest area of tipped waste at the site (Phase 1), which was tipped in the 1980s and early 1990s as a 'land raise'. Therefore, it is likely this is a relatively shallow waste deposit. According to the 2003 ESID:

"It should be noted that the details of the engineering in Phase 1 is unavailable. It is assumed that waste deposited in this part of the site was placed on in-situ clay which can be conceptualised as an in-situ geological barrier. The upper surface of the clay would presumably have been graded and levelled such that the remoulded material would act as an artificial

sealing liner. This process has been formalised and subject to CQA procedures in more recent construction phases"

1.7.6 The existing STF area to the east of the proposed new area for soils bioremediation was previously a composting pad and is now a treatment pad for the bioremediation of soils, accepting up to 50,000 tonnes per annum of hazardous and non-hazardous soils. The maximum storage capacity at any one time is 38,000 tonnes. The maximum treatment time for soils undergoing bioremediation is 6 months in general, with the majority being treated in periods of between 8-16 weeks. There will be no change to the bioremediation process as a result of this permit variation. The bioremediation treatment process involves utilising industry standard biopile technology and moisture control, with the addition of suitable materials to the soil, forced air extraction to encourage micro-organism growth and breakdown of hydrocarbons into by products such as carbon dioxide and water vapour.

1.7.7 Table 1 below summarises the potential sources of contamination and their contaminants:

Table 1 – Potential Contamination Sources

Potential Sources		Potential Contaminants
On-site	Landfill -beneath part of the proposed STF Area for the treatment and storage of asbestos contaminated soils	Tipped wastes as a 'land raise' pre-Landfill Directive (likely 1980s and 1990s) and possible 'overtip' of wastes post-2003 (as per ESID) to achieve restoration levels. The leachate quality information provided in the 2003 ESID appears to be typical of a landfill site receiving a variety of waste types and which has been operational for an extended period of time. A variety of List I and List II Substances of the 1998 Groundwater Regulations were also detected. Hazardous ground gases pose a risk, however currently managed by the landfill's gas abstraction infrastructure.
Off-site	Road network	Possible elevated from pH from surface runoff, and chloride where salt is used on the highway in winter.
	Railway	Various contaminants including PAH, hydrocarbons, asbestos, heavy metals and pathogens. Hazardous ground gases pose a risk.

Baseline soil and groundwater reference data

1.7.8 See Section 5.7.6 above for information on the baseline soil and groundwater conditions extracted from the 2003 ESID. The new proposed area will have a crushed concrete site surface installed with an underlying geo-composite clay liner and installed sealed drainage system, preventing the migration of any substances or surface water down into the underlying ground. Further sampling is therefore not considered to be required during the site operations.

1.7.9 The management of the existing site conditions should be taken into consideration when developing the site.

1.8 Permitted activity

1.8.1 The site is currently permitted under environmental permit ref. EPR/BS7722ID and operated by 3C Waste Limited, a wholly owned subsidiary of FCC Environment (UK) Limited. The former compost pad in the existing STF area was operated under WML 60562/M08. The area of land proposed for the treatment and storage of bound asbestos contaminated soils, to the west of the existing STF, will be partly situated on a small margin of the landfill mass, likely tipped in the 1980s and 1990s, pre-Landfill Directive.

1.8.2 The current landfilling activity at Maw Green has the potential to cause pollution, as does the previous activity at the compost pad which is now closed. The activities that currently take place at the existing STF include the biological treatment, with biofilter incorporated, of both non-hazardous and hazardous waste soils, together with the temporary storage of hazardous waste. The existing landfill has surface water emission points, along with the potential to cause odours and landfill gas which will not be associated with the proposed new area at the Soils Treatment Facility.

1.8.3 The proposed new activity within the new STF area will comprise the treatment of asbestos in soils, which will be by handpicking of bound asbestos, and the temporary storage of hazardous wastes, specifically asbestos contaminated wastes in a separate area, prior to treatment. Soils following successful treatment and removal of asbestos will be used directly for restoration on the landfill, however if some hydrocarbon contamination is present, they can be directed to the bioremediation process at the STF prior to sending for restoration.

1.9 Plan showing activity layout

1.9.1 The proposed activity boundary, layout and drainage detail is shown on drawing ref. 5193-CAU-XX-XX-DR-V-1805.

1.9.2 The location of the proposed treatment pad for the treatment and storage of asbestos-impacted soils is shown in drawing ref. 5193-CAU-XX-XX-DR-V-1807, showing the proposed located relative to the underlying permanently capped landfill mass.

1.10 Environmental risk assessment

1.10.1 An environmental risk assessment has been carried out to support the permit application and is presented separately within the Amenity and Accident Risk Assessment report ref.5193-CAU-XX-XX-RP-V-0310. This report is based on Environment Agency guidance on 'Risk Assessments for Your Environmental Permit' (updated 31st August 2022) and assesses the potential risks from odour, noise, fugitive emissions and accidents.

1.10.2 The risk assessments identify risk mitigation measures such as infrastructure, equipment or operational practices that are required to manage the risks from the site. Identified mitigation measures are incorporated as part of the management system for the site. The identified activities that will be conducted at the site which may lead to land pollution along with the identified preventative measures that are needed to be in place to protect the land are

presented within Table 3 'Fugitive emissions' and within Table 4 'Accidents' of the above report.

1.11 Proposed Operations

1.11.1 3C Waste Limited (a wholly owned subsidiary of FCC Environment (UK) Limited) have appointed Caulmert Limited to prepare an environmental permit variation application to vary the existing Maw Green Landfill permit ref. EPR/BS7722ID to add a Section 5.3A(1)(a)(ii) activity to include for the treatment of asbestos in soil. The treatment of soils will be by 3-way screening and handpicking of bound asbestos and is to include an additional area for storage and treatment of solely asbestos contaminated wastes, separate to the current STF area. The proposed area for asbestos handling is located to the west of the current STF, however is within the existing Maw Green Landfill permit boundary.

1.11.2 There is a significant proportion of construction waste suitable for treatment for restoration use that contains incidental fragments of bound asbestos. This has previously been exported from the local region to one of our other soil treatment facilities for treatment and reuse. The operator proposes to use an area on the Maw Green Landfill Site, to the west of the existing STF, for the screening of asbestos contaminated soils and hand-picking of bonded asbestos. Soil suitable for restoration will be retained on site for restoration of the landfill. Unsuitable material will be removed from the site.

1.11.3 The bioremediation process at the existing STF will not change. The treated soils are used primarily in the restoration of Maw Green Landfill Site. The storage of hazardous waste at the site is already covered by listed activity within the permit: Section 5.6 Part A (1)(a) temporary storage of hazardous waste with a total capacity exceeding 50 tonnes.

1.11.4 The proposed location of the new area of the STF for the treatment and storage of asbestos contaminated soils will fall within the current permit boundary of Maw Green Landfill Site; therefore, this application is not seeking to extend the permit boundary. The new area of the STF will be adjacent to the existing STF area and shall sit in the southern part of the site within the footprint of Maw Green Landfill Site, with a small portion of the new treatment area to be located on top of the permanently capped landfill mass, as shown on drawing ref. 5193-CAU-XX-XX-DR-V-1807.

1.11.5 This application proposes new hazardous waste codes to be included in the permit for the STF for the acceptance of asbestos contaminated soils:

- 17 05 03* soil and stones containing hazardous substances.
- 17 06 05* construction materials containing asbestos.

1.11.6 Waste code 17 05 03* will be restricted to those wastes which contain identifiable pieces of bonded asbestos – any particle size that can be identified as potentially being asbestos by a competent person if examined by the naked eye. Waste code 17 06 05* will be restricted to wastes containing discrete pieces of bonded asbestos within the soil matrix only.

1.11.7 Upon satisfactory pre-acceptance and waste acceptance checks, on arrival to site, the soils will be weighed and directed from the weighbridge to the soils reception area and undergo inspection and sampling for reception analytical testing. Asbestos soils will be stored on the crushed concrete pad with geo-composite clay liner (GCL) provided with bunding and sealed drainage. After placement on the storage area, the soils will be sheeted to reduce the potential for air borne emissions.

1.11.8 The pre-acceptance testing is carried out to confirm that the soil does not contain asbestos fibres above >0.1% for chrysotile and >0.01% for other forms of asbestos to ensure that airborne asbestos fibres cannot be generated at concentrations above the HSE clearance/reoccupation limit of 0.01f/ml at the treatment equipment location and an agreed background reference level at the site boundary. Until this initial reception testing has been completed, the soils will remain sheeted. Following formal compliance with the waste acceptance limits confirming that there are no unacceptable asbestos fibre concentrations, the soil is formally accepted and can be stored un-sheeted and will undergo pre-screening and handpicking for bonded asbestos fragments. Soils containing asbestos of >0.1% for chrysotile and >0.01% for other asbestos types, that are observed to contain asbestos concentrations in excess of the waste acceptance limits, will be rejected from site.

1.11.9 Dust suppression will be provided for the asbestos soil treatment and storage areas. This will be continuous misting sprays with overlapping spray arcs, as a dust and asbestos fibre mitigation measure. In addition, air monitoring will be carried out to assess airborne concentrations of asbestos fibres. Asbestos surfactant will be added to the misting sprays for effective removal of asbestos fibres from the air. The Material Safety Data Sheets (MSDS) are provided within the DEMP. Further detail on controls and mitigation for the release of emissions from the proposed activities are provided in the Dust & Emissions Management Plan, document ref. 5193-CAU-XX-XX-RP-V-0313.

1.11.10 The asbestos soils reception area is shown on drawing 5193-CAU-XX-XX-DR-V-1805, however the exact layout will vary over time dependent upon inputs and treatment timescales. Demarcation of the areas will be managed via suitable signage.

1.11.11 The new hazardous soils storage and treatment pad will be constructed from crushed concrete with underlying geo-composite clay liner (GCL). The treatment pads will be designed to have a fall towards a main water collection drain to ensure that water is continually drained from the pads. Drainage systems at the site will lead to sealed sumps and a treatment plant. No surface water runoff will escape to the environment.

1.11.12 Maw Green Landfill, the Soil Treatment Facility and the associated activities on site are managed by the operator in accordance with a management system.

APPENDIX 2

ESID Report (SLR, 2003)

SECTION A

ENVIRONMENTAL SETTING AND INSTALLATION DESIGN

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TABLES

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Dwg No	**ESID1**	**Scale**	50,000	**Title**	Location
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Dwg No	**ESID2**	**Scale**	10,000	**Title**	Environmental Site Setting
Detail		Installation boundary			
		Residential areas			
		Schools			
		Recreational areas			
		Waterways			
		Water bodies			
		Agricultural areas			
		Urban sites			
		Roads, railways			
Dwg No	**ESID3**	**Scale**	25000	**Title**	Cultural and Natural Heritage
Detail		Natural heritage SSSIs, Cultural heritage Listed buildings Scheduled ancient monuments			
Dwg No	**ESID4**	**Scale**	2500	**Title**	Site Layout and Waste Deposition
Detail		Cell layout			
		Filled areas			
		Pre-settlement contours			
		Security infrastructure			
Dwg No	**ESID5**	**Scale**	2500	**Title**	Restoration
Detail		Post settlement contours			
		Topography 500m outside site			
		Landscape planting proposals			
		Aftercare proposals			
		Infrastructure (tanks, hard surfacing, quarantine areas)			
Dwg No	**ESID6A**	**Scale**	2500	**Title**	Installation Lining Details
Detail		Engineering of basal containment system			
		Groundwater control (not applicable)			
		Surface water management features (not applicable)			
Dwg No	**ESID6B**	**Scale**	2500	**Title**	Installation Capping System Details
Detail		Engineering of capping system			
Dwg No	**ESID7**	**Scale**	2500	**Title**	Leachate Management
Detail		Leachate sumps, abstraction wells, risers etc			
		Leachate treatment plant			
		Monitoring point location/ construction detail			

Dwg No	**ESID8**	**Scale**	2500	**Title**	Landfill Gas Management
Detail		Gas wells (location and construction)			
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		Flare(s) location			
		Engine location			
Dwg No	**ESID9A**	**Scale**	25000	**Title**	Regional Geology-Drift
Detail		Solid geology (taken from BGS Geological Map)			
		Any appropriate regional cross sections			
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Detail		Regional geology (taken from BGS Geological Map)			
		Any appropriate regional cross sections			
Dwg No	**ESID10**	**Scale**	10000	**Title**	Regional Hydrogeology
Detail		Aquifer classification			
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		Local springs			
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Detail		Groundwater levels (for each groundwater body)			
		Groundwater flow to discharge points			
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Dwg No	**ESID13**	**Scale**	2500	**Title**	Source, Pathways, Receptors
Detail		Leachate management plant			
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		Met station location (if on site)			
		Receptors			
		Surface water Groundwater Amenity			
		Pathways			
		Air- include wind rose			

APPENDICES

1.0 INTRODUCTION

1.1 Report Context

Waste Recycling Group (WRG) has retained SLR Consulting Ltd (SLR) to complete the PPC Re-permit Application for its Maw Green Landfill Site, near Crewe, Cheshire.

The Landfill Regulations 2002 require existing landfills, currently managed under the Waste Management Licensing Regulations 1994, to apply for a PPC Permit under the PPC Regulations 2000. This process is required to implement European Directives on the Landfilling of Waste (The Landfill Directive), and on Integrated Pollution Prevention and Control (IPPC Directive).

The application for a PPC Permit requires the development of a conceptual site model that details the environmental setting of the site and the proposed installation design. Where the installation includes previously landfilled areas the construction and nature of these areas must also be considered. This report therefore details the nature of the site in terms of geology, hydrogeology and local land use, and details the design of the existing installation and that proposed for further development. This report also details the historic development of the site and satisfies the requirements for a Site Report.

The installation comprises the continued operation of a 19 cell landfill of which Cell 10B is currently receiving waste and Cell 12 has been prepared ready for the acceptance of waste. In addition to the presently licensed landfill (known as Phase 2), an area of older landfilling (known as Phase 1) is present in the south of the application site. It is proposed that this area will be partially over-tipped in order to achieve the approved restoration scheme and provide adequate surface water management for the site.

1.2 Installation Details

The southern boundary of the installation is located approximately 2km north of the centre of Crewe (i.e. on the outskirts of Crewe), in the county of Cheshire, its location is indicated on Drawing ESID 1. The site is centred on national grid reference SJ 717 575. Historically, the site has been operated as a co-disposal facility taking both hazardous and non-hazardous wastes. However, under the Landfill Regulations 2002 co-disposal must end, and the installation will therefore become a non-hazardous facility after July 2004.

The installation boundary is indicated on Drawing ESID 2. The site will be secured using fences and gated accesses throughout the period prior to the definite closure of the site. Gates will be locked outside of the permitted opening hours.

The site is in a low lying area, with general ground elevations around 45maOD indicated. Ground rises very gently to both the west and east, indicating that the site lies in a wide open valley. The Fowle Brook flows through this valley in a northerly direction. This brook has

been diverted around the installation on the eastern boundary under authority of the 1995 Planning Permission and with the consent of the Environment Agency (EA).

Drawing ESID 2 indicates the surrounding land use and Drawing ESID 13 identifies the potential receptors in the vicinity of the site. Table ESID 1 below details the receptors identified. Drawing ESID 3 indicates cultural and natural heritage sites (designated at national or international level) within 5km of the site.

TABLE ESID 1: POTENTIAL ENVIRONMENTAL RECEPTORS WITHIN THE VICINITY OF THE SITE

Receptor Name	Type of Receptor	Minimum Distance from Boundary (m)	Direction from Site Boundary	Receptor Reference (Drawing No.ESID13)
Brook House Farm	Residential	220	E	13.1
Meadow Croft Cottage	Residential	70	SE	13.2
Cattle Arch Farm	Residential	10	S	13.3
Windy Nook	Residential	30	W	13.4
Works	Industrial	30	W	13.5
Acton House Farm	Residential	110	NW	13.6
Perimeter Footpath	Recreational	0-5	NE	13.7
Sandbach Flashes SSSI	Nature Conservation	25	N	13.8

Drawing ESID 2 indicates that the site is in a predominantly agricultural setting on the north-eastern outskirts of the town of Crewe. As such, potential environmental receptors include domestic dwellings both within the town and farms surrounding the site. In addition, surface water receptors are present within the Sandbach Flashes Site of Special Scientific Interest (SSSI) to the north and the diverted Fowle Brook to the east being the closest to the site, as indicated in Drawing ESID 13.

The large areas of housing on the outskirts of Crewe are identified as being a significant potential receptor. However, receptor 13.4 is considered to be representative of these locations.

Drawing ESID 2 does not indicate the presence of many potential sources of non-landfill related contamination; the only potentially industrial unit being works, 30m west of the site. Potential non-landfill sources of contamination are discussed further in Section 2 and Section 4.

2.0 SOURCE TERM CHARACTERISATION

2.1 The Development of the Installation

2.1.1 Historical Development

Planning and Licensing History

Planning permission for a land raise operation utilising controlled wastes was granted by Cheshire County Council to itself in 1984, and a resolution was subsequently passed by the County Council Highways Sub-committee acting as Waste Disposal Authority under the Control of Pollution Act 1974 in October 1984 (Licence Number 60562) to permit disposal of controlled wastes under the Act. A new licence was issued to 3C Waste Limited in February 1993 by the County Council acting as Waste Disposal Authority under the Environmental Protection Act 1990 in order to implement the requirements of that Act. This licence was modified in February 1995 to update the conditions and again in September 1995 to permit disposal of wet pulverised waste. Further planning permission for an extension to the site and the demolition of a meat processing plant was granted in 1995 which included permission to divert the Fowle Brook.

A modification to the waste disposal licence was granted in October 1995 requiring the completion of a Regulation 15 Assessment under the Waste Management Licensing Regulations 1994. The Licence was formally converted to a Waste Management Licence by the Environment Agency in June 1998 and the conditions were again updated. It is noted that a composting facility was added to the licence at this time. Further modifications were issued in October 1999 (Licence No. 60562/MO5) and April 2001 (Licence No. 60562/MO6) to further update the licence conditions. In July 2002 a further modification was issued (Licence No. 60562/MO7) to modify the permitted waste types for the site and increase the tonnage inputs.

The planning permissions relating to the site are included in Appendix ESID 1.

Development History

The site was developed primarily on agricultural land as a land raise facility, although latterly up to 8m of clay has been extracted prior to waste deposition in order to provide engineering materials both for the Maw Green Phase 1 site and for other installations. The historic development of the land prior to the deposition of waste is detailed in Table ESID 2.

TABLE ESID 2: HISTORY OF LANDUSE AT THE SITE

DATE	DESCRIPTION	SOURCE
1909 & 1910	Land use is agricultural use, and is a mosaic of fields, most with ponds marked within them, some with marshy ground adjacent to the ponds. Four farms lie on the north and western perimeter. Site is bounded to the east by the Crewe-Manchester railway line. A manure works is shown within the site boundary A brick and pipe works is shown 250m south of Groby Farm on the western perimeter Small lake shown 150m south west of manure works. A lake appears 750m east of Oaktree Farm. Groby Fox Covert (small wooded area) is located 420m south west of Oaktree Farm. Marshy ground appears on the east side of Groby Fox Covert. A stream runs south to north through the middle of the area.	OS County Series, 1:2,500 scale
1911 & 1938	Land use as 1909 – 1910.	OS County Series, 1:10,560 scale
1954	Groby Fox Covert no longer present, agricultural land marked. Lake to the north has increased in size 100%.	OS National Grid Series, 1:10,560 scale
1959, 1968 & 1979	Lake south west of manure works has become marshy ground and has increased in size by 50%. 'Manure works' becomes 'works' (1959). Lake to the north has altered in shape and size. Marshy ground west of previous location of Groby Fox Covert has become a lake and increased in size by 50%. 'Works' have appeared west of the manure plant. Area now criss-crossed by drains (1968) Shandon House becomes Shandon House Farm (1968).	OS National Grid Series, 1:2,500 scale OS National Grid Series, 1:10,560 scale OS National Grid Series, 1:10,000 scale
1990	Area unchanged.	OS National Grid Series, 1:10,000 scale
1992	Shape and size of lakes in northern section has changed. Abattoir has replaced manure works 650m south west of Groby Farm Area surrounding abattoir has become landfill	OS National Grid Series, 1:10,000 scale

Examination of Table ESID 2 indicates that there has been little activity on the site that may have given rise to historic contamination. The only exception is the manure works (latterly an abattoir and meat processing plant). The Fowle Brook, which formerly flowed across the site, has been diverted around the eastern perimeter of the site. The former bed of this stream (if still unexcavated), and those of small ponds shown within the site on older maps could be sources of gases and ammoniacal nitrogen as a result of deposits high in organic content. However, it is understood that several metres of material has been stripped from all areas of Phase 2 prior to landfill construction and as such this is not considered to be a hazard at this site.

It is noted that the installation includes a nissen hut used for the storage and maintenance of vehicles and therefore this area is a potential source of non-landfill contamination, particularly with hydrocarbons. Further, a composting slab and a waste transfer station are present within the installation boundary but these are not considered likely to give rise to significant contamination as they are bunded and positively drained, as required by the current Waste Management Licence. These facilities are not included within this installation and would continue to be regulated via the existing Waste Management Licence until the landfill footprint envelops them and they cease to operate.

2.1.2 Proposed Development

The installation, which has been utilised as a co-disposal site taking both hazardous and non-hazardous wastes, will be operated as a non-hazardous site after July 2004. Appendix ESID 2 details the proposed wastes types to be acceptable under the PPC Permit.

The location of the cells of the current phase, Phase 2, are shown in Drawing ESID 2 and are detailed, along with the approved restoration scheme in Drawings ESID 4 and 5 respectively. The site will be operated in a phased manner with cells being capped and restored once waste deposition in that cell has been completed. It is also required that partial over tipping of the Phase 1 site will need to be undertaken to achieve the approved restoration landform.

Leachate analysis has been undertaken regularly for a range of List II species (as defined in the Groundwater Regulations 1998).

Leachate quality data for ammoniacal nitrogen, chloride, COD, BOD and electrical conductivity is shown graphically in Appendix ESID 3.

Following review of the leachate quality data, the following summary can be made:

- Electrical conductivity values ranged from 449 µS/cm (LC2.02) and 87400 µS/cm (LC2.15).
- Ammoniacal nitrogen concentrations varied between <0.6 mg/l (LC1.01-LC1.06 and LC2.15) and 8220 mg/l (LC2.14).
- Chloride concentrations ranged from 15 mg/l (LC1.01) to 50600 mg/l (LC2.14).
- pH values ranged between 6.3 (LC2.02) and 8.4 (LC2.14).
- The leachate quality appears to be typical of a landfill site receiving a variety of waste types and which has been operational for an extended period of time.

Spot analysis for List I species, as defined in the Groundwater Regulations, have been undertaken and indicate that such substances are present within the leachate. The leachate

analysis, taken from collection chambers in Phase 1 and Phase 2 indicated that the following List I substances are present:

- Mecoprop (147 and 239µg/l)
- Aldrin (40ng/l in LC2.13)
- 1,2,4 trichlorobenzene (117µg/l in LC1.02)
- Chloroethane (13.1µg/l in LC1.02)
- Benzene (4.2µg/l in LC1.02)
- Ethylbenzene (93.4 and 23.6µg/l)
- m-,p-xylene (88.4 and 10.2µg/l)
- o-xylene (51.4 and 8.4µg/l)
- 1,3,5 trimethylbenzene (7.4µg/l in LC1.02)
- 1,2,4, trimethylbenzene (5.9 and 7.4µg/l)
- p-isopropyltoluene (4.7µg/l in LC1.02)
- Napthalene (7.1 and 2.1µg/l)
- 2,4,6 trichlorophenol (2.2µg/l in LC1.02)

Consideration of the waste types that have been and are proposed to be accepted at the site indicate that the landfill has the potential to generate substances on List I and List II of the Groundwater Regulations 1998. In addition, leachate analysis has confirmed the presence of such substances in leachate. Therefore it is concluded that the Groundwater Regulations 1998 do apply to the proposed development as the installation has the potential to give rise to an indirect discharge to groundwater of substances listed in the Regulations. Therefore, it is concluded that a leachate collection system is required at this installation.

The proposed final restoration of the site is indicated on Drawing ESID 5. In summary, the majority of the site will be restored to agricultural pasture land with wooded areas while land in the north will be restored and managed as species rich grassland.

2.2 Installation Engineering

The installation is presently operated on the basis of engineered containment, and the installation will continue to be operated on this basis. The conceptual design of the containment system and the environmental management systems for the proposed installation is detailed below. Table ESID 3 summarises the characteristics of these systems in those parts of the landfill which have already been constructed. The details summarised in Table ESID 3 are taken from Construction Quality Assurance (CQA) reports prepared following construction.

It should be noted that the details of the engineering in Phase 1 is unavailable. It is assumed that waste deposited in this part of the site was placed on in-situ clay which can be conceptualised as an in-situ geological barrier. The upper surface of the clay would presumably have been graded and levelled such that the remoulded material would act as an

artificial sealing liner. This process has been formalised and subject to CQA procedures in more recent construction phases.

TABLE ESID 3A: SUMMARY OF EXISTING LANDFILL ENGINEERING

Phase/Cell	Basal Liner	Side wall Liner	Leachate Collection	Capping system
1	In-situ clay	In-situ clay	Retro-installed extraction wells	Compacted clay overlain by restoration soils
2/1	Compacted clay	Compacted clay	Herringbone drainage system and leachate chambers	Compacted clay overlain by restoration soils
2/2	Compacted clay	Compacted clay	Herringbone drainage system and leachate chambers	Compacted clay overlain by restoration soils
2/3a	Compacted clay	Compacted clay	100mm drainage layer and leachate chamber over 150mm blanket of hard core stabilisation layer including pipework	Compacted clay overlain by restoration soils
2/3b	1993-1994 1m of compacted clay	Assumed to be same as base	100mm drainage layer and leachate chamber over 150mm blanket of hard core stabilisation layer	Compacted clay overlain by restoration soils
2/4	1993-1994 1m of compacted clay	Assumed to be same as base	100mm drainage layer and leachate chamber over 150mm blanket of hard core stabilisation layer	1999 1m of compacted clay overlain by restoration soils
2/5	1994 1m of compacted clay	internal bund only	200mm gravel blanket, geotextile separator and collection pipework. Telescopic leachate shaft	Compacted clay overlain by restoration soils
2/6	1994 1m of compacted clay	internal bund only	200mm gravel blanket, geotextile separator and collection pipework. Telescopic leachate shaft	Compacted clay overlain by restoration soils
2/7A	1m of compacted clay	Assumed to be same as base	200mm gravel blanket, geotextile separator and collection pipework. Leachate chamber and leachate monitoring point	1998-1999 1m of compacted clay overlain by 1000mm of subsoil (Area A) or 750mm subsoil and 250mm topsoil (Area B)
2/7B	1m of compacted clay	Assumed to be same as base	200mm gravel blanket, geotextile separator and collection pipework. Leachate chamber and leachate monitoring point	1998-1999 1m of compacted clay overlain by 1000mm of subsoil (Area A) or 750mm subsoil and 250mm topsoil (Area B)

TABLE ESID 3A (CONTINUED): SUMMARY OF EXISTING LANDFILL ENGINEERING

Phase/Cell	Basal Liner	Side wall Liner	Leachate Collection	Capping system
2/8	1996 1m of compacted clay	1.15m of compacted clay	Tyres and collection pipework. Telescopic leachate shaft	1m of compacted clay overlain by 1m of restoration soils
2/9	1998-1999 1m of compacted clay	1.15m of compacted clay	3m thick tyre drainage blanket Leachate collection chamber and two leachate monitoring points	1999 1m of compacted clay overlain by 1m of restoration soils
2/10A	2000-2001 1m of compacted clay	1.15m of compacted clay	300mm thick gravel drainage blanket underlain by a geotextile separator and including collection pipework. Leachate collection chamber and two leachate monitoring points	1mm welded geomembrane overlain by 1m of restoration soils
2/10B	1m of compacted clay	1m of compacted clay	300mm thick gravel drainage blanket underlain by a geotextile separator and including collection pipework. Leachate collection chamber and two leachate monitoring points	Currently being filled
2/11	2000-2001 1m of compacted clay	1.15m of compacted clay	300mm thick gravel drainage blanket underlain by a geotextile separator and including collection pipework Leachate collection chamber and two leachate monitoring points	1mm welded geomembrane overlain by 1m of restoration soils
2/12	1m of compacted clay	1m of compacted clay	300mm thick gravel drainage blanket underlain by a geotextile separator and including collection pipework Leachate collection chamber and two leachate monitoring points	Proposed to use clay regulating layer overlain by 1mm welded geomembrane and in turn overlain by 1m of restoration soils, including an additional clay protection layer

TABLE ESID 3B: SUMMARY OF PROPOSED LANDFILL ENGINEERING

Phase/Cell	Basal Liner	Side wall Liner	Leachate Collection	Capping system
2/13 (proposed)	1m of compacted clay	1m of compacted clay	300mm thick gravel drainage blanket underlain by a geotextile separator and including collection pipework Leachate collection chamber and two leachate monitoring points	Proposed to use clay regulating layer overlain by 1mm welded geomembrane and in turn overlain by 1m of restoration soils, including an additional clay protection layer
2/14 (proposed)	1m of compacted clay	1m of compacted clay	300mm thick gravel drainage blanket underlain by a geotextile separator and including collection pipework Leachate collection chamber and two leachate monitoring points	Proposed to use clay regulating layer overlain by 1mm welded geomembrane and in turn overlain by 1m of restoration soils, including an additional clay protection layer
2/15 (proposed)	1m of compacted clay	1m of compacted clay	300mm thick gravel drainage blanket underlain by a geotextile separator and including collection pipework Leachate collection chamber and two leachate monitoring points	Proposed to use clay regulating layer overlain by 1mm welded geomembrane and in turn overlain by 1m of restoration soils, including an additional clay protection layer

Notes
1 Proposed cells may be sub-divided or the number of cells may vary.
2 The existing cap on Phase 1 will be left in place prior to over filling, though the restoration soils will be removed.

2.2.1 Groundwater Management System

Examination of the geological logs and of laboratory testing data contained within the CQA documents indicates that the underlying geological materials are of low permeability and therefore that no groundwater management system is required.

2.2.2 Basal Lining System

The installation is underlain by till deposits to a depth of at least 13m as proven in site boreholes, with a proven permeability of not more than $6x10^{-10}$ m/s, and frequently not more than $1x10^{-10}$ m/s. Therefore it is proposed that the in-situ material will be utilised as the geological barrier. Prior to installation of the artificial sealing liner the surface of the in situ clay will be rolled and inspected with any soft areas being removed and replaced with stockpiled natural materials.

The artificial sealing liner will be formed from clay excavated from the site and will comprise 1m of remoulded clay, placed under a CQA scheme to be agreed with the EA. It has been proven that undisturbed samples of reworked and compacted clay, used to form the artificial sealing liner, have a permeability of not more than $1x10^{-9}$ m/s.

A leachate collection blanket will be placed across the base of the site and will comprise a 300mm thick non-calcareous gravel layer. In addition a perforated 150mm (outside diameter) pipe will be laid in the base of each cell along the longest axis of the cell with a fall of 1:50 to the leachate extraction sump as detailed in Section 2.3.2. The leachate blanket will not be extended up external slopes.

A CQA Plan will be agreed with the EA prior to the commencement of works on each cell.

The design of the basal lining system is shown in Drawing ESID 6A.

2.2.3 Side Slope Lining System

The natural till deposits are of sufficiently low permeability (not more than 6 $x10^{-10}$ m/s) that they may form the geological barrier, and given the low permeability of this material a low permeability artificial sealing liner is not required, and therefore a leachate collection layer is not required on the side slopes. Notwithstanding this, clay will be excavated and re-compacted to form an artificial sealing liner on these slopes. The lining system is indicated in Drawing ESID 6A.

2.2.4 Capping System

Following completion of waste deposition within a cell the cell will be capped as soon as practicable. The elements that will make up the capping system are described below and are illustrated in Drawing No ESID 6B. The cap will be placed under a Construction Quality Assurance plan.

A 1000mm clay cap will be provided, above the waste, and overlain by restoration soils.

Alternatively, 1mm geomembrane capping liner will be provided which, when combined with the clay regulating layers described below will minimise infiltration and therefore minimise the generation of leachate. A 300mm thick clay regulating layer will be placed above the waste, onto which the geomembrane cap will be placed. A 300mm thick clay protection layer will be placed above the geomembrane, and this will be overlain by 700mm of restoration soils. It is also likely that a geocomposite drainage layer will be placed above the geomembrane.

2.3 Leachate Management and Monitoring

2.3.1 Leachate Generation

Appendix ESID 4 presents a water balance that estimates the volume of leachate generated by the existing phases and also considers the potential generation from the proposed cells. The appendix also presents the estimation of the size of the proposed cells so as to reduce the volume of leachate generated in the short term.

2.3.2 Leachate Management and Monitoring

Leachate levels are recorded on a weekly and monthly basis at the Leachate Chambers (LC) and Side Slope Risers (LS) in accordance with current licence requirements. Samples are also taken monthly from the leachate collection chambers as detailed in Appendix ESID 3. The samples are analysed for a range of determinands listed below:

1) Monthly for:

pH, electrical conductivity and temperature.

2) Quarterly for:

In addition to the monthly suite: alkalinity, ammoniacal nitrogen, calcium, chloride, magnesium, potassium, sodium, sulphate, biological oxygen demand, chemical oxygen demand, total organic carbon, total oxidised nitrogen and phenol.

3) Annually for:

In addition to the quarterly suite: cadmium, chromium, copper, iron, lead, manganese, nickel, zinc, mercury, total cyanide and List 1 substances.

Leachate will be extracted from a sump within each cell of Phase 2 and will be extracted via retrospectively installed leachate wells from Phase 1 (LC1.01 to 1.06) such that the head of leachate at the base of the liner can be managed. Appendix ESID 4 details the risk assessment undertaken to verify that the proposed design will be capable of providing this control in the remaining cells in Phase 2. A leachate treatment plant will be provided to treat the leachate to a standard where discharge to the United Utilities pubic sewer network is possible as detailed within the discharge consent, dated 6th February 2003 granted by the sewerage undertaker to discharge trade effluent from the site.

Recirculation of leachate is not generally undertaken although the irrigation of leachate onto waste in the active cell may be undertaken if necessary to manage leachate volumes and to utilise absorptive capacity in the waste.

Leachate heads within the site during 2001-2002 are indicated graphically in Appendix ESID 5 and summarised in Table ESID 4. The monitoring points from which these data are obtained are illustrated in Drawing ESID 7.

TABLE ESID 4A: LEACHATE ELEVATION SUMMARY FOR MONITORING POINTS (2001-2002)

Monitoring Point	Count	Leachate depth (m)			
		Min	Average	Max	St. dev
LS2.71	7	1.61	3.80	5.61	1.99
LS2.72	10	1.25	2.56	4.94	1.41
LS2.73	3	3.46	12.24	16.83	7.60
LS2.75	7	0.72	5.73	11.91	4.98
LS2.76	10	3.13	7.87	12.97	4.05
LS2.81	10	2.70	7.19	13.29	3.54
LS2.93	4	1.55	3.11	5.71	1.84

TABLE ESID 4B: LEACHATE ELEVATION SUMMARY FOR COLLECTION POINTS (2001-2002)

Collection Point	Count	Leachate depth (m)			
		Min	Average	Max	St. dev
LC1.01	51	0.08	0.62	1.36	0.21
LC1.02	69	0.07	1.46	5.37	1.54
LC1.03	68	0.00	0.81	3.00	0.47
LC1.04	69	0.07	1.11	5.10	0.99
LC1.05	69	0.25	1.43	4.51	1.15
LC1.06	69	0.05	0.70	2.08	0.35
LC2.01	10	4.73	7.74	10.39	1.70
LC2.02	10	3.10	6.42	11.32	3.10
LC2.03	10	2.99	5.67	7.70	1.18
LC2.04	10	3.48	7.11	8.66	1.52
LC2.05	16	11.84	12.33	13.08	0.38
LC2.06	10	3.12	6.60	9.09	2.64
LC2.07	10	3.91	6.19	10.24	1.69
LC2.08	10	3.40	5.14	7.89	2.14
LC2.09	10	5.33	5.94	6.81	0.55
LC2.10	4	5.78	6.04	6.16	0.18
LC2.11	9	7.07	7.35	7.67	0.18
LC2.12	9	6.49	7.69	8.52	0.74
LC2.13	17	0.03	0.76	1.12	0.35
LC2.14	17	5.60	6.27	7.23	0.46
LC2.15	105	0.31	6.78	8.79	1.92

Examination of the data indicates that leachate heads (i.e. the head of leachate acting on the basal liner in Phase 2 and on the in-situ geological barrier Phase 1) ranges from near zero to 13.08m. It is noted that the current Waste Management Licence sets the maximum leachate head at 1m above the base of the landfill and without a risk based approach being adopted. The hydrogeological risk assessment associated with this application also indicates that the essential and technical precautions at the installation should include a maximum head of 4m within Phase 1 and 6m within Phase 2 as determined within the Hydrogeological Risk Assessment[1].

Leachate quality monitoring has been undertaken regularly as detailed above. In addition, samples from leachate wells were taken in February 2003 for a List I analysis under the Environment Agency framework. The leachate chemistry is detailed in Section 2.1.2.

[1] SLR Consulting Limited, 2003, Maw Green Landfill Site, Hydrogeological Risk Assessment, Ref: 4D-197-178/HRA

As detailed in Section 3.5 the site is not sub-water table, and there is no groundwater management system (Section 2.2.1). Therefore no consideration of interaction between groundwater management systems and leachate is required.

2.4 Landfill Gas Management and Monitoring

2.4.1 Landfill Gas Generation

As part of the landfill gas risk assessment process, total bulk landfill gas production was simulated by GasSim and is also presented within Appendix ESID6. This simulation indicates that the peak predicted gas generation occurs in 2009 with a peak flow of 5,100 m^3 hr^{-1} (50^{th} percentile).

This confirms that flaring and/or utilisation will be required during the landfill's lifecycle in order to comply with the requirements of the Landfill Regulations, 2002[2].

The composition of landfill gas will vary according to the type of waste and the time that has elapsed since deposition within the site. However, typically in a contained site taking biodegradable wastes, landfill gas usually consists of approximately 64% methane, 34% carbon dioxide, 2% nitrogen, <1% oxygen and 1% trace elements such as organic gases and vapours[3].

On-site monitoring of composite landfill gas concentrations, taken prior to flaring, indicates that the landfill gas being generated at Maw Green Landfill historically consists of 53 to 63% v/v methane and 35 to 43% carbon dioxide.

2.4.2 Landfill Gas Management

The landfill gas management system is indicated in Drawing ESID 8 and consists of a network of vertical extraction wells which actively extract gas for use in the on-site electricity generation facility. The gas utilisation plant consists of 4 gas engines with a total capacity of approximately 2400 m^3 hr^{-1}. Should total gas generation exceed this figure or if any of the engines are temporarily out of commission, a flare stack with a maximum capacity of 1000 m^3 hr^{-1} is on site to burn off any residual gases. The engines and flare are located in a compound in the south-east of the installation.

[2] The estimated value exceeds the simplistic benchmark value of 50 to 100 m^3 hr^{-1}, which has been proposed by the Environment Agency as an indication as to whether flaring or utilisation is viable under the terms of the Landfill Regulations, 2002. The benchmark gas flow rate for gas utilisation is 600 m^3 hr^{-1}. These Regulations state that landfill gas must be collected from all landfills receiving biodegradable waste and the landfill gas must be treated and, to the extent possible, used. In addition, landfill gas that cannot be used to produce energy must be flared.

[3] Environment Agency, November 2002. Guidance on the Management of Landfill Gas.

2.4.3 Landfill Gas Monitoring

Landfill gas monitoring is undertaken at monthly intervals from each leachate extraction point and from a series of perimeter gas monitoring boreholes as indicates on Drawing ESID 8. The results of this monitoring are included in Appendix ESID 7 and are summarised graphically.

2.5 Post Closure Controls

Section 2.2 details the engineering controls that will be emplaced during the development of the installation and that will form the basis of the management system after the definite closure of the site. It is noted that these engineering controls meet the minimum requirements specified in the Landfill Regulations 2002. The conceptualisation of the site management measures throughout the life of the site is detailed in Table ESID 5.

It is acknowledged that the performance of some parts of the engineered control system may degrade over time, and the Regulations require the impact of this degradation to be assessed. Landsim 2.5 includes degradation of landfill control systems based on scientific research and this model has been used to assess the performance of the installation over the entire life of the site. The Hydrogeological Risk Assessment[1] therefore demonstrates that the site will comply with the Groundwater Regulations at all times during the landfill's life cycle.

A stability analysis has been carried out for the engineered containment system both prior to and after the deposition of waste. This assessment included the potential impact of differential settlement. The assessment is detailed in the Stability Risk Assessment[4] and indicates that there is a negligible risk presented by the site. It is noted that the solid geology at the site included saliferous beds (Section 3.2), and that dissolution of these strata has occurred by both natural and anthropogenic activities. This dissolution has led to collapse of overlying strata, producing collapse breccias at depth and some subsidence at the surface. This subsidence has led to the creation of a series of shallow pools in the vicinity of Maw Green Landfill which are designated a Site of Special Scientific Interest (see Drawing ESID 3). Brine extraction in this area ceased in 1975 and there have been no recent reports of subsidence, indicating that the area has stabilised.

Under the PPC Regulations the Permit may only be surrendered when it is concluded that the site no longer presents a risk to the environment in the absence of active controls i.e. after the waste has degraded such that emissions from the site are acceptable. Detailed completion criteria are outlined in the specific risk assessments accompanying the permit application. However, the principles on which completion can be assessed are.

- With regards to ***potential impact on ground and surface water***, this means that the site needs to comply with the requirements of the Groundwater Regulations, 1998, following the cessation of active leachate management;

[4] SLR Consulting Limited, 2003, Maw Green Landfill Site, Stability Risk Assessment, Ref: 4D-197-178/SRA

- ***Landfill gas*** completion criteria would be related to when the site no longer poses a potential risk to either humans or the environment following the cessation of active landfill gas management; and

- With regard to ***subsidence*** (settlement) when the rate of subsidence of the restoration landform has become negligible (less than 10mm/yr).

TABLE ESID 5: THE CONCEPTUALISATION OF MANAGEMENT MEASURES AND TECHNICAL CONTROLS THROUGHOUT THE LANDFILL LIFE CYCLE

Landfill Phases	Leachate Management	Landfill Gas Management	Containment System		Landfill Cap
			Artificial Sealing Liner (engineered clay)	Geological Barrier (in situ clay)	
Operational	Ongoing management of leachate heads to ensure compliance with specified limit	Ongoing management of landfill gas	Operates as designed	Operates as designed	Not Applicable
Post Closure and Aftercare Period	Ongoing management of leachate heads to ensure compliance with specified limit. Some degradation (i.e. clogging) of the drainage system	Ongoing management of landfill gas Some degradation (i.e. well clogging) of the abstraction system	Operates as designed	Operates as designed	Operates as designed
Site Completion	Passive management (monitoring only). Complete degradation of the drainage system	Passive management (monitoring only). Some degradation (i.e. well clogging) of the abstraction system	Operates as designed	Operates as designed	Operates as designed except cell 2/10A and future cells (geomembrane cap) where cap degradation can be expected
Post-site Completion	None	None	Operates as designed	Operates as designed	Operates as designed except cell 2/10A and future cells where infiltration will equal effective rainfall

3.0 PATHWAY AND RECEPTOR TERM CHARACTERISATION

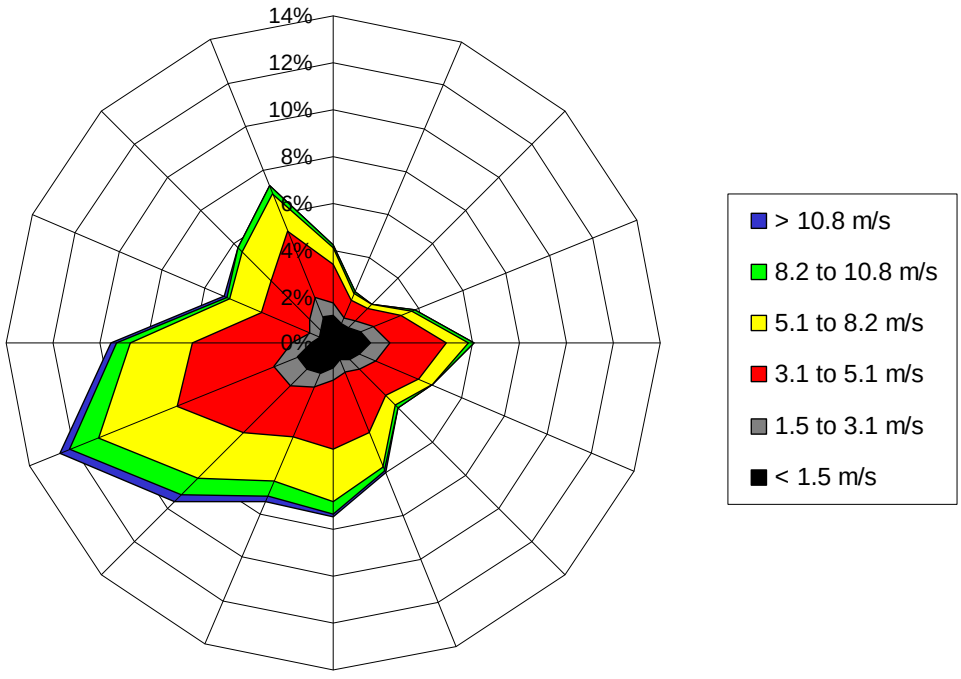
3.1 Climate

The average annual rainfall recorded for the period 1981-1990 recorded for MORECS square 105, which included the site is 822mm, and the effective precipitation, that is rainfall minus evapotranspiration, is 270mm. Monitoring data from the Environment Agency's rainfall gauge at Worleston, located 5km west of the site, indicates average monthly values as shown in Table ESID 6 and an annual average rainfall of 734mm.

TABLE ESID 6: AVERAGE MONTHLY RAINFALL DATA 1971-2001 FOR WORLESTON RAIN GAUGE

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Rainfall (mm)	61.2	45.5	53.3	46.9	52.0	54.2	77.8	57.5	63.3	87.2	67.4	67.9	734.4

Wind direction and strength information is given within the wind rose below which related to Shawbury weather station which is approximately 37 km south east of the application site.



The wind rose indicates that the predominant wind direction is southerly with approximately 12% of wind coming from this direction. Wind strengths are almost entirely below 10.8m/s.

3.2 Geology

The geology of the site has been determined from published geological maps, which are presented in Drawings ESID9A and 9B, and from site investigations undertaken at the site.

3.2.1 Regional Geology

Solid and Structural Geology

The site is situated in the central part of the Cheshire Triassic Basin. Strata of the Mercia Mudstone Group underlie the site. Immediately beneath the site is the Wilkesley Halite Formation (formerly known as the Upper Keuper Saliferous deposits). Beneath this is a mudstone (Middle Keuper Marl), below which is the Northwich Halite Formation (Lower Keuper Marl) and another mudstone (Lower Keuper Marl). The base of the Mercia Mudstone Group is marked by the Tarporley Siltstone Formation (Keuper Waterstones) and the Group overlies the Sherwood Sandstone Group. The 1:50,000 scale geological map for the area[5] suggests that in the vicinity of the site the Mercia Mudstone Group achieves a thickness of the order of 250 metres. The regional geology is indicated in Drawing ESID 9.

The halite deposits are highly soluble and, where they have come into contact with fresh circulating groundwater, removal of halite by solution has resulted in brecciation of the associated marls and collapse of the overlying strata giving rise to subsidence at the ground surface. This process is generally referred to as "Brine Subsidence".

To the west of the site, the Triassic deposits are disrupted by the King Street Fault (otherwise known as the Coppenhall Fault). This is a normal fault, downthrown to the east, with a reported maximum displacement of 600 metres, although the displacement in the immediate vicinity of the site is not known.

Drift Geology

The Triassic strata are overlain by a thick sequence of glacial and post glacial deposits, as shown on the 1:50,000 scale geological map[6]. In the vicinity of the site, glacial till is indicated as predominant. This till is described as firm to stiff, red-brown to blue grey, fairly plastic with varying proportions of rock fragments, rounded pebbles and high clay content sand and silt.

The 1:10,560 scale geological map of the area indicates the presence of a small area of "Middle Sands", to the north of the site and a localised peat deposit associated with a subsidence feature beneath Phase 1 of the site where waste has already been deposited.

[5] British Geological Survey, 1968. Macclesfield. England and Wales Sheet 110.1:50,000 Scale. Solid Edition. BGS, Keyworth.
[6] Institute of Geological Sciences, 1968. Macclesfield. England and Wales Sheet 110. 1:63,360 Scale. Drift Edition. IGS, Keyworth.

However, a review of site investigation data (see below) has not revealed the presence of this stratum.

Site Investigations and Local Geology

The site investigations that have been undertaken at the site are detailed in Table ESID 7. The borehole logs are enclosed in Appendix ESID 8.

TABLE ESID 7: SUMMARY OF INTRUSIVE SITE INVESTIGATIONS

Date	Investigation Summary	
	Boreholes	Trial Pits
1984		26
1989	7	9
1991	9	-
1992	4	-
2000	4 (completed as monitoring wells)	-
2003	4 (completed as deep monitoring wells)	-

Examination of the borehole logs included in Appendix ESID 8 indicates that the site is underlain by a thick deposit of occasionally silty and pebbly clay that is generally characterised as a till or boulder clay on the boreholes logs. However, it is noted that the descriptions could equally apply to glacio-lacustrine deposits and this may be considered more compatible with the recorded rounded pebbles of some units. The base of the Quaternary deposits has not been proven in any boreholes or trial pits, and with the exception of a fine sand at 14.8 metres below ground level (mbgl) in borehole GW4 only argillaceous deposits have been recorded in boreholes considered prior to 2003. As this sand was not found in other boreholes around the site it has been concluded that this is an isolated body and therefore it is not considered to be a receptor. Similarly, the rare thin dry sand horizons recorded in some older logs are not considered as receptors due to their isolated nature and the absence of any groundwater recorded in these units.

Boreholes advanced during 2003 encountered sandy water bearing horizons around 19m below ground level as shown on the logs within Appendix ESID 8. These sands were encountered in all four boreholes and, if they form a single unit, it can be postulated that it dips to the north as shown in Drawing ESID 12. Baildown tests were carried out following the drilling of the 2003 boreholes and indicated only slow recovery which may indicate that the sand horizons are thin and/or isolated, or have low permeability. Notwithstanding this, the postulated sand horizon has been identified as the appropriate groundwater receptor beneath the site for the Hydrogeological Risk Assessment.

Alluvial deposits are recorded in the vicinity of the former course of the Fowle Brook with these comprising up to 5 metres of silty and occasionally slightly sandy clays with very occasional peat.

The site investigations have recorded the topsoil thickness as ranging from 0.3 to 0.5m.

3.3 Man-made Subsurface Pathways

As detailed in Section 2.1 excavation of up to 10m of natural material has been undertaken prior to the development of the engineered containment system and as such no shallow man-made pathways are present beneath the landfill footprint. While it is acknowledged that saliferous bodies below the site have been mined by dissolution techniques, and that this has lead to surface subsidence it is considered that, given the thick cover of pliable glacial tills and lacustrine deposits no pathways is present to these deep layers.

Monitoring boreholes previously installed to the south of Cells 1 and 3 have been removed and backfilled as have boreholes in the vicinity of Cell 12 which were compromising operations.

3.4 Hydrology

3.4.1 Off-site Hydrology

The surface water system in the vicinity of the site is indicated on Drawings ESID 2 and ESID 11.

Standing Water

Examination of Drawings ESID 2 and ESID 11 indicate that there are several bodies of standing water in the vicinity of the site. The closest is an unnamed pool 10m north of the installation boundary. Further north a series of elongated bodies, the Sandbach Flashes, are present with these being designated a SSSI. The closest water body that is part of this SSSI is Groby's Flash which is situated 50m north of the installation boundary. It is understood that these flashes are the result of subsidence caused by natural or anthropogenic halite dissolution at depth and it is further understood that water within these flashes ranges from fresh to saline due to the present of saline springs in some pools. There is no evidence of any such springs in the immediate vicinity of the site.

To the east of the site, a small enclosed pool is located within 10m of the site boundary with further pools being located approximately 50m from the boundary to the easy of the railway line. To the south, the closest standing water is located 175m from the boundary. The closest standing water to the west is 300m from the application boundary.

Flowing Water

The Fowle Brook, which formerly flowed northwards through the middle of the site, has been diverted around the east of the installation boundary and now forms the closest flowing water feature. This brook, classified as a main river by the Environment Agency, joins the River Wheelock and then flows into the River Mersey. It is noted that WRG manage the Fowle Brook within the installation boundary. No other flowing water bodies are located within 500m of the application boundary except for a small tributary of the Fowle Brook that rises from a spring 700m north of the site.

Water Quality

Surface water is sampled monthly at 11 surface water monitoring points around the site (shown on Drawing ESID 11) and is analysed for pH, electrical conductivity, ammoniacal nitrogen, chloride, chemical oxygen demand, dissolved oxygen, and suspended solids. A summary of the surface water quality data is presented in Appendix ESID 9 along with time-series graphs of electrical conductivity, ammoniacal nitrogen and chloride concentrations.

Review of the surface water quality indicates the following:

- The majority of determinands were consistently recorded below the UK Drinking Water Standard.

- Concentrations of chloride did not exceed the UK Drinking Water Standard (250mg/l) on any occasion with the exceptions of monitoring location SW11 which recorded four values above 250 mg/l, with a maximum reading of 542mg/l. It is noted that SW11 samples a surface water body within the site and this is known to be impacted by the operations on site (such as stockpiling road salt). All other monitoring locations recorded values less than 100mg/l.

- Average concentrations of ammoniacal nitrogen exceeded the UK Drinking Water Standard (0.39mg/l) at every monitoring point over the monitoring period. Monitoring of off-site surface water quality, including the Fowle Brook both upstream and downstream of the site indicates elevated levels of ammoniacal nitrogen both up and down stream of the site; this suggests a non-landfill source of ammoniacal nitrogen such as agricultural practices.

- Concentrations of manganese exceeded the UK Drinking Water Standard (0.05mg/l) at every monitoring location at least once over the monitoring period, which indicates an upstream source of this metal.

- The loading of suspended solids within the discharge was extremely variable during the review period.

Flood Hazard

Given the diverted nature of the Fowle Brook in this area no indicative flood plain has been defined in the area. However, the new course and geomorphology of the Fowle Brook was designed to ensure that the brook has sufficient capacity to accept the flows previously carried by the pre-diversion water course. The Environment Agency's indicative flood plain map indicates that part of the site was within the indicative flood plain of the old Fowle Brook.

Ecological Importance

The water bodies to the north of the site, which comprise the Sandbach Flashes SSSI, have been designated based on the unusual salt-tolerant vegetation which is rare in an inland setting. The pools are also used by a range of wading birds.

3.4.2 Surface Water Management System

Surface water at the site will be managed using sustainable drainage techniques, to restrict discharges from the site to the greenfield rate of runoff and to minimise any impacts of the development of water quality throughout its life.

3.5 Hydrogeology

3.5.1 Aquifer Characteristics

The application site is located on glacial material classified by the Environment Agency as a non-aquifer with this material in turn being underlain by Mercia Mudstone Group which is also a non-aquifer. Deep boreholes drilled close to the site indicate that the base of the Mercia Mudstone is deeper than 135m below ground level and no outcrop of the underlying Triassic sandstone aquifer system is recorded within 10km of the site. The nearest superficial deposits with the potential to act as an aquifer are fluvial deposits 2km north east of the site associated with the River Wheelock.

It is acknowledged that the halite and gypsum beds within the Mercia Mudstone Group have the potential to contain water, but this water is unlikely to be present in significant quantities due to the nature of the deposits, and is likely to be highly mineralised to the extent where use of the water is impossible.

The permeability of the quaternary clays has been determined on 15 samples prior to the development of Phase 2 and has been found to be less than $6x10^{-10}$m/s. A thin sand horizon has been identified in boreholes drilled in 2003 at a depth of around 19mbgl. This sand, which has been conservatively assumed to be laterally extensive, was water bearing but recharged only slowly which may indicate a limited lateral extent or zero recharge.

The installation does not lie within any source protection zones. The Environment Agency has confirmed that there are no licensed groundwater abstractions within 3km of the application site and Crewe and Nantwich Borough Council has confirmed that they have no records of any private water supplies within 3km of the site.

3.5.2 Groundwater Flow and Elevation

Monitoring boreholes have been installed around the site as indicated in Drawing ESID 11, and water is found in these due to the saturated nature of the low permeability clays. The boreholes logs are reproduced in Appendix ESID 8.

Hydrographs are enclosed in Appendix ESID 10 showing the elevation of the water surface within these boreholes. Examination of the data detailed above indicates that there is limited variation in levels. Further consideration of the data, and previous data obtained from dipping of gas wells, indicate a strong correlation between ground elevation and groundwater level, which suggests a true groundwater flow system is not present within the clay. This agrees with the geological information and the permeability testing discussed above which suggests the site is underlain by very low permeability clays which act as a geological barrier. More recent wells have confirmed the presence of a thin sand horizon at depth which contains groundwater. Groundwater contours drawn based on water levels measured within these boreholes are shown in Drawing ESID 11 and indicate that groundwater flow in this horizon is towards the north of the site.

3.5.3 Groundwater Quality

Water quality has been determined at regular intervals on samples from four monitoring boreholes (GW 1 – 4) installed within the clay around the perimeter of the site, as indicated on Drawing ESID 11. A single sampling round for the recently installed boreholes, GW 5 – 8 which are completed in sand, has also been completed. Samples are analysed for a range of determinands, as listed below:

1) Monthly for:

Field pH, electrical conductivity and temperature; laboratory pH, electrical conductivity, chloride, ammoniacal nitrogen, dissolved oxygen, chloride and chemical oxygen demand.

2) Quarterly for:

In addition to the monthly suite: biological oxygen demand, total organic carbon, potassium, total sulphur, magnesium, sodium, iron, total oxidised nitrogen, alkalinity, nickel, chromium, cadmium, vanadium, copper, lead, manganese and zinc.

Boreholes advanced into a sand horizon at depth below the site during 2003 have been sampled for the range of parameters detailed above and for List I substances. The results are presented in Appendix ESID 11. This sampling exercise indicates that there are no discernable concentrations of organic List I substances in the groundwater beneath the site but that cadmium is discernable in two of the boreholes (GW06, upstream and GW05, downstream) with a concentration of 1µg/l. Elevated levels of chloride, sulphate, iron and manganese and ammoniacal nitrogen are present in all boreholes at the site and therefore it is concluded that the landfill is not the source of these elevated concentrations as they are present upstream of the landfill.

3.6 Off-site Landfill Gas Monitoring

Landfill gas concentrations have been monitored at regular intervals in boreholes installed around the perimeter of the installation as illustrated in Drawing ESID 8. The data are summarised in Table ESID 8 below.

Review of Table ESID 8 indicates that:

- During the review period 1st August 2001 to 31st January 2003, all but two of the boreholes recorded methane concentrations below the 1%v/v trigger value suggested by Waste Management Paper 27.

- The highest methane concentrations were recorded in BH3 (14.1%) in the southwest of the site and BH4.02 (1.3%) in the southwest of the site. The highest average concentration was recorded in BH3 (0.595%), and in all of the other boreholes average concentrations were at least an order of magnitude lower.

- Carbon dioxide concentrations exceeded the Waste Management Paper 27 trigger level of 1.5% in approximately 50% of the boreholes. The highest concentrations (in excess of 10%) were recorded at boreholes BH3 (15.4%) and BH4.02 (20.8%). These elevated concentrations may be due to soil gas as similarly elevated methane concentrations are not observed.

The concentrations of the methane detected in perimeter gas monitoring boreholes indicate the sidewall lining system is working well and preventing landfill gas from escaping to the surrounding environment.

TABLE ESID 8: SUMMARY OF PERIMETER BOREHOLE LANDFILL GAS DATA

Borehole	No of Samples	Methane Concentration (%v/v)			No of Breaches of Trigger Value	Carbon Dioxide Concentration (%v/v)			No of Breaches of Trigger Value
		Min	Average	Max		Min	Average	Max	
BH01.00	18	0	0	0	0	0	0.283	4.9	1
BH02.00	18	0	0.017	0.3	0	0	1.267	7.4	5
BH03.00	74	0	0.595	14.1	8	0	1.938	15.4	31
BH03.01	68	0	0.012	0.6	0	0	1.884	7.5	35
BH03.02	43	0	0.005	0.2	0	0	0.621	2.5	5
BH04.00	73	0	0.003	0.1	0	0	0.241	7.4	2
BH04.01	71	0	0.003	0.2	0	0	1.42	4.7	28
BH04.02	51	0	0.069	1.3	1	0	10.35	20.8	44
BH05.00	17	0	0	0	0	0	0.259	1	0
BH06.00	17	0	0	0	0	0	0.129	0.4	0
BH07.00	17	0	0.012	0.1	0	0	0.176	1	0
BH08.00	17	0	0.018	0.1	0	0	0.412	0.9	0
BH09.00	14	0	0	0	0	0	0.436	1.8	1
BH10.00	16	0	0	0	0	0	1.056	2.8	2
BH11.00	15	0	0.013	0.1	0	0	0.427	1.8	1
BH12.00	17	0	0	0	0	0	0.835	5.6	3
BH13.00	17	0	0.006	0.1	0	0	0.535	2.6	1
BH14.00	17	0	0	0	0	0.2	0.941	2.4	2
BH15.00	16	0	0.031	0.3	0	0.1	0.741	1.8	2
BH16.00	17	0	0.006	0.1	0	0.2	0.782	2.8	1
BH17.00	15	0	0.007	0.1	0	0	0.98	5.4	2
BH18.00	17	0	0.041	0.2	0	0	0.512	2.1	2
BH22.00	17	0	0	0	0	0	0.2	1.3	0
BH23.00	17	0	0	0	0	0	0.035	0.4	0
BH24.00	17	0	0	0	0	0	0.112	0.4	0
BH25.00	17	0	0	0	0	0	0.324	2.1	1
BH26.00	15	0	0	0	0	0	0.3	1.3	0
BH27.00	17	0	0	0	0	0	1.029	4.1	4
BH28.00	12	0	0	0	0	0	1.075	4.4	3
BH29.00	9	0	0	0	0	0	0.067	0.4	0
BH30.00	17	0	0	0	0	0	0.012	0.1	0
BH31.00	17	0	0	0	0	0	0.059	0.6	0
BH32.00	17	0	0	0	0	0	0.082	0.6	0
BH33.00	17	0	0	0	0	0	0.041	0.4	0
BH34.00	17	0	0	0	0	0	0.312	2	1
BH35.00	17	0	0	0	0	0	0.024	0.1	0

Notes:
1. Data supplied by WRG
2. Trigger Values – Methane : 1%v/v, Carbon Dioxide: 1.5%v/v

3.7 Receptors and Compliance Points

Drawing ESID 13 indicates the receptors and compliance points to be used in the detailed risk assessments enclosed with the PPC Application, and are detailed within this section.

Hydrogeological Risk Assessment

As detailed in Section 3.5 there is no groundwater receptor that can easily be impacted by the proposed installation due to the low permeability of the surrounding drift and solid geology which acts as a geological barrier. It is therefore concluded that the appropriate compliance points for both List I and List II substances are the sand horizon beneath and downstream of the site respectively. In practice the compliance points for both List I and II substances will be the downstream boreholes that penetrate the sand. The Fowle Brook is the closest surface water feature and is therefore selected as the primary surface water receptor. In addition, the nearest constituent part of the Sandbach Flashes SSSI (Groby's Flash) is also selected as a receptor for the risk assessment due to its potentially enhanced sensitivity.

Landfill Gas Risk Assessment

The assessment of the risk presented by landfill gas must consider both the possible health and explosion risks presented to local receptors and the risk presented to the global environment due to the escape of harmful or greenhouse gases. The local receptors are indicated on Drawing ESID 13 and are detailed below.

Representative local landfill gas receptors have been selected based on proximity to the installation boundary, as in the absence of any identified preferential subsurface pathways, either natural or anthropogenic; no preferential receptors can be identified. The proposed installation is surrounded by agricultural land on all sides and as such the receptors are farm houses. The risk presented to the nearby town of Crewe will be assessed at Windy Nook Farm, the closest residential property to the landfill in that direction. The receptors for the Landfill Gas Risk Assessment are detailed in Table ESID 9.

TABLE ESID 9: LANDFILL GAS RECEPTORS

Receptor	Receptor Type	Distance & Direction from the Gas Utilisation Plant	Distance & Direction from Centre of Site	Distance & Direction from the Boundary of Nearest Cell
Cattle Arch Farm	Allotment	250m SSW	625m S	75m S
Works	Industrial	550m WNW	425m WSW	75m W
Acton House Farm	Allotment	800m NW	500m WNW	150m W
Brook House Farm	Allotment	275m E	537m SE	250m E
Meadow Croft Cottage	Residential	150m SSE	587m SSE	137m SE
Windy Nook	Allotment	425m WSW	625m SSW	125m W
Railway Farm	Allotment	1525m NNE	1250m NE	775m NE
Bottoms Farm	Allotment	1700m NNW	1275m N	775m N
Oaktree Farm	Allotment	1450m NW	1050m NW	600m NW
Perimeter Footpath	N/A	825m NNE	500m NNE	25m NE
Sandbach Flashes SSSI	N/A	900m N	650m NNE	25m NW

Nuisance and Health Risk Assessment

Appropriate receptors for the nuisance and health risk assessment are identified in Table ESID 1 and illustrated on Drawing ESID 13. An assessment of the potential impact of nuisance features on the neighbouring SSSI is detailed within the nuisance and health risk assessment.

Habitats Risk Assessment

There are no European Wildlife Sites within 5km of the installation and therefore no habitats risk assessment is required.

4.0 SITE REPORT

4.1 Introduction and Background Information

The details of the installation and its setting are given in Section 1.2, with the proposed development being detailed in Section 1.2, 2.1 and 2.2.

Table ESID 2 summarises the historic development of the site and does not indicate the presence of any potentially contaminating activities at the site except for the factory unit in the west of the application site which has been used as a manure works and a meat processing plant. It is noted that as part of the development a significant thickness of clay has been excavated from this area and therefore any contamination associated with this facility will not now be *in situ.* Table ESID 9 summarises the historical development of the surrounding area,

TABLE ESID 10: HISTORICAL DEVELOPMENT OF THE SURROUNDING LAND

DATE	DESCRIPTION	SOURCE
1909 & 1910	Surrounding land is primarily agricultural with four farms around the north and western perimeter, and the hamlet of Maw Green to the south. Site is bounded to the east by the Crewe-Manchester railway line. A brick and pipe works is shown 250m south of Groby Farm on the western perimeter of what is now the site. A lake appears 750m east of Oaktree Farm. Groby Fox Covert (small wooded area) is located 420m south west of Oaktree Farm. Marshy ground appears on the east side of Groby Fox Covert.	OS County Series, 1:2,500 scale
1911	Hospital for infectious diseases appears 1km to the south west of site. Hall O'Shaw Brickworks lies 1km south of site.	OS County Series, 1:10,560 scale
1938	No changes affecting the site are recorded.	OS County Series, 1:10,560 scale
1954	Area to the south west of Maw Green is beginning to be developed for urban use, marked as Copenhall.	OS National Grid Series, 1:10,560 scale
1959	Castle Arch Farm has appeared 200m south of site	OS National Grid Series, 1:2,500 scale
1968	Area to the south west of Maw Green is now recorded as fully developed as an area of housing. 500m north of site a series of lakes have appeared. Foden Farm and 'works' have appeared 200m west of site. Acton House has appeared 100m south of Groby Farm on the western site boundary.	OS National Grid Series, 1:10,560 scale
1979 & 1990	Nothing new affecting the site.	OS National Grid Series, 1:10,000 scale OS Plan
1992	North of site 800m a refuse tip has appeared. The lakes/standing water bodies to the north and north-east of site have changed in shape slightly and have grown.	OS National Grid Series, 1:10,000 scale OS Plan

The historical mapping data indicates that there are no significant off-site potential sources of contamination with the exception of the "works" site to the west of the area. It is noted that the strata immediately underneath the site is clay and therefore it is considered highly unlikely that any contamination emanating from the "works" would migrate onto the application site.

The geology and hydrogeology of the site are set out within Sections 3.2 and 3.5 respectively.

4.2 Objectives of this Assessment

The main objective of the site report is to establish and assess the presence of land contamination within the development area. The report sets out the "initial" condition of the site, prior to operation under the PPC regime, and allows an effective reference point for future comparison. It provides an assessment of the site, by building upon existing site information, and focusing on the soil, surface water and groundwater conditions and their sensitivity.

The baseline report has been compiled following review of documents 'IPPC Part A (1) Installations: Guide for Applicants, Version 2, December 2000', produced by the Environment Agency, and 'IPPC, A Practical Guide, Edition 2, June 2002', produced by the Department for Environment, Food and Rural Affairs.

4.3 Site Investigation (Data Collection) Details

Site investigations undertaken at the site are detailed within Section 3.5 and have been used to develop the site conceptual model. Samples of groundwater have been taken from boreholes around the site for analysis for List I and List II substances as defined in the Groundwater Regulations 1998. The results of this analysis have been summarised within Section 3.5.2.

Surface water samples have been taken from locations upstream and downstream of the site from the Fowle Brook as part of the routine monitoring of the site. These data have been reported in Section 3.4.1.

4.4 Summary of Site Investigation and Analysis Findings

As noted above no additional potential sources of contamination were identified and therefore no additional site investigation has been carried over and above that designed to confirm the geology and hydrogeology of the site and obtain groundwater samples.

Groundwater samples have been analysed by a NAMAS accredited laboratory and the results are presented in Appendix ESID 11.

The borehole results indicate that there are elevated concentrations of chloride, manganese, iron, sulphate and ammoniacal nitrogen in groundwater both up and downstream of the site. The highest recorded concentrations of these contaminants are detailed in Table ESID 10.

The data indicate that the landfill is not having a detrimental effect on stream water quality but that stream water quality is impacted by upstream activities such that the ammoniacal nitrogen drinking water standard is breached both upstream and downstream of the site.

4.5 Data Interpretation

The data indicate that the landfill is not having a detrimental impact on ground or surface water quality although in both ground and surface water some substances are present above the drinking water standards which have been used as a screening tool in this report. These elevated levels are present both up and down stream of the site and as such it is concluded that the landfill is not the source of these elevated concentrations.

It has only been possible to obtain one sample from each borehole and as such these results should be interpreted with caution and the formal determination of the baseline conditions should be made when a statistically significant data set is available.

4.6 Conclusions

Investigations at the site have indicated that the groundwater and surface water in the vicinity of the site show elevated concentrations of some substances relative to the drinking water standards (or the Environment Agency's Minimum Reporting Value in the case of cadmium). Baseline conditions based on the limited data available to date, utilising boreholes GW06 and 7 are presented below Table ESID 11 but it is recognised that these are based on one monitoring event and the derivation of baseline conditions based on the a statistically significant data set should be subject to an improvement condition.

TABLE ESID 11: INITIAL BASELINE CONDITIONS SUBJECT TO IMPROVEMENT CONDITIONS

Determinand	Maximum Concentration (mg/l)
Antimony	0.003
Arsenic	0.007
Barium	0.047
Beryllium	Not Detected
Boron	0.53
Cadmium	0.001
Calcium	510
Chromium	Not Detected
Cobalt	Not Detected
Copper	Not Detected
Iron	0.08
Lead	0
Magnesium	129
Manganese	1.52
Mercury	0.0001
Molybdenum	Not Detected
Nickel	Not Detected
Potassium	7.7
Selenium	Not Detected
Silver	Not Detected
Sodium	383
Tellurium	0.001
Thallium	Not Detected
Tin ,	Not Detected
Vanadium	0.022
Zinc	0.034
Fluoride	0.2
Ammoniacal Nitrogen	0.6
Chloride	333
Nitrate	0.3
Total Inorganic Phosphorus	257
Sulphate	1920
Cyanide	Not Detected

Note: Based on single monitoring round and therefore should be revised based on statistically significant data set

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DOCUMENT 2.9
ENVIRONMENTAL PERMIT VARIATION APPLICATION, AMENITY & ACCIDENTS RISK ASSESSMENT

Caulmert Limited

Engineering, Environmental & Planning Consultancy Services

Maw Green Landfill Soil Treatment Facility

3C Waste Limited

Environmental Permit Variation Application

Amenity & Accidents Risk Assessment

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January 23

APPROVAL RECORD

Site: Maw Green Landfill Soil Treatment Facility

Client: 3C Waste Limited

Project Title: Environmental Permit Variation Application

Document Title: Amenity & Accidents Risk Assessment

Document Ref: 5193-CAU-XX-XX-RP-V-0310.A0.C1

Report Status: **Final**

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Approved	Andy Stocks Director of Environment	**Date**	12/12/2022

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Revision	**Description of Change**	**Approved**	**Effective Date**
C1	Initial Release	AS	10/01/2023

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Amenity & Accidents Risk Assessment

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DRAWINGS

TABLES

1.0 INTRODUCTION

1.1 Overview

1.1.1 Caulmert Limited have been appointed by 3C Waste Limited ('the operator') who are a wholly owned subsidiary of FCC Environment (UK) Limited, to prepare an environmental permit variation application to vary the existing Maw Green Landfill permit ref. EPR/BS7722ID to include for the treatment of contaminated soils with asbestos (additional Section 5.3A(1)(a)(ii) activity) by pre-screening and handpicking of bound asbestos fragments, which is to include an additional area for storage of solely asbestos contaminated soils, separate to the current STF area for bioremediation. The proposed area for asbestos handling and storage is located to the west of the current STF and is within the existing Maw Green Landfill permit boundary, with a small portion of the new treatment area to be located on top of the permanently capped landfill mass.

1.1.2 This report is an Amenity and Accidents Risk Assessment (ARA) for the impact of the proposed storage and treatment of asbestos contaminated soils at the STF and is an update to the existing risk assessment for the existing STF bioremediation area.

1.1.3 This report is an assessment of the potential impact the proposed activities on site could have on local sensitive receptors. This risk assessment has been compiled in accordance with the current GOV.UK guidance on 'Risk assessments for your environmental permit' (last updated 31st August 2022).

2.0 SITE BACKGROUND

2.1 Site Location

2.1.1 The Soils Treatment Facility ('the site') at Maw Green Landfill is located off Maw Green Road, Coppenhall, Crewe, Cheshire, postcode CW1 5NG. The southern boundary of the site is located approximately 2km north of the centre of Crewe (i.e. on the outskirts of Crewe). The site is centred on national grid reference SJ 71859 57401. The site is in a low-lying area, with general ground elevations around 45m Above Ordnance Datum (AOD). The site location is shown in Figure 1 below:

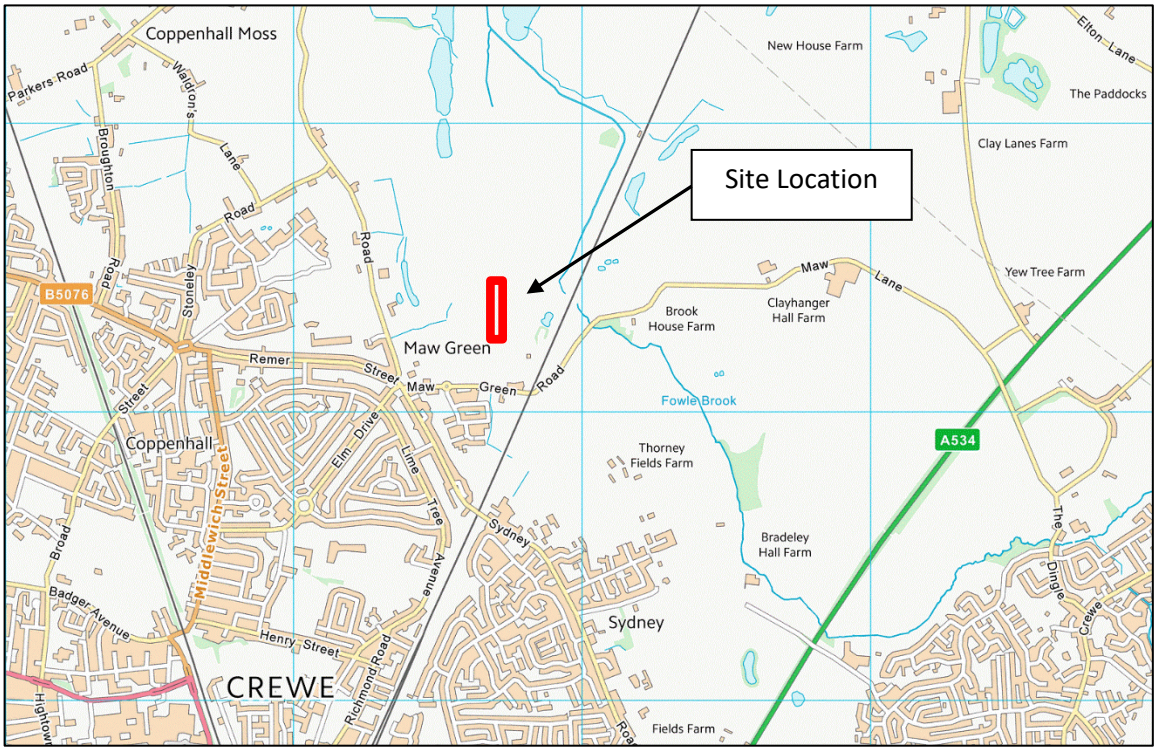


Figure 1 – Site Location

2.1.2 The ground rises very gently to both the west and the east, indicating that the site lies in a wide, open valley. The Fowle Brook flows through this valley in a northerly direction. This brook has been diverted around the site.

2.1.3 The site is in a predominantly agricultural setting on the north-eastern outskirts of the town of Crewe. As such, potential environmental receptors include domestic dwellings both within the town and farmlands surrounding the site. In addition, surface water receptors are present within the Sandbach Flashes Site of Special Scientific Interest (SSSI) to the north and the diverted Fowle Brook to the east being the closest to the site.

2.2 Proposed Development

2.2.1 It is proposed to add an additional listed activity to permit ref. EPR/BS7722ID, for the treatment and storage of soils contaminated with asbestos at the Soils Treatment Facility (STF) at Maw Green Landfill Site, as follows:

- Section 5.3 Part A(1)(a)(ii) Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving physico-chemical treatment.

2.2.2 The new treatment activity is to be in a separate area to the west of the existing STF. The treatment of the asbestos in soils will be by 3-way screen and handpicking of bound asbestos and the storage will be solely for asbestos contaminated wastes in a separate area. The picking station will be an enclosed mobile unit.

2.2.3 The proposed soils bioremediation process will remain the same, utilising industry standard biopile technology.

2.2.4 For the new activities, hazardous soils containing bonded asbestos debris will undergo pre-acceptance checks, a pre-screening process and hand-picking of asbestos cement fragments in the new proposed area for treatment and storage, before being tested and then used in restoration of the Maw Green Landfill.

2.2.5 The new hazardous soils storage and treatment pad will be constructed from crushed concrete with underlying geo-composite clay liner (GCL). These will have sealed drainage where all surface waters will fall towards the pumping chamber in the north-eastern part of the new STF area, before being pumped across to the existing water treatment plant and then discharged to sewer in accordance with an existing discharge consent.

Screening Operations

2.2.6 A mechanical screener will be used to remove oversize material from asbestos cement containing soils. Soils will be screened using a three-way screener. The screened material is then passed through the picking station to allow the removal of any bound asbestos debris. This is to remove larger items (e.g. lumps of concrete) to reduce the potential of damage to the picking station and make hand picking of asbestos debris more effective.

2.2.7 The screener currently being used under the mobile plant deployment at Maw Green is unmodified. Trials on enclosed screeners with a HEPA filter and uncovered screeners with general dust suppression have shown no difference in emissions as they all meet the method detection limit of <0.0005f/ml. However, the use of enclosed screeners is far slower, prone to significant downtime and uses significantly more energy due to reduced throughput for no environmental benefit. The use of standard dust suppression with a propriety surfactant has been shown to be entirely effective as secondary mitigation to the waste acceptance criteria.

2.2.8 Where SEM testing is undertaken this will ensure that the asbestos concentrations in air are below 0.0005f/ml. This approach and reduced detection limit for the asbestos monitoring

meets the well-established principle of reducing emissions to be as low as reasonably practicable.

Asbestos Picking Station

2.2.9 The asbestos picking station will be a mobile enclosed unit and will be identical to the type approved for use under an environmental permit at the operator's other sites.

2.2.10 Airborne asbestos concentrations have been monitored both within, and directly adjacent to the picking station at the operator's other sites. There is no increase in asbestos concentrations above the method detection limit of either <0.01f/ml or <0.0005f/ml within the internal atmosphere of the soil screeners or picking stations monitored, nor ambient air immediately outside of the screener/picking station. This monitoring has been undertaken since the operator commenced the treatment of bound asbestos contaminated soils. All air monitoring data has been submitted to the Environment Agency and approved as being compliant with the site's permit for each site (existing Maw Green Landfill Mobile Plant and Edwin Richards Quarry Mobile Plant).

2.2.11 Notwithstanding the evidence that there are no elevated airborne asbestos emissions within the screening plant or picking stations of the above sites, as an additional control measure, there will be a series of spray rails on the incoming and outgoing conveyor to effectively capture and contain particulate emissions. This would act as secondary containment for any particulate emissions.

2.2.12 The out-going conveyor will drop the hand-picked picked processed soils, and the drop height will be minimised to reduce any agitation of the soils. A dust suppression system (using a water and proprietary asbestos surfactant solution) will be in place at the site that will consist of misting sprays with overlapping spray arcs, identical to the approved suppression system on the operator's other sites that can be used to continually dampen stockpiles during loading and unloading activities.

2.2.13 The process in the picking station will involve a manual sorting process by trained operatives who will remove visible fragments of asbestos from the materials from the conveyor. Asbestos picked from the conveyor will be placed by hand in individual polythene bags located inside the picking station beside the trained operatives. When the bags are either full, or the end of the working day is achieved, the polythene bag will be placed into a second bag and sealed using a taped swan neck. The double bagged asbestos will be taken outside and placed by hand into the on-site enclosed lockable asbestos skip. Used PPE from the picking station and direct working areas will be double bagged using the same approach as asbestos containing material (ACM) debris and placed into the enclosed lockable asbestos skip.

2.2.14 A Category B trained supervisor will regularly check the labelled, lockable asbestos waste skip and will arrange for the collection and delivery of new asbestos skips when the existing skip has reached 75% capacity. This is to ensure that there is no risk of the skip becoming over capacity and unable to accept further bagged asbestos. This will form part of the daily site checks.

Post-treatment Storage and Verification

2.2.15 The out-going conveyor from the asbestos picking station will deposit the hand processed soils into a separate stockpile labelled as treated soils. The stockpile within this designated area will then undergo further visual inspection by the suitably trained/qualified member of staff for any residual asbestos containing fragments. If any bonded asbestos fragments are encountered, the materials will be re-loaded into the asbestos picking station and processed until no visible bonded asbestos fragments are observed through visual inspection.

2.2.16 The materials will then undergo 'Post Treatment Verification Sampling' testing and sampling will confirm that treated soils meet the restoration soil quality targets to enable their use in the restoration area of Maw Green Landfill Site. If, after the receipt of laboratory analysis results, the soils do not meet the acceptance criteria, the soils will either be treated further or removed from site to an alternative disposal facility.

2.2.17 Following screening, the soils will be stockpiled for use in recovery at the landfill site, this may also include soils that have undergone bioremediation.

3.0 SENSITIVE RECEPTORS

3.1 Overview

3.1.1 A search of sensitive receptors within a 1km radius of the activity boundary at Bootham Lane Landfill Site was conducted using the DEFRA Magic Maps[1] website and other publicly available information sources, and the identified receptors are listed below in Table 1, and also shown on drawing ref. 5193-CAU-XX-XX-DR-V-1804. Distances to receptors are measured from the boundary of the new STF area for the treatment and storage of asbestos contaminated soils within the landfill site.

3.2 Receptors

3.2.1 A number of residential receptors on the outskirts of Crewe have been identified as sensitive receptors. Houses in Maw Green are located approximately 170m southwest of the site, Meadow Cottage is 210m southeast of the site and houses on Maw Green Road are 240m southwest. Brook House Farm is also located 315m east. The closest school is Monks Coppenhall Primary School located 560m to the west-southwest of the site. As the prevailing wind direction is from the southwest, none of these developments are considered to be at a high risk from odour or dust nuisance from the site.

3.2.2 The closest surface water feature is a stream, Fowle Brook, to the 140m to the east-northeast of the site, which runs parallel to the railway line along the northeast site boundary. Approximately 530m to the northwest is a pond, which is located directly south of the water features which constitute Sandbach Flashes SSSI (which are 615m northwest of the site). Brook House Pools are located approximately 400m to the north, north-east of the site.

3.2.3 The site is situated within a NOx (as NO2) Air quality Management Area (AQMA), as is most of Cheshire. There are no Source Protection Zones (SPZs) within 2km of the site, with the nearest SPZ (Zone III) located over 8km away to the southeast.

3.2.4 The site is not located within a flood risk zone. The site is located on Devensian Glacial Till deposits (silt, clay, sands and gravels) classified by the Environment Agency as a Secondary (undifferentiated) Aquifer. The superficial deposits are underlain by the Wilkesley Halite Member (Halite and Mudstone) of the Mercia Mudstone Group, which has not been given aquifer status by the Environment Agency.

3.3 Ecological Designations

3.3.1 A search was conducted for habitats and environmental receptors within a 2km radius of the site. From a review of the Magic Maps website the site is not within 2km of any of the following designated sites: Areas of Outstanding Natural Beauty (AONBs), Local Nature Reserves (LNRs), National Nature Reserves (NNRs), Ramsar sites, Special Areas of Conservation (SACs), Special Protection Areas (SPAs), or any Scheduled Monuments and World Heritage Sites.

[1] DEFRA Magic Maps website, 2022: https://magic.defra.gov.uk/MagicMap.aspx

3.3.2 Sandbach Flashes Site of Special Scientific Interest (SSSI) is located approximately 615m north-northwest of the proposed site. The Sandbach Flashes are made up of 14 live units, which are all found north of the site within a 5km radius. The 3 units within 900m of the site are in favourable condition (closest 615m NNW), with 8 units north of this in an unfavourable (no change) condition, one unit being unfavourable declining, and one more unit 3.4km north being in favourable condition. Sandbach Flashes are defined according to Natural England as:

'Sandbach Flashes is a site of physiographical and biological importance. It consists of a series of pools formed as a result of subsidence due to the solution of underlying salt deposits. The water varies from freshwater, chemically similar to other Cheshire meres, to highly saline. Inland saline habitats are extremely rare and are of considerable interest because of the unusual associations of plants and animals. Most of the flashes are surrounded by semi-improved or improved grassland. Fodens Flash is partly surrounded by an important area of wet woodland.'

3.3.3 Two Local Wildlife Sites (LWSs) have also been identified nearby: Brook House Pools approximately 400m north-northeast, and also Clay Lane Verges approximately 1.5km to the northeast of the site.

3.4 Identified Receptors

3.4.1 A review of nearby sensitive receptors within 1km of the site boundary are shown on drawing ref. 5193-CAU-XX-XX-DR-V-1804 and summarised in Table 1 below:

Table 1 – Sensitive Receptors within 1km of the site

Receptor	Receptor Type	Distance & Direction from Site
Maw Green Landfill Site	Industrial	<10m W&N
Fowle Brook	Surface Water	140m ENE
Railway Line	Commercial	140m E
Maw Green Residential Area	Residential	170m SW
Meadow Cottage	Residential	210m SE
Maw Green Road	Public Road	220m S
House on Maw Green Road	Residential	240m SW
Brook House Farm	Residential	315m E
Brookhouse Pools Local Wildlife Site	Habitat/Surface Water	400m NNE
Car Dealership	Industrial/Commercial	420m WNW
Residences on Groby Road	Residential	440m W
Public Footpath	Recreational	450m NW
Pond	Surface Water	530m NW

Receptor	Receptor Type	Distance & Direction from Site
Monks Coppenhall Primary School	Residential	560m WSW
Sandbach Flashes SSSI	Habitat	615m NNW
Stoneley Residential Area	Residential	630m NW
Sydney Residential Area	Residential	740m SE
Foxholme Farm	Residential	750m NE
Sir William Stanier Community School	Residential	930m SW
Clayhanger Hall Farm	Residential	1000m NE

3.5 Meteorological Setting

3.5.1 Fugitive emissions of dust, litter, odour and noise from the site are likely to be affected by local weather conditions, in particular by wind direction. Wind statistics observed from the closest weather station, Leek Thorncliffe, located approximately 28km east from the site are considered to be representative of the typical conditions at the site (Figure 2 below).

3.5.2 A review of the data recorded daily between April 2010 and September 2022 on the Windfinder.com website indicates that the most dominant wind direction is from the south-southwest towards the north-northeast.

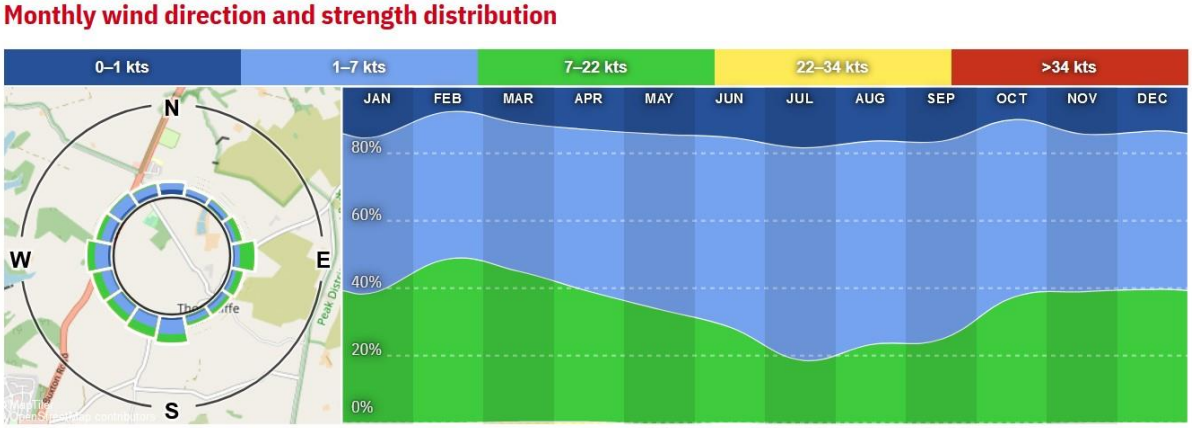


Figure 2 – Leek Thorncliffe – average annual wind direction & strength 2010-2022

4.0 RISK ASSESSMENTS

4.1 Introduction

4.1.1 Risk assessment tables have been completed for odour, noise and vibration, fugitive emissions (dust, litter, mud and debris, pests, surface water run-off), visible plumes, release of bioaerosols and accidents in line with the GOV.UK guidance on 'Risk assessments for your environmental permit' (updated 31st August 2022).

4.2 Assessments for the Proposed Operations

4.2.1 Possible hazards as a result of operations at the site that require risk assessment include:

- Sources of Odour (Table 2);
- Sources of Noise and Vibration (Table 3);
- Fugitive emissions (dust, litter, mud and debris, pests, surface water run-off) (Table 4);
- Visible emissions (smoke or visible plumes) (Table 5);
- Release of Bioaerosols (biofilter point source releases) (Table 6);
- Accidents (leaks and spillages, and fire) (Table 7).

4.2.2 The hazards identified above have the potential to escape beyond the site boundary and cause an amenity nuisance to sensitive receptors, or harm the environment and human health. For each possible hazard, an assessment of the risk that it poses to potential sensitive receptors has been carried out, taking into account the control measures that will be in place.

4.2.3 The following Tables 2 to 7 give further detail on each hazard source, pathway and sensitive receptor, the risk management measures to be implemented, probability of exposure, consequences of exposure and an overall risk rating from Low (little or no risk) to High (high risk) once all risk management measures have been taken into account.

Table 2 – Odour Risk Assessment

What do you do that can harm and what could be harmed?			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Control Measures**	**Probability of Exposure**	**Consequence of Exposure**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do you wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
Odour from the transfer and treatment of contaminated soils.	Workers and visitors to the site. Residential receptors 170m SW, 210m SE and 240m SW of the site. Users of Maw Green Road 220m SW	By air	The addition of treating and storing asbestos contaminated soils is unlikely to increase risk of odour to sensitive receptors. Preventative measures include: • Waste acceptance measures will ensure that soils are not overly odorous. Should any particularly odorous soils be accepted, the biofilter is in place to mitigate the potential for odour. Soils containing asbestos not likely to be more or less odorous than existing waste codes accepted. • General housekeeping, such as sweeping of surfaces and machinery being cleared regularly of residue build up. • Meteorological conditions should be considered before activities such as transfer of waste takes place, these activities should be minimised during unfavourable wind conditions, in	**Unlikely** – additional contaminated soils with asbestos unlikely to increase risk of odour from site – no more than existing waste types accepted.	Nuisance to human receptors.	**Low – if control measures implemented**

			particular when winds are towards residential receptors to the southwest and southeast. An Odour Management Plan for the STF is in place and has been updated, as document ref. 5193-CAU-XX-XX-RP-V-0314.			
Odour from reception and storage of contaminated soils.	Workers and visitors to the site. Residential receptors 170m SW, 210m SE and 240m SW of the site. Users of Maw Green Road 220m SW	By air.	Odour could be generated during delivery and offloading, sorting, or during stockpiling of contaminated soils. The addition of treating and storing asbestos contaminated soils is unlikely to increase risk of odour to sensitive receptors. Measures to prevent odour nuisance from the reception and initial storage of soils will include: • Waste acceptance procedures to ensure that only suitable soils are accepted. This includes hydrocarbon and asbestos contaminated soils. The potential for odour problems will be assessed on receipt and actions taken if required. • Excessively malodorous soils will be removed from site and a non-conformance note issued. • Odour olfactory monitoring undertaken daily to assess odour levels from site activities. An Odour Management Plan for the STF is in place and has been updated which details site controls and procedures for	**Unlikely** - human receptors sensitive to odour are some distance away and the prevailing wind direction is from the southwest, away from residential receptors. Addition of asbestos contaminated soils to permit not likely to increase risk of odour.	Nuisance to human receptors.	**Low – if control measures implemented.**

			odours as document ref. 5193-CAU-XX-XX-RP-V-0314.			
Odour from Soil Bioremediation Process	Workers and visitors to the site. Residential receptors 170m SW, 210m SE and 240m SW of the site. Users of Maw Green Road 220m SW	By air.	There will be no change to the existing control measures for the bioremediation of soils at the existing STF. The addition of treating and storing asbestos contaminated soils is unlikely to increase risk of odour to sensitive receptors. An Odour Management Plan for the STF is in place and has been updated as document ref. 5193-CAU-XX-XX-RP-V-0314.	**Unlikely -** following industry standards will allow for sufficient oxygen ingress to minimise the impact of odours. Odour minimisation and waste acceptance procedures are already in place. Addition of asbestos contaminated soil waste codes unlikely to increase risk of odours.	Nuisance to human receptors nearby.	**Low – if control measures adhered to.**
Soils treatment process failure - material becoming anaerobic and giving rise to odours	Local human population	Air transport, then inhalation	Preventative measures will include: • Good management of the treatment process, i.e. good mixing, aeration and regular monitoring, experienced and competent staff. In the event of failure of the treatment process:	**Unlikely,** the likelihood of soils becoming anaerobic is low – no change to risk as a result of this permit variation.	Odour nuisance.	**Low - if control measures implemented.**

			If material has become anaerobic and malodorous, the material may be covered with more soils to minimise odour and, if required, the removal of the failed material to landfill.			

Table 3 - Noise and Vibration Risk Assessment

What do you do that can harm and what could be harmed?			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Control Measures**	**Probability of Exposure**	**Consequence of Exposure**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do you wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
Noise and vibration from soil handling and treatment.	Workers and visitors to the site. Residential receptors 170m SW, 210m SE and 240m SW of the site. Users of Maw Green Road 220m SW. Nearby wildlife.	By air and through ground.	The addition of treating and storing asbestos contaminated soils is unlikely to increase risk of noise and vibration to sensitive receptors. Similar soil handling plant that is currently used at the site will be used to move asbestos contaminated soils. Treatment of soils will involve screening and hand-picking of bound asbestos. Preventative measures include: Fully trained and competent plant operators to operate machinery. Daily site inspections include routine checks to ensure noise and vibration emissions from site operations are not overly excessive. Maintenance of mobile plant/equipment in line with manufactures specifications to ensure screening/turning process produces minimal noise.	**Unlikely -** the addition of the treatment and storage of asbestos contaminated soils will not significantly increase noise and vibration emissions, due to overall waste tonnages and operating times for the site remaining the same.	Noise may cause annoyance to people working in the local businesses within close proximity of the site and disturbance to local wildlife sensitive to noise.	**Low - provided control measures implemented.**

			The STF will operate within the landfill site's operating times and not during unsociable hours. Where practicable, mobile plant and site equipment fitted with silencers or acoustic hoods. Avoiding un-necessary revving of engines, engines switched off when not in use or idle for long durations. Use of broadband type noise reverse alarms (i.e. non-beeper type). Minimisation of drop heights during tipping.			

Table 4 - Fugitive Emissions Risk Assessment

What do you do that can harm and what could be harmed?			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Control Measures**	**Probability of Exposure**	**Consequence of Exposure**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do you wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
Dust						
Dust & asbestos fibres from contaminated soil treatment – 3-way screen and asbestos picking station . Dust from storage of hazardous soils.	Workers and visitors to the site. Residential receptors 170m SW, 210m SE and 240m SW of the site. Users of Maw Green Road 220m SW. Nearby wildlife and plants at Sandbach Flashes 615m NW and Local Wildlife Site 400m NE	By air.	The preventative measures used for the existing STF will be used for the new treatment and storing of asbestos contaminated soils activity. Whilst the waste acceptance procedures and historical air monitoring have been shown to eliminate the risk of elevated airborne asbestos fibres, a set of mitigation measures is included for reassurance. Preventative measures include: • Provision on site of a water bowser/dust cannon and adequate year-round water supply and dust suppression by regular spraying in dry conditions; • Continuous dust suppression misting system with added asbestos surfactant;	**Unlikely** - Residential receptors not downwind of the site, with predominant wind direction blowing away from the SW towards the NE. Sandbach Flashes >600 north-west unlikely to be affected due to distance from site and less likely to be downwind most of the time. Local Wildlife Site 400m	Nuisance - dust on cars, clothing etc. Human health hazard from asbestos fibres. Smothering of fauna and flora by dust within SSSI and LWS.	**Low – if control measures implemented.**

			• Asbestos monitoring will be carried out against background reference levels using a detection limit of <0.0005f/ml determined with on-site monitoring as a pre-commencement condition. • Use of clean water for dust suppression, to avoid re-circulating fine material; • High standards of house-keeping to minimise track-out and windblown dust; • A preventative maintenance programme, including readily available spares, to ensure the efficient operation of plant and equipment; • Minimisation of drop heights during tipping; • Clear delineation of stockpiles to deter vehicles from running over edges; and • Effective staff training in respect of the causes and prevention of dust and asbestos fibre release. **Specific measures** in relation to activities within the treatment facility include: • Pre-acceptance testing of soils will be undertaken to quantify that asbestos fibres are lower than 0.1% for Chrysotile and 0.01% for any other forms of	unlikely to be affected due to distance from site. The same dust control and prevention measures will be in place for the bioremediation area. Asbestos ambient air monitoring from other FCC sites (Edwin Richards Quarry) undertaking asbestos in soils treatment and storage indicates negligible asbestos levels in air.		

			asbestos detected in soil. If there are exceedances of these limits then that soil will be rejected from site. • Daily dust monitoring carried out to assess levels of emissions from site activities. • Hand-picking operations are carried out in a fully enclosed picking station to minimise potential for asbestos fibre release to air; • Misting equipment to be employed if required during summer months. • Hand-picking is of bound asbestos, unlikely to release fugitive asbestos fibres; • Staff working in hand-picking station will undertake suitable training and wear correct personal protective clothing. • Decontamination of workers will be undertaken in decontamination unit and used PPE bagged and disposed of in asbestos skip, to prevent fugitive asbestos fibres leaving site. • Meteorological conditions should be considered before activities such as transfer, and this activity should be minimised during unfavourable wind conditions.			

			• A Dust & Emissions Management Plan (DEMP) for the STF is in place and has been updated as document ref. 5193-CAU-XX-XX-RP-V-0313.			
Run-Off						
Run-off from site surfacing directly into surface water.	Surface waters downstream of site. Local Wildlife Site ponds 400m NE.	Surface water run-off site.	Run-off will be contained by site drainage system. The site directs surface water run-off via sealed drainage to a pumping chamber and then water treatment plant on site, prior to discharging to sewer, in compliance with limits set within the discharge consent for the STF. No direct link to surface water receptors from site. The discharge consent will continue to be adhered to as a result of the addition of treatment and storage of asbestos contaminated soils.	**Unlikely** – existing discharge consent limits to continue to be adhered to. (Accidental spillages are dealt with below). Run-off will be contained by site drainage.	Contamination of local surface water.	**Low -if control measures implemented.**
Contaminated run-off percolating through ground.	Groundwater or surface waters close to the site.	Migration through site surfacing and underlying soil.	Measures to control contaminated runoff into ground will include: • Offloading of soils to be supervised by suitably trained staff who will be aware of storage requirements and locations for various wastes. • Daily site inspections will include checks to see that soils are stored in their designated storage areas. • All areas used for storage or handling of soils that may have contaminated runoff will be in	**Unlikely** - The areas of the site used for soil activities are located on impermeable pads which drain to sealed drainage sumps and water treatment plant.	Contamination of groundwater and surface water.	**Low – if control measures implemented.**

			areas which drain to sealed drainage containing any run-off. Regular inspections of impermeable ground: Any damage detected that could impair the integrity of the pavement should be recorded and repairs carried out as soon as possible.			
Pests						
Rodents/pests	Workers and visitors to the site. Residential receptors 170m SW, 210m SE and 240m SW of the site. Users of Maw Green Road 220m SW.	Over ground.	Unlikely due to nature of wastes accepted. Risk will remain the same as a result of addition of treatment and storage of asbestos contaminated soils, not likely to attract pests. Measures taken to prevent infestation: • Daily site inspections will monitor for the presence of rats/pests on site. • Waste acceptance procedures will ensure that non-conforming wastes are rejected. • Soils unlikely to attract rodents if strict waste acceptance procedures adhered to. • In general, good housekeeping with regular sweeping and clearing of waste areas is encouraged. Actions in the event of rodents/pests being detected at the site: -	**Unlikely** – waste types to be accepted at site unlikely to result in rats/pests being a significant problem.	General nuisance and health risk from rats being vectors for human pathogens (e.g. Weil's disease).	**Low – if control measures implemented.**

			• The incident must be reported to the site manager; • A record must be made of the incident and actions taken; • Waste acceptance and storage procedures should be reviewed; • Specialist pest control contractor will visit site regularly and on an ad hoc basis and if an infestation is detected, will be employed to remedy situation.			
Fly infestation	Workers and visitors to the site. Residential receptors 170m SW, 210m SE and 240m SW of the site. Users of Maw Green Road 220m SW.	By air.	Unlikely to attract flies due to nature of wastes accepted. No change to this as a result of addition of waste types containing asbestos in soils. Measures taken to prevent infestation: • Waste acceptance procedures will ensure that non-conforming wastes are rejected. • Daily site inspections will monitor for the presence of flies on site. • In general, good housekeeping with regular sweeping and clearing of waste areas is encouraged. Actions in the event of a fly infestation being detected at the site: • The incident must be reported to the site manager. • A record must be made of the incident and actions taken.	**Unlikely -** Significant flies are not anticipated.	General nuisance to human receptors and vectors of pathogens to humans and animals.	**Low – if control measures implemented.**

			• Waste acceptance and storage procedures should be reviewed. • In the event of severe infestations, the specialist pest control contractor will be employed and visit more regularly and on an ad hoc basis.			
Mud/Litter						
Litter from off-loading and processing of mixed loads including possibility of some light wastes.	Workers and visitors to the site. Residential receptors 170m SW, 210m SE and 240m SW of the site. Users of Maw Green Road 220m SW.	Air and over ground.	Acceptance of additional waste types containing asbestos in soil unlikely to contain litter. Measures taken to prevent litter leaving the site: • Waste acceptance procedures to ensure the acceptance of only permitted waste types, inherently unlikely to contain litter. Actions in the event of litter being detected leaving the site: - • Litter picking will be carried out. Priority is given to clearing any litter outside the permit boundary furthest away and working inwards. • The incident must be reported to the site manager. • A record must be made of the incident and actions taken. Waste acceptance, storage and treatment procedures should be reviewed, and additional control imposed as deemed necessary by the site manager.	**Unlikely** - litter may be identified from time to time but likely to be in relatively small quantities and only problematic during high winds. There will be no changes to the risk of litter originating from site as a result of this permit variation. Litter control measures will remain the same.	Nuisance to nearby receptors.	**Low – if control measures implemented.**

Mud being tracked onto surrounding roads.	Workers and visitors to site and users of surrounding roads.	Tracking on vehicle tyres entering/leaving the site.	Preventative measures taken to prevent mud leaving the site will remain the same as a result of this permit variation: • The site is constructed from crushed concrete that will minimise the risk of mud being generated. • Roads and site areas will be regularly swept. • Drivers will be encouraged to ensure their vehicle tyres are clean before leaving site and that any loose material is in enclosed containers, or the loads are sheeted or netted. • Daily site inspections will monitor for mud or debris being tracked from the site. • In general, good housekeeping with regular sweeping and clearing of debris is encouraged. Actions in the event of mud and debris is being tracked onto roads outside the site: - • Affected road areas will be cleaned by road sweeper. • The incident must be reported to the site manager. A record must be made of the incident and actions taken.	**Unlikely -** Mud and debris may be tracked onto surrounding roads but same control measures in place.	Nuisance to nearby road users. In severe circumstances mud on the road could affect road safety.	**Low – if control measures implemented.**

Table 5 - Visible Plumes Risk Assessment

What do you do that can harm and what could be harmed?			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Control Measures**	**Probability of Exposure**	**Consequence of Exposure**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do you wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
Potential visible plumes.	Nearby receptors.	Air.	N/A – no visible plumes are generated by the existing operations or as a result of this permit variation.	N/A	N/A	**N/A**

Table 6 - Release of Bioaerosols Risk Assessment

What do you do that can harm and what could be harmed?			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Control Measures**	**Probability of Exposure**	**Consequence of Exposure**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do you wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
Release of Bio-aerosols.	Local human population.	Via air.	Not applicable – bioaerosols not likely to be generated by the site activities. The restoration materials to be accepted at the site are not a source of bioaerosols. Any biodegradable or putrescible wastes not to be accepted at the site. Not considered further.	N/A	N/A	**N/A**

Table 7 – Accidents Risk Assessment

What do you do that can harm and what could be harmed?			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Control Measures**	**Probability of Exposure**	**Consequence of Exposure**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do you wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
Spillage or leak of fuel, various liquid products used in equipment or vehicle maintenance, or other hazardous liquids.	Underlying soil, Groundwater and/or Surface water (closest is the Fowle Brook). Connected ponds at the Local Wildlife Site 400m NE	Through site surfacing and ground.	**Preventative measures**: • The soil treatment and storage activities take place on impermeable surfacing with drainage to sealed sumps and a treatment plant. • All fuels and tanks will be appropriately stored and bunded 110% of their capacity and be compliant with CIRIA 'Containment systems for the prevention of pollution: Secondary, Tertiary and other measures for industrial and commercial premises (C736, 2014). • Regular inspections are carried out that check for integrity of site surfacing and correct storage of any hazardous liquids e.g. fuel for mobile plant.	**Unlikely - i**mpermeable surfacing and sealed drainage will prevent migration of spills or leakages to underlying ground. In the event of any uncontained spill, the drainage system will collect any oil spillages and other hazardous liquids would be collected by the drainage system. On that basis, it is very unlikely that any spills would reach water courses or groundwater. There will be no additional risk of	Contamination of local water course or underlying ground or groundwater.	**Low – provided control measures implemented.**

			• All staff involved in soils handling are inducted in the emergency procedures regarding the handling of spills. **Actions** in the event of spillages: • Incidents to be managed in accordance with emergency procedures regarding the handling of spills. • Spillages will be contained using appropriate spill kits or absorbent materials (e.g. soils). • Where the spill is near any drains, drains should be protected. • For larger spills of hazardous materials, any affected interceptors should be isolated and if necessary the interceptor cleaned out. • Depending on the severity of the spill, the Environment Agency will be contacted. The emergency procedure includes incident reporting and, as part of the environmental management system, incidents will be reviewed by management on a regular basis.	spills or leaks as part of this permit variation. The control measures in place remain valid.		
Fire in processing areas.	Surface water receiving contaminated fire	Air Ground.	Fires could occur as a result of arson, from sources of ignition, or from electrical faults on site.	**Unlikely -**Measures in place to prevent the fire spreading or	Smoke, local nuisance, risk of fire	**Low – provided control**

	waters (Fowle Brook 30m E). Surrounding site facilities. Air.		**Preventative measures**: • No smoking policy. • Emergency vehicles will be able to gain access to the processing buildings at all times whilst the site is operational. • All staff involved in soil handling will be inducted in the emergency procedures including the fire action plan and a regular fire drill. • Daily checks and emergency procedures in place to prevent fire risk. • Site staff trained in fire risk and how to deal with an incident on site. • Any visitors to the site will be inducted and be made aware of the fire risks. • **Actions in the event of fire:** • Where it is safe to do so, site staff will use on-site fire-fighting equipment to extinguish fires. • Where a fire may have been caused by electricity or is close to electrical equipment, electricity to that area should be switched off and isolated. • Clear directions will be given to the fire service and	to limit its consequences will significantly reduce the probability of receptors being affected by a fire. There will be no additional risk of fires breaking out as a result of this permit variation. It is considered that mitigation measures in place remain valid.	spreading to other areas or properties.	**measures implemented.**

			members of staff will provide assistance where required. • Procedures are set out in the Fire Prevention Plan and associated Fire Risk Assessment. The emergency procedure includes incident reporting. As part of the environmental management system, incidents will be reviewed by management on a regular basis to identify whether lessons can be learnt, and procedures improved.			
Flooding	Underlying soil. Groundwater. Surface water.	Flood water from Fowle Brook. Drainage systems.	Preventative measures: Minimum 90mm bunds around area to provide additional protection. Surface water drainage collection and treatment system. Actions in the event of flooding: • In the event of flood warnings for the area, the site manager or technically competent manager should consider the possibilities of moving waste materials or any other materials with hazardous properties away from areas vulnerable to flood waters. • Where flooding could reach areas where electrical	**Unlikely**[2] - site is assessed to lie outside the 1:1,000 annual probability fluvial flood outlines for Fowle Brook.	Contamination/silting of surface waters or surrounding areas with soil materials could, depending on the properties of the soils (hydrocarbon content), affect water quality or be unsightly.	**Low – provided control measures implemented.**

[2] Maw Green Landfill Soil Treatment Facility Flood Risk and Drainage Assessment March 2019

			equipment is used, electricity to that area should be switched off and isolated. After flood waters have receded, the areas outside the site should be inspected and any materials which have escaped the boundary should be picked up.			

5.0 CONCLUSION

5.1 Risk Assessment Tables – Overall Risk

5.1.1 The risk assessments above enable identification of appropriate mitigation measures to control the amenity and accident risks from the proposed activities. All identified risk mitigation measures will be incorporated within the Environmental Management System (EMS) for the site.

5.2 Report Conclusions

5.2.1 This Amenity and Accidents Risk Assessment report indicates that provided the identified risk mitigation measures (as identified above in Tables 2 to 7 above) are implemented, the risk of nuisance or pollution from odour, noise and vibration, fugitive emissions, bioaerosols, visible plumes and accidents reaching sensitive receptors is low.

5.3 Further Information

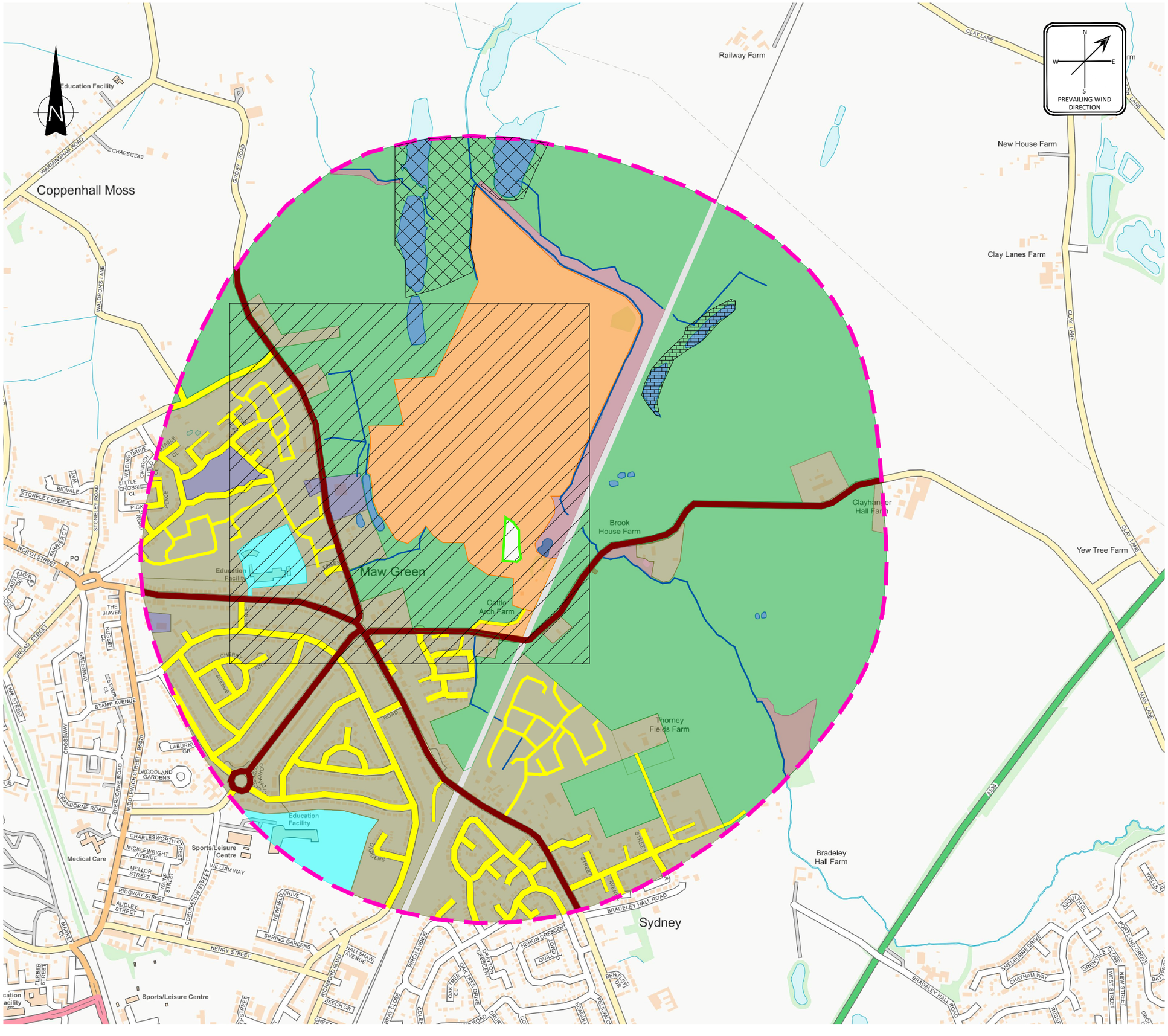
5.3.1 A review of dust and asbestos fibre emission risks from site are also covered in the updated Dust & Emissions Management Plan document ref. 5193-CAU-XX-XX-RP-V-0313, included with this application.

6.0 REFERENCES

- Environment Agency and DEFRA (1st February 2016) – 'Risk assessments for your environmental permit', from GOV.UK website: https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit (last updated 31st August 2022).

DRAWINGS

5193-CAU-XX-XX-DR-V-1804 Sensitive Receptor Plan



LEGEND

- ACTIVITY BOUNDARY
- 1000m OFFSET
- SURFACE WATER
- WOODLAND
- COMMERCIAL
- LANDFILL SITE
- RESIDENTIAL
- MAJOR ROAD
- MINOR ROAD
- RAIL
- AGRICULTURAL
- EDUCATIONAL
- RECREATIONAL
- SSSI
- PROTECTED SPECIES - NON FISH
- LOCAL WILDLIFE SITE

REV	MODIFICATIONS	BY	RE	AP	DATE
P01	ISSUED FOR INFORMATION	EJD	SH	SH	19.10.22

PURPOSE OF ISSUE: FOR INFORMATION

STATUS: S2

CLIENT: 3C WASTE LIMITED

PROJECT: MAW GREEN SOILS TREATMENT FACILITY

TITLE: NEW TREATMENT AREA SENSITIVE RECEPTORS PLAN

DESIGNED BY	DRAWN BY	REVIEWED BY	AUTHORISED BY
EJD	EJD	SH	SH

DATE	SCALE @ A3	JOB REF:	REVISION
18.10.2022	1:10000	5193	P01

DRAWING NUMBER: 5193-CAU-XX-XX-DR-V-1804

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DOCUMENT 2.10
ENVIRONMENTAL PERMIT VARIATION APPLICATION, ACTIVITIES & OPERATING TECHNIQUES REPORT

Caulmert Limited

Engineering, Environmental & Planning Consultancy Services

Maw Green Landfill Soils Treatment Facility

3C Waste Limited

Environmental Permit Variation Application

Activities & Operating Techniques Report

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January 2023

Caulmert
engineering environmental planning

APPROVAL RECORD

Site:	Maw Green Landfill Soils Treatment Facility
Client:	3C Waste Limited
Project Title:	Environmental Permit Variation Application
Document Title:	Activities & Operating Techniques Report
Document Ref:	5193-CAU-XX-XX-RP-V-0311.A0.C1
Report Status:	**Final**
Project Manager:	Andy Stocks
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Author	Samantha Hayden Environmental Consultant	**Date**	12/12/2022
Reviewer	Andy Stocks Director of Environment	**Date**	12/12/2022
Approved	Andy Stocks Director of Environment	**Date**	12/12/2022

Revision Log			
Revision	**Description of Change**	**Approved**	**Effective Date**
C1	Initial Release	AS	10/01/2023

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Activities & Operating Techniques Report

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1.0 INTRODUCTION

1.1 Application Context

1.1.1 3C Waste Limited (a wholly owned subsidiary of FCC Environment (UK) Limited) have appointed Caulmert Limited to prepare an environmental permit variation application to vary existing Maw Green Landfill permit ref. EPR/BS7722ID to include for the treatment of asbestos in soils (additional Section 5.3A(1)(a)(ii) activity) by 3-way screen and handpicking of bound asbestos fragments which will include an additional area for storage of solely asbestos contaminated wastes and be separate to the current STF bioremediation area. The proposed area for asbestos handling is located to the west of the current STF, as shown on drawing ref. 5193-CAU-XX-XX-DR-V-1805.

1.1.2 There is a local market for the treatment of soil containing asbestos. The site will accept hazardous asbestos contaminated soils for treatment to remove bound asbestos fragments and so recover the soils as a non-hazardous waste for use in restoration of the Maw Green Landfill. Bound asbestos fragments will be double bagged by hand, stored in a lockable skip and subsequently sent to a suitably licensed hazardous waste disposal facility (landfill). Asbestos-impacted soils will not be accepted for treatment if they contain fibre concentrations that could generate airborne fibres at concentrations above the threshold limit of 0.01 f/ml. Incoming soils will be tested for asbestos fibres prior to treatment. Any soils exceeding the limits will be rejected from site.

1.1.3 This activity is currently being undertaken under a mobile plant deployment by Provectus at Maw Green STF for the treatment of asbestos in soils, and asbestos monitoring is undertaken of airborne asbestos fibres at the site.

1.1.4 The monitoring data indicates airborne emissions are always below the detection limit of 0.0005 f/ml (see Treatment Process Description & BAT Review document ref. 5193-CAU-XX-XX-RP-V-0312). Therefore, this permit variation for Maw Green is to formalise the asbestos-soils treatment activity to be included as a permitted activity at the STF within the permit.

1.1.5 The bioremediation process at the existing STF will not change.

1.2 Document Structure

1.2.1 This 'Activities and Operating Techniques Report' provides a detailed response to questions within application form Part B3 for bespoke installation permits, to cover adding a new listed activity for the treatment activity.

1.2.2 The B3 form requests information about the activities the application relates to and the operating techniques that will apply to them. Information is requested on: -

a) Types of activities;
b) Types of waste to be accepted;
c) Emissions;

d) Operating techniques including technical standards;
e) General requirements in relation to amenity and accident risks;
f) Types and amounts of raw materials;
g) Information for specific sectors (hazardous waste recovery and disposal sector);
h) Monitoring of point source emissions;
i) Resource efficiency and climate change.

1.2.3 This 'Activities and Operating Techniques Report' has been prepared to provide responses to the environmental permit application form Part B3 which relates to the issues listed above. To aid cross-referencing between this 'Activities and Operating Techniques Report' and the application form, the various issues are presented in the same order as in the application form and the headings in this document include reference to the specific question number to which the information relates.

2.0 ACTIVITIES

2.1 Activities to be added (Part B3 Q1a)

2.1.1 The activity proposed to be added to the permit is the physico-chemical treatment of hazardous waste for recovery and also the temporary storage of hazardous wastes for asbestos contaminated soils. Table 1 below lists only the activities to be added as part of this permit variation and the proposed tonnages:

Table 1. Types of activities

Name	Installation Schedule 1 reference	Description of the installation activity	Activity Capacity	Annex I and Annex II codes	Hazardous Waste Treatment Facility
Handpicking & Pre-screening of asbestos contaminated soils	Section 5.3 Part A (1)(a)(ii) activity	Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving physico-chemical treatment.	38,000 tonnes at any one time	R5 – the recycling or reclamation of inorganic material. D9 – physico-chemical treatment of waste.	50,000 tonnes per annum (tpa)

2.1.2 The proposed tonnage of hazardous soils to be accepted within the STF is 50,000 tonnes per annum, which was recently applied to be increased as part of a previous permit application for the STF at Maw Green Landfill Site, permit variation number EPR/BS7722ID/V008. This is yet to be determined at the time of writing this report. There will be no changes to any of the existing activities listed in the permit or to the Directly Associated Activities as a result of this permit variation.

2.2 Types of waste accepted (Part B3 Q1b)

2.2.1 This application proposes new hazardous waste codes to be included in the Maw Green Landfill Permit for the new activity at the STF, specifically for the acceptance of asbestos contaminated soils, as follows in Table 2:

Table 2 – Waste Types

17	Construction and demolition wastes (including excavated soil from contaminated sites)	Details
17 05	**soil (including excavated soil from contaminated sites), stones and dredging spoil**	
17 05 03*	soil and stones containing hazardous substances	Wastes that contain identifiable pieces of bonded asbestos (any particle of size that can be identified as potentially being asbestos by a competent person if examined by the naked eye).
17 06	**Insulation materials and asbestos-containing construction materials**	
17 06 05*	construction materials containing asbestos	Wastes that contain discrete pieces of bonded asbestos within the soil matrix only.

2.2.2 There are no other changes to the current waste types listed in Table S2.3a and S2.3b of the permit for the Soils Treatment Facility as part of this permit variation application. The above wastes listed in Table 2 will be for the separate treatment and storage of asbestos wastes activity at the STF.

3.0 EMISSIONS (PART B3 Q2)

3.1 Point source emission to air

3.1.1 There will be no point source emissions to air from the proposed operations for the treatment and storage of bound asbestos contaminated soils, as part of this permit variation.

3.1.2 The potential for dust and airborne asbestos fibre emissions from the activity are considered in the Amenity & Accidents Risk Assessment report ref. 5193-CAU-XX-XX-RP-V-0310 and further control measures are presented in the updated Dust & Emissions Management Plan ref. 5193-CAU-XX-XX-RP-V-0313.

3.1.3 There will be no change to point source emissions to air from the existing STF area biofilter for bioremediation, as part of this permit variation.

3.2 Point source emission to sewers, effluent treatment plants or other transfers off site

3.2.1 There will be no change to point source emissions to sewers, effluent treatment plants or other transfers off-site as part of this permit variation.

3.2.2 The new hazardous soils storage and treatment pad will be constructed from crushed concrete with underlying geo-composite clay liner (GCL). Treatment pads are designed to have a fall towards a main water collection drain to ensure that water is continually drained from the pads. Water is unable to leave the downgradient periphery of the pads by lateral flow due to the presence of a containment bund of 300mm height. Water is unable to migrate to underlying controlled waters due to the presence of an engineered pad with a geosynthetic clay liner that would have a design permeability of 1 x 10^{-9}m/s as a minimum. The sealed drainage will ensure all surface waters will fall and be collected at the pumping chamber in the north-eastern side of the site, before being pumped across to the existing water treatment plant and then discharged to sewer via existing discharge consent. Asbestos and other restricted substances will continue to be tested for prior to discharging any waste waters to sewer, as per limits within the discharge consent. Asbestos is only accepted in a bound form. This means that it is encapsulated in a cement matrix within the soil. The presence of asbestos in a bound matrix in soil has previously been expected to prevent the release of asbestos fibres into soil porewater. Fibre concentrations in soil are generally not detected at or below the detection limit of <0.001% in received soils. Water monitoring from asbestos soils processing and storage areas at Edwin Richards Quarry, in Rowley Regis Mobile Plant operation, a similar site operated by FCC, has not detected asbestos fibres to be present in effluent from asbestos processing areas (see Appendix 5 of Treatment Process Description & BAT Review report ref. 5193-CAU-XX-XX-RP-V-0312) and therefore, no abatement of asbestos in effluent is proposed for the asbestos in soils treatment pad.

3.3 Point source emission to water (other than sewers)

3.3.1 There are existing surface water emission points relating to the landfill activity, however no direct discharge to surface water occurs as part of the STF activity and this will not change as a result of the proposed activity.

3.4 Point source emission to land

3.4.1 There will be no change to point source emissions to land as part of this permit variation. Treated soils will undergo post-treatment verification sampling and testing, before being used for the restoration of the landfill as treatment for recovery purposes.

4.0 OPERATING TECHNIQUES – WASTE TREATMENT

4.1 Technical standards (Part B3 Q3a)

Table 2: Technical standards – Waste treatment

Description of Schedule 1 activity or directly associated activity	Relevant technical guidance note or Best available techniques as described in BAT conclusions under IED	Document reference
Section 5.3 Part A(1)(a)(ii) Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day (pre-screening & hand-picking of asbestos contaminated soils)	Environment Agency Guidance: Sector Guidance Note IPPC S5.06: Recovery and disposal of hazardous and non-hazardous waste (published May 2013, updated October 2018). Commission implementing decision (EU) 2018/1147 of 10 August 2018. 'Establishing best available techniques (BAT) conclusions for waste treatment', under Direction 2010/75/EU of the European Parliament and of the Council. Risk assessments for your environmental permit (last updated 31st August 2022).	Treatment Process Description & BAT Review' doc. ref. 5193-CAU-XX-XX-RP-V-0312 included in this application. Environmental Risk Assessment - Amenity and Accidents Risk Assessment document ref. 5193-CAU-XX-XX-RP-V-0310 included in this application. Management System ref. 5193-CAU-XX-XX-RP-0315, included in this application. Dust & Emissions Management Plan ref. 5193-CAU-XX-XX-RP-V-0313 Odour Management Plan ref. 5193-CAU-XX-XX-RP-V-0314

4.1.1 For many installation activities, a 'sector guidance note' (SGN) have been published which sets out in detail the indicative 'best available techniques' (BAT) standards for how to carry out those activities. The sector guidance notes are based on European BAT reference document (BREFs) that are intended to ensure European consistency in the understanding of what is BAT for a certain sector.

4.1.2 There is a specific SGN for waste treatment, which is 'Sector Guidance Note IPPC S5.06. Guidance for the Recovery and Disposal of Hazardous and Non-Hazardous Waste'.

4.1.3 The Environment Agency are now implementing a revised set of BAT conditions which all new and existing installations are required to meet. As part of this, a revised BAT assessment is required which implements all relevant BAT conclusions as described in the Commission Implementing Decision. The BAT Reference Document for Waste Treatment (the BREF) was published in August 2018 following a European Union Wide review of BAT.

4.1.4 The technical standards for Maw Green STF against BAT Conclusions are detailed within report 5193-CAU-XX-XX-RP-V-0312 (attached to this application).

4.2 General requirements (Part B3 Q3b)

4.2.1 It is a general requirement for all applications to consider the risk of emissions in relation to possible accidents, fugitive emissions, odour and noise and vibration as a result of this variation. Risk assessments were carried out using the Environment Agency's templates for environmental risk assessments as set out in the guidance:

- An Amenity and Accidents Risk Assessment document ref. 5193-CAU-XX-XX-RP-V-0310 is included within the application.

- The Dust & Emissions Management Plan (DEMP) was also updated for the STF to include for the additional asbestos wastes treatment and storage activities and is provided as document referenced 5193-CAU-XX-XX-RP-V-0313.

- The Odour Management Plan (OMP) has also been updated as document ref. 5193-CAU-XX-XX-RP-V-0314, however there were only minor changes to the introductory wording of this document and the risks to receptors and control measures remain the same and so this has not been submitted as part of this variation.

4.3 Types and amounts of raw materials (Part B3 Q3c)

Raw materials

4.3.1 The waters for dust suppression systems may be dosed with an asbestos surfactant additive which is a specially formulated solution which is capable of penetrating and "wetting out" amphibole (hydrophobic) forms of asbestos quickly and thoroughly. A copy of the MSDS sheets for the asbestos surfactant can be found in Appendix 2 of the Treatment Process Description & BAT Review report ref. 5193-CAU-XX-XX-RP-V-0312. The treatment process does not require the use of any other raw materials except water and asbestos surfactant additive for dust/asbestos fibre suppression, and small amounts of water for general cleaning and domestic use on site.

4.3.2 The use of raw materials as part of the bioremediation treatment process at the STF will not change as part of this permit variation.

4.3.3 The operator will select the least harmful products to use in the operation wherever possible.

4.3.4 The operator will keep Safety Data Sheets for all products used at the facility and will monitor the quantity of materials used. This will provide data for regular reviews of raw materials usage at the facility.

5.0 INFORMATION FOR SPECIFIC SECTORS (PART B3 Q3D – APPENDIX 4)

5.1 Question 1: Appendix 4 – For the landfill sector, provide your Environmental Setting and Installation design (ESID) report and any other risk assessments to control emissions

5.1.1 An Environmental Setting and Installation Design (ESID) addendum report to the original 2003 ESID has been provided as part of this permit variation as document ref. 5193-CAU-XX-XX-RP-V-0309.

5.1.2 An Amenity and Accidents Risk Assessment (ARA) report ref. 5193-CAU-XX-XX-RP-V-0310 for the Soil Treatment Facility (STF) has been updated as part of this permit variation application.

5.2 Question 2: Appendix 4 – For recovery of hazardous waste on land activities, provide your Waste Acceptance Procedures (including Waste Acceptance Criteria)

5.2.1 The operating techniques, including waste acceptance procedures relating to the proposed activities have been updated as a result of the current mobile plant deployment operation at Maw Green. The acceptance of soils from the STF to be used in the restoration of the landfill will be in accordance with the approved Waste Recovery Plan.

5.3 Question 3: Appendix 4 – Provide your Hydrogeological Risk Assessment (HRA) for the site

5.3.1 Not relevant to this application.

5.4 Question 4: Appendix 4 – Provide your Outline Engineering Plan for the site

5.4.1 Not relevant to this application.

5.5 Question 5: Appendix 4 – Provide your Stability Risk Assessment (SRA) for the site

5.5.1 Not relevant to this application.

5.6 Question 6: Appendix 4 – Provide your Landfill Gas Risk Assessment (LFGRA) for the site

5.6.1 Not relevant to this application.

5.7 Question 7: Appendix 4 – For recovery of hazardous waste on land activities, have you completed a monitoring plan for the site?

5.7.1 Additional proposed monitoring at the site for dust and asbestos fibre emissions is covered in the updated Dust & Emissions Management Plan report ref. 5193-CAU-XX-XX-RP-V-0313.

5.8 Question 8: Appendix 4 – Have you completed a proposed plan for closing the site and your procedures for looking after the site once it has closed?

5.8.1 The closure plan for the landfill site remains unchanged as a result of this permit variation.

6.0 MONITORING

6.1 Measures for monitoring point source emissions (Part B3 Q4a)

Emissions to air

6.1.1 There will be no point source emissions to air from the proposed operations for the treatment and storage of bound asbestos contaminated soils, as part of this permit variation.

6.1.2 There will be no other changes to the point source emissions to air as part of this permit variation application. Daily olfactory, temperature and moisture content monitoring of the biofilter will continue as per the permit and is in addition to the biofilter sampling and testing as required in the permit. There are no other point source emissions proposed as part of this permit variation.

6.1.3 Monitoring at the site for dust and asbestos fibres and further control measures is covered in the Dust & Emissions Management Plan ref. 5193-CAU-XX-XX-RP-V-0313.

Emissions to sewers, effluent treatment plants or other transfers off site

6.1.4 There will be no changes to the point source emissions to sewers, effluent treatment plants or other transfers off-site as part of this permit variation application. Surface water will be collected by the site drainage system and directed to a pumping chamber on the north-eastern side of the new treatment area, before being pumped across to the existing water treatment plant at the STF. Treated waters will be discharged to sewer in accordance with the parameter limits detailed within the existing trade effluent discharge consent.

Emissions to water (other than sewers)

6.1.5 There are no discharges to surface water resulting from this application for the Soil Treatment Facility, which benefits from a contained drainage system separate from the landfill.

Emissions to land

There are no point source emissions to land resulting from this application for the Soil Treatment Facility, which will be operated to ensure dust and debris emissions are minimised and operations are undertaken on the treatment pad only. The site surfacing will consist of crushed concrete with geo-composite clay liner (GCL) membrane to prevent run-off entering the ground below.

7.0 REFERENCES

- Directive 2008/98/EC of the European and of the Council of 19 November 2008 on waste and repealing certain Directives.
- The Environmental Permitting (England and Wales) Regulations 2016.
- Environment Agency (2007): Sector Guidance Note IPPC S5.06. Guidance for the Recovery and Disposal of Hazardous and Non-Hazardous Waste.
- European Parliament 2018: Commission implementing decision (EU) 2018/1147 of 10 August 2018. Establishing best available techniques (BAT) conclusions for waste treatment, under Direction 2010/75/EU of the European Parliament and of the Council.
- Environment Agency (2013): Understanding the meaning of a regulated facility. RGN 2 version 3.0.
- Environment Agency (2017): Application for an environmental permit – Part B3 – variation to a bespoke installation permit. Version 13, September 2021.

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DOCUMENT 2.11
ENVIRONMENTAL PERMIT VARIATION APPLICATION, TREATMENT PROCESS DESCRIPTION & BAT REVIEW

Caulmert Limited

Engineering, Environmental & Planning Consultancy Services

Maw Green Landfill Soils Treatment Facility

3C Waste Limited

Environmental Permit Variation Application

Treatment Process Description & BAT Review

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January 2023

APPROVAL RECORD

Site:	Maw Green Landfill Soils Treatment Facility
Client:	3C Waste Limited
Project Title:	Environmental Permit Variation Application
Document Title:	Treatment Process Description & BAT Review
Document Ref:	5193-CAU-XX-XX-RP-V-0312.A0.C1
Report Status:	**Final**
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Reviewer	Andy Stocks Director of Environment	**Date**	12/12/2022
Approved	Andy Stocks Director of Environment	**Date**	12/12/2022

Revision Log			
Revision	**Description of Change**	**Approved**	**Effective Date**
C1	Initial Release	AS	10/01/2023

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Treatment Process Description & BAT Review

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APPENDICES

Appendix 1 Operating Procedures:

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STC WI 002 Soil Reception Procedure
STC WI 003 Soil Characterisation Procedure
STC WI 004 Soil Treatment and Monitoring Procedure
STC WI 005 Soil Turnover
STC WI 006 Soil Analysis
STC WI 007 Environmental Monitoring
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STC WI 009 Process Water Monitoring
STC WI 010 Pad and Equipment Maintenance
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1.0 INTRODUCTION

1.1 Application Context

1.1.1 3C Waste Limited (a wholly owned subsidiary of FCC Environment (UK) Limited) have appointed Caulmert Limited to prepare an environmental permit variation application to vary the existing Maw Green Landfill permit ref. EPR/BS7722ID to add a Section 5.3A(1)(a)(ii) activity to include for the treatment and storage of asbestos contaminated soils. The treatment of soils will be by 3-way screen and handpicking of bound asbestos and is to include an additional area for the storage of solely asbestos contaminated wastes, separate to the current STF area. The proposed area for asbestos handling is located to the west of the current STF, however is within the existing Maw Green Landfill permit boundary, with a small portion of the new treatment area to be located on top of the permanently capped landfill mass.

1.1.2 This activity is currently being undertaken under a mobile plant permit deployment by Provectus at Maw Green STF for the treatment of asbestos in soils, and asbestos monitoring is undertaken of airborne asbestos fibres at the site.

1.1.3 Therefore, it is now proposed to undertake the treatment of asbestos in soils on a permanent basis and so to be included as a permitted activity at the STF within the existing permit boundary.

1.1.4 The monitoring of operations undertaken the mobile plant deployment indicates airborne emissions consistently below the detection limit of <0.0005 f/ml.

1.1.5 Soil suitable for restoration will be retained on site for restoration of the landfill. Unsuitable material will be removed from the site.

1.1.6 The bioremediation process at the existing STF will not change. The treated soils are used primarily in the restoration of Maw Green Landfill Site. The storage of hazardous waste at the site is already covered by listed activity within the permit: Section 5.6 Part A (1)(a) temporary storage of hazardous waste with a total capacity exceeding 50 tonnes.

1.1.7 The operator has recently applied to vary their permit to remove the 30,000 tonnes per annum restriction for hazardous waste to allow an overall tonnage limit of 50,000 tonnes per annum (tpa) of hazardous or non-hazardous waste.

1.2 Background

1.2.1 This report is an assessment of compliance of the treatment and storage activities, including an update to include for the addition of treating soils contaminated by asbestos. at the soils treatment facility at Maw Green Landfill Site, in line with:

- ‘Best Available Techniques (BAT) Conclusions for Waste Treatment Industries’ (BREF), under Directive 2010/75/EU, from the Official Journal of the EU; and,

- Environment Agency Guidance 'Sector Guidance Note S5.06: recovery and disposal of hazardous and non-hazardous waste'.

1.2.2 A general process description for the treatment and storage activities, which has been updated to include the treatment and storage of asbestos contaminated soils, is provided in Section 2 of this report.

1.2.3 Indicative BAT standards are laid out in the BAT Conclusions (updated August 2018) for setting permit conditions for installations covered by Chapter II of Directive 2010/75/EU and their set emissions limit values, to ensure that under normal operation conditions emissions do not exceed emissions levels associated the with best available techniques as laid down by the BAT conclusions. The technical standards for Maw Green STF against BAT Conclusions are detailed within Section 9 of this report.

1.3 Requirements to demonstrate compliance with BAT Conclusions techniques

1.3.1 As part of this permit variation application a Best Available Techniques (BAT) assessment has been produced (see Section 9.0) which details all relevant BAT conclusions as described in the Industrial Emissions Directive (IED) 2010/75/EU 'Establishing Best Available Techniques (BAT) Conclusions for Waste Treatment' (2018) and BAT Reference Document for Waste Treatment (the BREF). This document demonstrates compliance with the Best Available Techniques (BAT) for the relevant aspects of the proposed asbestos contaminated waste treatment activities at the Maw Green Soils Treatment Facility (STF).

1.4 Principle of Operation

1.4.1 The facility will be limited to accepting wastes that can be treated so that they are suitable for landfill restoration in accordance with the approved restoration plan. This will not change with addition of the activity at the STF for the treatment of soil containing bound asbestos.

1.4.2 The new treatment activity is to be in a separate area to the west of the existing STF area for bioremediation, partly constructed on top of the permanently capped landfill mass. The treatment of the asbestos in soils will be by three-way screening and handpicking of bound asbestos and the storage will be solely for asbestos contaminated wastes in a separate area.

1.4.3 Once the asbestos is removed, the soils will then be used in the restoration of the landfill, or if necessary, treated in the bioremediation process at the existing STF, prior to use in restoration.

1.4.4 The bioremediation process at the STF will not change as a result of this permit variation and will continue to utilise industry standard biopile technology and will operate through the use of biopiles and moisture control; addition of suitable nutrients to the soil and forced air extraction to encourage micro-organism growth leading to the breakdown of hydrocarbons into by products such as carbon dioxide and water vapour. Soils will typically be treated over an 8-16-week period, with the material being turned infrequently,

typically once every 4-8 weeks. The bioremediation plant will operate continuously. The bioremediation process is already permitted.

2.0 PROCESS DESCRIPTION

2.1 Overview

2.1.1 The Soil Treatment Facility is permitted to accept and process up to 50,000 tonnes per annum of hazardous soils and non-hazardous soils. The soils treated are used for the restoration of the wider Maw Green Landfill Site. The total storage capacity of the STF site is 38,000 tonnes. The STF area for the bioremediation of soils consists of treatment, quarantine and storage areas as shown in drawing ref: 5193-CAU-XX-XX-DR-V-1805. The exact layout within the area will vary over time dependent upon inputs and treatment timescales. The STF Effluent Pipeline route is shown under drawing ref: 5193-CAU-XX-XX-DR-V-1803. The proposed treatment and storage areas for the soils contaminated with asbestos are also shown on drawing ref. 5193-CAU-XX-XX-DR-V-1805.

2.1.2 Demarcation of the areas will be managed via suitable signage. All soils received at site are subject to reception testing irrespective of the amount of prior testing received, soils are effectively held in quarantine prior to being formally accepted. Soils are only formally accepted upon the receipt of the soil analytical results to confirm compliance with the original waste description and treatability to meet the restoration/non-hazardous re-use criteria.

2.1.3 There will be no change to the bioremediation process, which utilises industry standard biopile technology to breakdown hydrocarbons into by products such as carbon dioxide and water vapour.

2.1.4 The new bound asbestos-contaminated soils treatment activity will be in an area to the west of the existing STF area. The treatment of the bound asbestos in soils will be by three-way screener and handpicking of bound asbestos fragments, in an additional area including for the storage of solely asbestos contaminated wastes. Once the soils are treated, they no longer pose a risk to human health from asbestos emissions; these soils will be tested and then moved to the soil storage area awaiting reuse in the restoration scheme. Only rarely will the soils require further treatment is visible bonded asbestos is still present or elevated TPH concentrations are found. Incoming soils that are found to contain asbestos fibre concentrations in excess of <0.1% chrysotile fibres, or <0.01% for other forms of asbestos once tested will be rejected from site and not treated.

2.1.5 A flow diagram showing the proposed treatment activities for asbestos-impacted soils at Maw Green STF is shown in Figure 1 below:

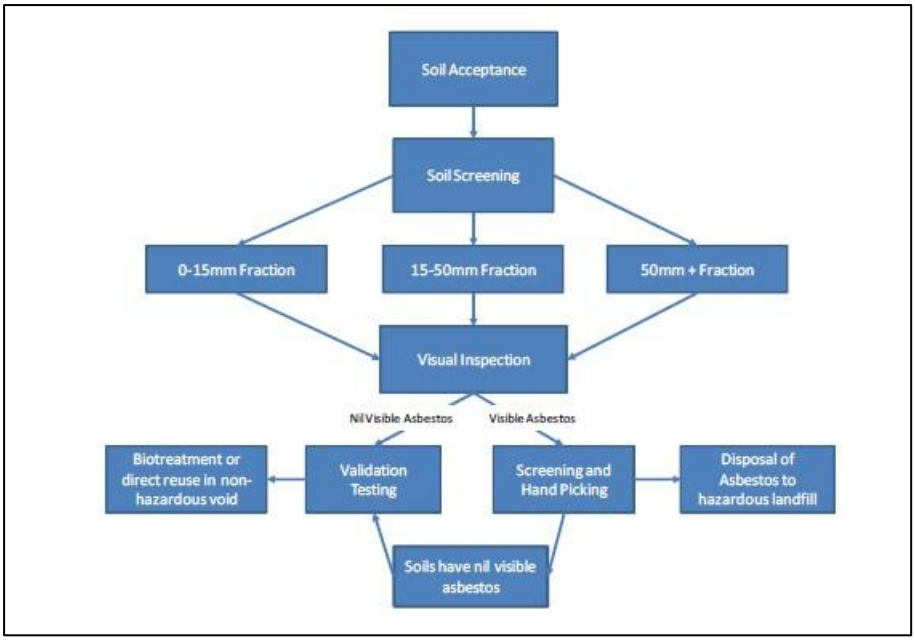

Figure 1 – Soil Treatment Overview

2.1.6 The following procedures will be applied at Maw Green STF for the treatment and storage of asbestos contaminated soils and are referenced throughout this BAT Review document, included under Appendix 1:

- STC WI 002 Soil Reception Procedure
- STC WI 003 Soil Characterisation Procedure
- STC WI 004 Soil Treatment and Monitoring Procedure
- STC WI 006 Soil Analysis
- STC WI 007 Environmental Monitoring
- STC WI 010 Pad and Equipment Maintenance
- STC WI 011 Processing of Asbestos Contaminated Soils
- STC WI 012 Soil Rejection Procedures
- STC WI 013 Soil Disposal Procedure
- STC WI 014 GCL Pad Maintenance
- Decontamination Procedures

2.2 Asbestos Treatment Pad

2.2.1 The new hazardous asbestos soils storage and treatment pad will be constructed from crushed concrete with underlying geo-composite clay liner (GCL). Treatment pads are designed to have a fall towards a main water collection drain to ensure that water is continually drained from the pads. Water is unable to leave the downgradient periphery of the pads by lateral flow due to the presence of a containment bund of 300mm height. Water is unable to migrate to underlying controlled waters due to the presence of an engineered pad with a geosynthetic clay liner that will have a design permeability of 1 x 10^{-9} m/s as a minimum. The sealed drainage will ensure all surface waters will fall and be collected, treated, and discharged to sewer via the existing discharge consent.

2.2.2 There will be no changes to the existing STF bioremediation area as a result of this permit variation. The bioremediation STF is situated on the former compost pad at Maw Green STF constructed of an impermeable pavement to prevent run-off, the pad measures at 6,800m^2. The entire site is kerbed with a sealed drainage system to the north-eastern corner of the site. The existing STF site layout and drainage detail of the bioremediation treatment pad is included in drawing ref. 5193-CAU-XX-XX-DR-V-1805. The drainage system at the site lead to sealed sumps and a treatment plant, and so there is no surface water run-off to the environment. The STF Effluent Pipeline Route is shown in drawing ref. 5193-CAU-XX-XX-DR-V-1803.

2.2.3 The treatment pad undergoes maintenance as part of the remit of Provectus quality control system as detailed in the operating procedures contained in Appendix 1.

2.3 Pre-Assessment

2.3.1 Pre-acceptance procedures are undertaken to confirm the suitability of materials for treatment to subsequently achieve the reuse criteria. Pre-acceptance procedures are undertaken by Provectus Limited. A set of Terms and Conditions for acceptance are sent to the Waste Producer including a clear statement of any waste characterisation samples that are deemed unsuitable for treatment. These are agreed in writing between the Waste Producer and FCC prior to an authorisation number (contract line) being issued by FCC at the weighbridge for deposit at the Soil Treatment Facility. The set of terms and conditions will include the following:

- Maximum soil contaminant concentrations for reuse of material in the restoration area or disposal within the landfill (re-use criteria);
- Limitations on physical and chemical characteristics of the soils (e.g. particle size, pH, moisture content); and,
- Statement from the waste producer confirming that soils containing tars, free oils, invasive species (e.g. Japanese Knotweed), heavy metals and high moisture content will not be accepted to site.

2.3.2 If any variations or discrepancies should be found regarding the suitability of source origin materials, Provectus or FCC can attend the site of origin to undertaken pre-acceptance checks and visual inspections. This will enable the operator to identify any issues which could be affecting the conformity of the source materials and rectify any issues.

2.3.3 Hazardous soils containing bound asbestos will undergo a preassessment to confirm that there are no chrysotile fibres >0.1%, other forms of asbestos >0.01%, and also to ensure the soils are within the agreed background reference levels for asbestos fibres. The site will not accept soils for treatment if there are asbestos fibres detected at >0.1% for chrysotile and >0.01% for other forms of asbestos within the soils. Upon satisfactory results, the soils will then undergo pre-screening to remove larger fractions (e.g. lumps of concrete) and hand-picking of bound asbestos before being used in restoration of the landfill.

2.3.4 In the event that moisture content of the waste is within the range of 25-30% or above, then the potential for free water or oil will be further reviewed. Where moisture contents are at this level (or higher) and the material does not behave as a liquid however considered suitable for site infrastructure, then it will be accepted on a case by case basis.

2.3.5 If insufficient information is provided to adequately characterise the waste or determine its suitability for treatment, the operator will undertake a pre-acceptance testing at the source site to establish an initial waste description. This pre-acceptance will include a visual inspection. Waste soils will be tested in accordance with a general suite of analysis for soils based on the potential substances present from the site history and any existing chemical data. Sampling of waste soils will be undertaken by a technically competent person, using the sampling frequency utilised at the STF site for soil reception as a minimum. Samples will be clearly identified using labels and recorded on chain of custody forms for transfer to a soils laboratory. All testing and analysis will be undertaken using an UKAS/MCERT accredited laboratory and accredited methods. Measures to be undertaken for the testing of soils treated are detailed in Appendix 1 are STC WI 006 Soil Analysis, STC WI 003 Soil Characterisation Procedure and STC WI 004 Soil Treatment and Process Monitoring Procedure.

2.3.6 Should FCC determine that there is the high potential for material to contain untreatable materials or properties where the waste materials behave as a liquid or containing free water or oil then, the waste will not be quoted for acceptance and/or will be rejected.

2.4 Waste Acceptance

1.1.1 The full waste list is contained in the permit for the bioremediation process. As part of this permit variation this application proposes new hazardous waste codes to be included in the permit for the STF for the acceptance of asbestos contaminated soils:

- 17 05 03* soil and stones containing hazardous substances.
- 17 06 05* construction materials containing asbestos.

2.4.1 Waste code 17 05 03* will be restricted to those wastes which contain identifiable pieces of bonded asbestos – any particle size that can be identified as potentially being asbestos by a competent person if examined by the naked eye. Waste code 17 06 05* will be restricted to wastes containing discrete pieces of bonded asbestos within the soil matrix only.

2.4.2 All wastes received to site will be subject to the Waste Acceptance Procedures as detailed in the operating procedures in Appendix 1.

2.4.3 On arrival to site, vehicles entering will be weighed at the weighbridge and all appropriate documentation checked and referenced by the weighbridge clerk. The weighbridge clerk will direct the delivery vehicles to the designated soil reception area.

2.4.4 For soils containing bound asbestos, following satisfactory results from pre-assessment (confirmation of soil matrix and not containing any asbestos fibres above 0.1% for chrysotile asbestos and 0.01% for all other forms of asbestos) soils will be directed to the soils asbestos storage area awaiting treatment. This is an external storage area with an impermeable base.

2.4.5 If in the circumstance that a load is tipped and upon inspection is identified as non-conforming, (for example deleterious inclusions, unbound asbestos/insulation) the waste materials will be reloaded immediately and rejected. A record of the waste material rejection will be reported to the manager on duty who will record the event. If in the event of a non-conformity that takes place later e.g. chemical data shows inconsistencies against the data originally provided as a waste description by the producer. In this scenario, the waste producer will be contacted, and the waste rejection procedure implemented where required.

2.4.6 All wastes received to Maw Green Soils Treatment Facility will be in accordance with general BAT requirements as detailed in BAT 1-2 which at pre-acceptance stage ensures that:

- All assessment of waste is undertaken by a suitability competent person.
- Testing is undertaken at a laboratory with UKAS/MCERTS accreditation.
- All wastes on site is validated through chemical analysis and visual inspection.
- Checks are undertaken to ensure that the method of treatment will allow re-use on site prior to any acceptance on site.

2.5 Waste Rejection

2.5.1 In the event of any non-conforming wastes, a waste rejection notification will be issued informing that the waste is not suitable for treatment. Waste not deemed acceptable will be rejected as per the written procedures (Appendix 1). Written records will be maintained which will include information on the waste type, quantity, how the materials were stored and how they were disposed of. Rejected waste will be stored within the designated quarantine area pending removal from site and a note will be made of the waste type, quantity, hazardous properties and storage requirements. The quarantine area is segregated from the storage areas for other permitted wastes to reduce the risk of cross contamination.

2.6 On Site Verification

2.6.1 On-site verification procedures will be carried out to ensure soils received at the Soils Treatment Facility (STF) are visually, structurally and chemically similar to those described during the pre-acceptance procedures and confirm compliance with the Environmental Permit and suitability for treatment.

2.6.2 Soil sampling will be performed by the STF technician or project manager in line with composite sampling methods as detailed in the British Standards BS812. Measures to be undertaken for the testing of soils treated are detailed in the operating procedures

contained in Appendix 1 'STC WI 006 Soil Analysis' and 'STC WI O03 Soil Characterisation Procedure'.

2.6.3 A minimum of at least one composite sample must be taken from each job (unique authorisation code) and in accordance with the sampling frequency highlighted in Table 1 below. The Project Manager shall assess based on; visual, high risk job, knowledge of the client, materials variation etc. to determine which sample will be sent to the laboratory for reception compliance testing. Chemical testing is undertaken to ensure that the materials being tipped are consistent with the analysis and description provided by the client at the waste description stage.

2.6.4 Sampling requirements for soil samples are detailed within Table 1 below:

Table 1. Sampling requirements for Soil Samples

Volume of soil (tonnes)	No. of samples needed (before or during acceptance at STF)
< 100	1
100 - 500	2
500 +	2 + 1 for every 500t

2.6.5 The general suite of analysis for soils shall include:

- pH
- CLEA Metals
- Total TPH
- Total PAHs
- Total Cyanide (where required)
- Phenols (where required)
- SVOCs and VOCs (where required)
- PCBs (where required)
- Moisture content
- Asbestos ID/quantification

2.6.6 Soils deemed unsuitable for treatment will be removed from site and either returned to the waste producer or taken to a suitable permitted facility for final treatment/disposal.

2.6.7 From experience at other similar FCC sites, a low proportion of soils with asbestos accepted at other facilities are also impacted with hydrocarbons. Approximately 15% of inputs into the other permitted facilities also contained hydrocarbons above 0.1%, albeit this changes year by year, but has remained as a relatively low percentage of total inputs. These soils were all sent to the biotreatment area at the end of the asbestos treatment phase and validation testing to confirm that asbestos fibres could not be liberated from soils.

2.7 Waste Storage

2.7.1 Wastes are stored as per the updated Proposed Site Layout Plan drawing ref. 5193-CAU-XX-XX-DR-V-1805 showing the new hazardous soils treatment and storage areas for asbestos contaminated soils.

2.7.2 Segregation of the accepted waste types will be required on-site to ensure waste soils intended to be sent directly into the bioremediation process are not mixed with those containing asbestos. The separation of wastes in the bioremediation process is not necessary as they are not considered to be reactive. In the event of any non-conforming wastes accepted at the site, a waste rejection notification will be issued informing the waste carrier that the waste is not suitable for treatment.

2.7.3 Upon satisfactory pre-acceptance and waste acceptance checks, on arrival to site, the soils will be weighed and directed from the weighbridge to the soils reception area and undergo an inspection and sampling for analytical testing. Soils will be stored on impermeable surfacing provided with bunded edges and sealed drainage.

2.7.4 After placement on the storage area, the soils will be sheeted to reduce the potential for air borne emissions. The pre-assessment testing is carried out to confirm the soil matrix and not containing any asbestos fibres above 0.1% for chrysotile asbestos and 0.01% for all other forms of asbestos. Until the testing has been completed, the soils will remain sheeted. Soils can be un-sheeted at any point once the reception testing is complete; this is required during the reception of additional soils or prior to treatment.

2.7.5 Following satisfactory results from pre-assessment confirming that the soils are compliant with the acceptance criteria, the soil can be stored externally, un-sheeted and will undergo pre-screening and handpicking for bonded asbestos fragments. Asbestos containing soils with fibre concentrations that have the potential to become airborne at concentrations above the air monitoring detection limit will be rejected from site. Soils that meet all waste acceptance checks will be formally accepted for treatment.

2.7.6 Rejected wastes will be stored within a designated quarantine area pending removal from site and a note will be made of the waste type, quantity, hazardous properties and storage requirements. The quarantine area is segregated from the storage areas for other permitted wastes to reduce the risk of cross contamination.

2.8 Screening/Processing Treatment of Soils

Pre-screening and Hand-picking of asbestos-containing soils

Screening Operations

2.8.1 A mechanical screener will be used to remove oversize material from asbestos containing soils. Soils will be screened using a three-way screener. The screened material is then passed through the picking station to allow the removal of any bound asbestos debris. This

is to remove larger items (e.g. lumps of concrete) to reduce the potential of damage to the picking station and make hand picking of asbestos debris more effective.

2.8.2 The screener currently being used under the mobile plant deployment at Maw Green is unmodified. Trials on enclosed screeners with a HEPA filter and uncovered screeners with general dust suppression have shown no difference in emissions as they all meet the method detection limit of <0.0005f/ml. However, the use of enclosed screeners is far slower, prone to significant downtime and uses significantly more energy due to reduced throughput for no environmental benefit. The use of standard dust suppression with a propriety surfactant has been shown to be entirely effective as secondary mitigation to the waste acceptance criteria. Where SEM testing is undertaken this will ensure that the asbestos concentrations in air are below 0.0005f/ml. This approach and reduced detection limit for the asbestos monitoring meets the well-established principle of reducing emissions to be as low as reasonably practicable.

2.8.3 Daily monitoring will be undertaken to ensure that emissions meet <0.01f/ml or <0.0005f/ml as required. As secondary containment, continuous dust suppression in the form of misting systems is also provided around the screening operations to reduce the potential for any fugitive emission release. Materials moved from the screener to the picking station will be a continuous process where soils are directly fed from the screener to the picking station via a conveyor.

Asbestos Picking Station

2.8.4 The asbestos picking station will be a mobile enclosed unit (see example in Appendix 6) and will be identical to the type approved for use under an environmental permit at the operator's other sites.

2.8.5 Airborne asbestos concentrations have been monitored both within, and directly adjacent to the picking station at the operator's other sites. There is no increase in asbestos concentrations above the method detection limit of either <0.01f/ml or <0.0005f/ml within the internal atmosphere of the soil screeners/picking stations monitored, nor ambient air immediately outside of the screener/picking station. This monitoring has been undertaken since the operator commenced the treatment of bound asbestos contaminated soils. All air monitoring data has been submitted to the Environment Agency and approved as being compliant with the site's permit for each site. This is enclosed in Appendices 3 & 4 (Maw Green Landfill Mobile Plant and Edwin Richards Quarry Mobile Plant).

2.8.6 Notwithstanding the evidence that there are no elevated airborne asbestos emissions within the screening plant/picking stations of the above sites, as an additional control measure, there will be a series of spray rails on the incoming and outgoing conveyor to effectively capture and contain particulate emissions. This would act as secondary containment for any particulate emissions.

2.8.7 The out-going conveyor will drop the hand-picked picked processed soils, and the drop height will be minimised to reduce any agitation of the soils. A dust suppression system

(using a water and proprietary asbestos surfactant solution) will be in place at the site that will consist of misting sprays with overlapping spray arcs, identical to the approved suppression system on the operator's other sites that can be used to continually dampen stockpiles during loading and unloading activities.

2.8.8 The process in the picking station will involve a manual sorting process by trained operatives who will remove visible fragments of asbestos from the materials from the conveyor. Asbestos picked from the conveyor will be placed by hand in individual polythene bags located inside the picking station beside the trained operatives. When the bags are either full, or the end of the working day is achieved, the polythene bag will be placed into a second bag and sealed using a taped swan neck. The double bagged asbestos will be taken outside and placed by hand into the on-site enclosed lockable asbestos skip. Used PPE from the picking station and direct working areas will be double bagged using the same approach as asbestos containing material (ACM) debris and placed into the enclosed lockable asbestos skip.

2.8.9 A Category B trained supervisor will regularly check the labelled, lockable asbestos waste skip and will arrange for the collection and delivery of new asbestos skips when the existing skip has reached 75% capacity. This is to ensure that there is no risk of the skip becoming over capacity and unable to accept further bagged asbestos. This will form part of the daily site checks.

2.9 Storage of handpicked asbestos soils (post-treatment)

2.9.1 The out-going conveyor from the asbestos picking station will deposit the hand processed soils into a separate stockpile labelled as treated soils. The stockpile within this designated area will then undergo further visual inspection by the suitably trained/qualified member of staff for any residual bonded asbestos containing fragments. If any bonded asbestos fragments are encountered, the materials will be re-loaded into the asbestos picking station and processed until no visible bonded asbestos fragments are observed through visual inspection.

2.9.2 The materials will then undergo 'Post Treatment Verification Sampling' (See Section 2.11) testing and sampling will confirm that treated soils meet the restoration soil quality targets to enable their use in the restoration area of Maw Green Landfill Site. If, after the receipt of laboratory analysis results, the soils do not meet the acceptance criteria, the soils will either be treated further or removed from site to an alternative disposal facility.

2.9.3 Following screening, the soils will be stockpiled for use in recovery at the landfill site, this may also include soils that have undergone bioremediation.

2.10 Decontamination Procedures

2.10.1 The decontamination provisions for the asbestos area are implemented at the operator's other sites where asbestos contaminated soils are treated and stored, and are appropriate with the provisions for notifiable works and include the following:

- Access restrictions to asbestos treatment areas.
- Provision of clean and dirty areas within a dedicated decontamination unit.
- Disposal area for used overalls and masks/overshoes/cleaning materials etc for bagging and subsequent disposal as asbestos waste.
- Contained washing provisions for personnel decontamination prior to leaving the clean area of the decontamination unit.
- Decontamination of plant is undertaken under the supervision of a Category B trained person. Any visible contamination is removed manually, then plant is wet cleaned externally. Cabins will be vacuumed with a H Class vacuum cleaner and all debris/cleaning materials will be bagged and placed in the locked asbestos skip. A clearance air test within the any internal operator's cabins would require undertaking prior to leaving the working area.

2.11 Post Treatment Verification Sampling

2.11.1 Post Treatment Verification Sampling will be carried out to ensure soils treated at the Soil Treatment Facility (STF) meet the waste acceptance criteria to enable their use for the restoration of the landfill.

2.11.2 The sampling of soils will be performed by the STF technician or project manager. The procedure uses composite sampling methods as provided in BS812. For batches where treatment has been completed the sampling frequency will be 1/500t of treated soil.

2.11.3 Soils that do not meet the acceptance criteria will be treated further (if deemed viable) or removed from site for treatment/disposal at a suitable permitted facility.

2.11.4 The work instruction in soil analysis STC WI006 provides the analysis suite for soil batches that are being validated for reuse. The sampling frequency used is 1/500t. The reason for this is that the soils that are treated at the site are from a number of sources and once reception sampling is completed these are combined into batches to form a heterogenous stockpile. Treatment is deemed completed when all samples in a batch meet the reuse criteria.

2.11.5 The treated soils are sampled on a 1/500t frequency. This sampling frequency is chosen so that it meets the general principles contained within EA guidance document 'dispose of waste to landfill' April 2021 (https://www.gov.uk/guidance/dispose-of-waste-to-landfill).

2.11.6 The site-specific risk assessment for the restoration area where treated soils are to be reused, including appropriate soil treatment targets has been completed and agreed with the Environment Agency for the reuse of treated soils at the site.

2.12 Transfer – Landfill Restoration

2.12.1 Treated soils will be transferred onto the landfill for reuse in accordance with the approved restoration plan for Maw Green Landfill Site.

3.0 PLANT & EQUIPMENT

3.1 Mobile Plant

3.1.1 Soils will be handled using tracked 360° excavators from reception through the treatment process. Treated soils will be moved onto the landfill restoration area using dump trucks.

3.1.2 A mechanical three-way screener and an enclosed mobile picking station will be provided for the hand-picking removal of bonded asbestos fragments from hazardous soils. The same screening equipment will not be used for different waste types and so no cross contamination will occur.

3.2 Fixed Plant

3.2.1 Fixed plant includes the following items:

- Weighbridge
- Site Office
- Bunded process/surface water storage tank
- Air Blower and containerised control panel/transfer pumps
- Biofilter
- Process water treatment vessels & pumping chamber
- Storage Container
- Picking Station
- Soil Screener
- Asbestos Decontamination Unit

4.0 CONTROL OF EMISSIONS

4.1 Surface Water drainage from treatment pads

4.1.1 Details of the site drainage system for leachate in the treatment pads (both the bioremediation and asbestos contaminated soil areas) and site designs for each of the two areas are shown in drawing referenced 5193-CAU-XX-XX-DR-V-1805. The STF Pipeline Route from the treatment facility is shown in drawing ref: 5193-CAU-XX-XX-DR-V-1803.

4.1.2 Surface water is collected within the process pipework from where it is pumped into the small treatment plant prior to discharge to sewer or redirected via a pipeline to humidify the biofilter. Valves can be switched to use treated water to irrigate the biofilter and then reverse back to discharge the water to sewer. There is the option to irrigate the biopile if required however this not usually required for the typical British climate.

4.1.3 The treatment plant comprises:

- 50m^3 settlement tank with transfer pump and level detectors
- Oil Water separator with transfer pump and level detectors
- 10m^3/hr sand filter
- 10m^3/hr granular activated carbon filter

4.1.4 The capacity of the treatment plant is <50tonnes/day.

4.2 Discharge Consent

4.2.1 Effluent from the treatment plant will be discharged to sewer under the current trade effluent consent for Maw Green Soil Treatment Facility. A summary of the discharge limits are included in Table 2 below:

Table 2. Summary of Maw Green STF Trade effluent discharge limits:

Parameter	Limit (and unit)
Maximum volume of discharge	20m^3
Maximum rate of discharge	2 litres/sec
Ammonia and its compounds as N	250 mg/l
Cyanides and cyanogen compounds which produce hydrogen cyanide on acidification	1 mg/l
Separable grease and oil	100 mg/l
Sulphates as SO_4	1,000 mg/l
Sulphides, hydrosulphides, polysulphides and substances producing hydrogen sulphide on acidification	1 mg/l
Total suspended solids	1000 mg/l
Toxic Metals	10,000 µg/l
Temperature	43°C
pH	6-10

4.2.2 A separate H1 Surface Waste Assessment was also submitted previously as part of an improvement condition relating to the soil treatment facility (bioremediation area). A review of the chemical analysis monitoring data from the point of discharge at the soil treatment facility was undertaken alongside the H1 assessment using the Environment Agency's Surface Water Pollution Risk Assessment. The results of the monitoring data for the discharge point at the Soil Treatment Facility indicated concentrations released are significantly lower than the existing trade effluent consent limit provided by United Utilities.

4.2.3 It is not anticipated there will be any significant change in the quality of the discharge to sewer from the STF due to accepting the asbestos contaminated soils as per the proposed activity in this permit variation. Non-conforming wastes exceeding asbestos fibre limits will be rejected from site. Monitoring of the existing effluent from asbestos treatment areas has revealed that asbestos fibres are absent in surface run-off waters (examples of data from existing FCC sites that treat the same asbestos contaminated soils – Edwin Richards Quarry in Rowley Regis – see Appendix 5). This is due to the acceptance of bound asbestos only and the absence of mobile asbestos fibres that could enter the water treatment system. Asbestos monitoring will be continued to be undertaken on each batch of water that requires disposal to ensure the correct waste description is provided to any liquid effluent disposal contractor and that there is no cross contamination of the receiving disposal facility for the treated water.

4.3 STF Dust Control

4.3.1 Dampening and dust suppression will be conducted around the asbestos storage and processing areas, with high flow rate dust suppression systems that will consist of misting sprays with overlapping spray arcs, and bowser dust suppression systems. The suppression system that will be used in the asbestos soils processing and storage area will provide a fully encompassed suppression system with overlapping arcs between misting units which has been designed to contain any potential emissions and provided suppression for the activities carried out on site:

a) Dampening and suppression on stockpiles and around processing area.

b) Spray line on the asbestos picking station feed conveyors.

c) Provision on site of a water bowser equipped with a misting suppression system and adequate year-round water supply.

d) Use of uncontaminated water for dust suppression, to avoid re-circulating fine material.

e) High standards of housekeeping to minimise track-out and windblown dust/fibres.

f) Dampening and sheeting of asbestos containing material stockpiles, designated reception area and separate designated post-treatment storage area.

4.3.2 Air sampling on the conveyors of the picking station (even without dust suppression) at other sites has always resulted in monitored concentrations <0.0005f/ml or <0.01f/ml depending on the sampling and analysis method chosen.

4.3.3 For further information on dust and asbestos fibre control measures to be implemented at the site, please see the updated Maw Green Dust & Emissions Management Plan (DEMP) under document ref 5193-CAU-XX-XX-RP-V-0313.

4.4 Asbestos Fibres

4.4.1 Maw Green Soils Treatment Facility is proposing to accept waste soils containing mixed forms of asbestos with an asbestos fibrous content at concentrations of lower than <0.1% for chrysotile asbestos, and fibre concentration of <0.01% for all other asbestos. These fibre contents will be validated at the pre-acceptance testing stage to remove the potential for airborne emissions of asbestos fibres above the detection limit. Air monitoring for asbestos and particulate testing will be undertaken at numerous locations on site, and their locations are detailed on drawing ref: 5193-CAU-XX-XX-DR-V-1806.

4.5 Cross-contamination and clean down procedures

4.5.1 To control and prevent cross-contamination of asbestos fibres, only asbestos soils will undergo physical treatment and hand-picking of bonded asbestos fragments at any one time.

4.5.2 Pre-acceptance testing of asbestos waste prior to screening and hand-picking will validate that soils undergoing this physical process do not contain unacceptable concentrations of asbestos fibres (results detected above those detailed above will be rejected). Therefore, the accumulation and build-up of asbestos fibres on mobile plant/machinery is not anticipated. Where decontamination procedures are required when mobile equipment/plant is to be removed from site. Cleaning down procedures will be carried out using wet cleaning techniques; any cleaning residues/sludges generated will be placed into one of the storage areas available to accept contaminated soils. In addition, air monitoring will be undertaken to ensure that the concentration of any potential airborne asbestos fibres is below the detection limit of 0.01f/ml or <0.0005f/ml as required.

4.5.3 Any contaminated waters from cleaning will be pumped to the on-site holding tanks which will be tankered off for disposal at a suitable facility. Any PPE/RPE used will be bagged and disposed of with any asbestos wastes and classed as hazardous for disposal at a suitable facility.

5.0 MONITORING

5.1 Overview

5.1.1 Monitoring will be undertaken in accordance with STC WI 007 Environmental Monitoring (detailed within the operating procedures in Appendix 1) to ensure that all emission points are regularly monitored to ensure that the operation is in compliance with the conditions of the permit. Visual monitoring of equipment, including plant, and soil biopiles shall be undertaken on a daily basis. Equipment modules will be inspected every morning and evening upon module opening and closing respectively. Noise, vibration and heat observations of equipment shall also be executed at these times. Monitoring of emissions/nuisance relevant to the new activity is included in the following management plans:

- Updated Dust & Emissions Management Plan (DEMP), under document ref: 5193-CAU-XX-XX-RP-V-0313 (included within this application); and,
- Updated Odour Management Plan (OMP), under document ref: 5193-CAU-XX-XX-RP-V-0314 (there were only minor changes to the introductory wording of this document and the risks to receptors and control measures remain the same and so this has not been submitted as part of this variation).

5.1.2 The Activities and Operating Techniques report details the monitoring parameters and requirements for the following:

- Water emissions from the water discharge point at the STF.
- Dust concentrations in air at the STF.
- Airborne asbestos fibre monitoring in air.
- Noise assessment.
- Odour assessment.

5.2 Asbestos Baseline Background Monitoring

5.2.1 It is an established procedure to attain pre-operational baseline monitoring for asbestos to form the basis when determining the air quality prior to any treatment activities and the issue of the permit. The operator will obtain baseline background monitoring prior to the commencement of operations where 3 rounds of monitoring will be taken at locations shown on drawing ref: 5193-CAU-XX-XX-DR-V-1806.

5.2.2 Following issue of the permit, the operator will be able to compare the monitoring results against reference background levels obtained from baseline monitoring. The background reference levels will be used as an action level should there be any soils with elevated asbestos fibres above the detection limit (0.01f/ml) or reference background level which has a detection limit of <0.0005f/ml.

5.2.3 Detail of the frequency and thresholds of monitoring are included in the updated Dust & Emissions Management Plant (DEMP), document ref: 5193-CAU-XX-XX-RP-V-0313.

5.3 Process Emissions

5.3.1 The point source emissions from the STF include process water, surface water collection and air emissions from the biofilter as well as dust and odour from general site works. The monitoring for these processes includes:

- Biofilter sampling (from exhaust vents).
- Process water sampling.
- Visual and olfactive daily assessment for dust and odour on site.
- Dust and asbestos fibre monitoring.

5.3.2 Monitoring at the site for dust and asbestos fibres and further control measures is covered in the Dust & Emissions Management Plan ref. 5193-CAU-XX-XX-RP-V-0313.

5.4 Biofilter Monitoring

5.4.1 No changes are proposed to biofilter monitoring as a result of this application.

5.5 Process Water Monitoring

5.5.1 The water quality in the water collection tank will be monitored on a monthly basis. A sample will be obtained from the point of discharge and analysed for parameters stated in the discharge consent. Regular checks will be made to ensure no visible oil or grease is present in the tanks.

5.5.2 See the Activities and Operating Techniques Report (document ref: 5193-CAU-XX-XX-RP-V-0306) for details of monitoring parameters and requirements.

5.5.3 Asbestos is only accepted in a bound form. This means that it is encapsulated in a cement matrix. The presence of a bound matrix in soil has previously been expected to prevent the release of asbestos fibres into soil porewater. Fibre concentrations in soil are generally not detected at or below the detection limit of <0.001% in received soils. Water monitoring from asbestos process areas at other sites operated by FCC has not detected asbestos fibres to be present in effluent from asbestos processing areas. Therefore, no abatement of asbestos in effluent is required.

5.6 Air Quality (asbestos) Monitoring

5.6.1 If during air quality monitoring, asbestos fibre concentrations exceed 0.01f/ml or the agreed background reference value, then all work operations will cease to allow for dampening down measures to limit the amount of airborne asbestos fibres. Dust suppression and potentially covering of soils will be carried out.

5.6.2 An exceedance of 0.01f/ml will be followed with an immediate investigation; a sample will be submitted for electron microscopy to confirm the measured concentration of asbestos present. Until results are received, soils will remain covered and untreated. The EA will be notified of any exceedance. It is considered that the likelihood of an exceedance occurring is very low, this is due to the pre-acceptance testing which is carried out on every

hazardous soil to confirm the asbestos fibrous content of that sample prior to any processing and screening. No exceedances of detection limits using either Phase Contrast Microscopy (PCM) or Scanning Electron Microscopy (SEM) methodologies have ever occurred in the Operator's experience of undertaking this treatment method on other sites.

5.6.3 Airborne asbestos fibre monitoring is already undertaken for the existing mobile plant deployment at Maw Green for the treatment of asbestos-contaminated soils with uncovered screener. Airborne dust samples were supplied on gridded MCE membrane filters and were tested in a laboratory using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS). The test results are contained within Appendix 3. The Maw Green monitoring results provided by the operator from between August and November 2022 shows no discernible asbestos fibre emissions detected, with all results at or below the 0.0005f/ml limit of detection, with a few anomalous results still well below the 0.01 f/ml permit threshold limit.

5.6.4 Similarly, the same mobile plant operation is being undertaken as a licenced deployment by Provectus at Edwin Richards Quarry soils treatment facility, for the physico-chemical treatment of hazardous asbestos-impacted soils using a screener plant and hand-picking of bonded asbestos (see Appendix 4). This operation is undertaken within a building, and airborne dust and asbestos fibre monitoring is undertaken inside the building, with samples tested at the laboratory for the presence of asbestos fibres. The monitoring results obtained from both within the building and at the screener deck, using either covered or uncovered screener, were similar and were significantly below the permit threshold of <0.01 f/ml and SEM detection limit of <0.0005f/ml. It was concluded the absence of measurable asbestos emissions from the soil screening operation meant that a review of abatement measures could not be made other than to conclude that the waste acceptance approach at the site is entirely successful in preventing airborne asbestos emissions exceeding permit thresholds.

5.6.5 With reference to the above monitoring results obtained from the Maw Green current deployment operations and those at Edwin Richards Quarry soil treatment facility, it can be concluded that provided the operator undertakes the same stringent waste acceptance procedures and operational procedures as currently at Maw Green and also as shown at Edwin Richards, then the risk of airborne asbestos emissions being produced at the site is negligible. This will ensure both the environment and human health of workers and nearby sensitive receptors is protected.

5.6.6 In order to further validate the results of the monitoring undertaken to date an independent review of asbestos treatment and storage of asbestos contaminated soils, is being undertaken at the Maw Green and Edwin Richards sites. This will be forwarded to the Environment Agency following publication.

5.6.7 Detail of the frequency and thresholds of monitoring are included in the updated Dust & Emissions Management Plan (DEMP), document ref: 5193-CAU-XX-XX-RP-V-0313.

5.7 STF Dust Monitoring

5.7.1 Visual dust monitoring shall be undertaken on a daily visual basis during periods of dry weather or following a complaint. Monthly onsite monitoring will be carried out using a hand-held dust detector in the form of a nephelometer (e.g. Dustmate http://dustmonitor.co.uk/ or similar) as well as fixed Frisbee gauges. Details of dust monitoring in included within the updated Dust & Emissions Management Plan (DEMP), document ref: 5193-CAU-XX-XX-RP-V-0313.

5.8 Noise Measurements

5.8.1 Observations relating to excessive noise incidents shall be recorded in the database system.

5.9 STF Odour Control

5.9.1 Regular daily checks will take place for odours on and around the treatment area. If excessive odours are identified, the source of odour will be assessed by the operator. It will be dealt with, for example, by a cessation of soil movement if required or covering of odorous soils with a tarpaulin etc. Observations shall be logged in the database system. Details of odour monitoring and procedures are detailed within the updated Odour Management Plan (OMP), document ref: 5193-CAU-XX-XX-RP-V-0314.

5.10 Recording of Results

5.10.1 All analytical results and monitoring results shall be stored onto the STF database under the relevant environmental batches location. Any changes made to the type of monitoring or adjustment to the biofilter shall also be recorded on the STF database.

6.0 ENERGY REQUIREMENTS

6.1.1 The energy requirements of the facility are low with the main energy consumption associated with the treatment processes with the majority of energy use from the air extraction blower.

6.1.2 As the energy requirements of the facility in general are low and no alternatives are available with lower energy use, no improvements are considered necessary. Basic energy saving measures will be adopted and continually reviewed. This includes measures such as:

- Efficient use of plant and machinery to avoid unnecessary ignition;
- Plant and machinery to be switched off when not in use;
- Regular maintenance of all plant and machinery; and,
- Use of HVO fuel as an alternative to diesel to reduce the carbon footprint of the operations.

7.0 RESOURCE USE - RAW MATERIALS

7.1.1 The activities on site require amounts of resources and raw materials as part of the treatment processes.

7.1.2 A water bowser may be used at the site during dry conditions to control the generation of dust. The water will be used only when necessary, and the minimum amount will be used. Water collected in the sealed drainage system from the non-hazardous storage/treatment areas can be used in place of freshwater.

7.1.3 Fuels and chemicals associated with on-site plant will be appropriately stored and bunded; use of diesel will be undertaken in accordance with the site's EMS.

7.1.4 An asbestos surfactant may be added to the dust suppression misting sprays for the treatment and storage area of the STF for asbestos contaminated soils. The Material Safety Data Sheet for the asbestos surfactant is provided in Appendix 2.

8.0 EMERGENCY PROCEDURES

8.1.1 FCC operates a Near Miss, Incident and Emergency Management System, and specific emergency procedures for this facility will cover:

- Spillages of waste and/or reagents;
- Fire;
- Injury to staff or visitor;
- Incidents.

8.1.2 FCC has ISO14001, 18001 and 45001 accreditation and this will be extended to this facility.

9.0 REVIEW AGAINST INDICATIVE BAT STANDARD

	Overall Environmental Performance
BAT 1	*In order to improve the overall environmental performance, BAT is to implement and adhere to an environment management system (EMS) that incorporates all of the following features:* *Commitment of the management, including senior management;* *Definition, by the management, of an environmental policy that includes the continuous improvement of the environmental performance of the installation;* *Planning and establishing the necessary procedures, objectives and targets, in conjunction with financial planning and investment;* *The implementation of procedures;* *Checking performative and taking corrective action;* *Review, by senior management, of the EMS and its continuing suitability, adequacy and effectiveness;* *Following the development of cleaner technologies;* *Consideration for the environmental impacts from the eventual decommission of the plant at the stage of designing a new plant, and throughout its operating life;* *Application of sectoral benchmarking on a regular basis;* *Waste stream management;* *An inventory of waste water and waste gas streams;* *Residues management plan;* *Accident management plan;* *Odour management plan;* *Noise and vibration management plan.*
	The company operates under an ISO14001 accredited environmental management system, audits of the performance of key plant, and all maintenance that has been undertaken will be undertaken and reviewed as part of the company's management system. The company management system is audited externally as part of the ISO 9001 and 14001 accreditation.

	Further information is provided within the management plan summary contained in this application under document ref: 5193-CAU-XX-XX-RP-V-0315, however in summary the site will have: - A full maintenance schedule for all machinery and equipment on site; Documented procedures to control all aspects of the operation that may have an impact on the environment, including for the minimisation and control of asbestos fibre emissions to air and water, including contingency and operational methods which are to be undertaken in the event that there is a plant breakdown, or activities could lead to an unacceptable emission; Well documented procedures for monitoring emissions and impacts including the use of a daily site log. All monitoring will occur in accordance with the Environmental Management plans including the updated Dust & Emissions Management Plan ref. 5193-CAU-XX-XX-RP-V-0313 and Odour Management Plan ref. 5193-CAU-XX-XX-RP-V-0314. The site will undertake a preventative maintenance programme where site plant, and infrastructure will be inspected on a daily, weekly and monthly basis in accordance with written procedures. Training systems are in place and all employees which will include: - Relevant treatment activities undertaken on site; Management techniques to be employed for all aspects of waste treatment which are relevant to their position; Reporting any abnormal events; Contingency measures in place to prevent breaches of the Environmental Permit in the event of abnormal weather conditions; and contingency measures to be taken in the event that accidental emissions are released to the environment. The operator will only appoint suitably qualified contractors, and all purchasing of equipment and materials will be undertaken in accordance with the management system.
BAT 2	*In order to improve the overall environmental performance of the plant, BAT is to use all of the techniques detailed in 'BAT 2 Table 'best available techniques (BAT) conclusions for waste treatment industries (BREF), under Directive 2010/75/EU, from the Official Journal of the EU' summarised below:* *Pre-acceptance procedures* *Waste Acceptance procedures* *Waste tracking and inventory*

	Output quality management system *Ensure waste segregation* *Waste compatibility prior to mixing or blending of waste* *Sorting of incoming solid waste*
	Pre-acceptance and Waste Acceptance procedures Waste pre-acceptance and Waste acceptance procedures will be in place to ensure that only waste types permitted are accepted for treatment, procedures are outlined in Section 2.3-2.6 and contained within Appendix 1 of this document. No liquid wastes, drummed wastes or laboratory smalls will be accepted. The Operator has in place Waste Acceptance Procedures and STF WI O03 'Soil Characterisation Procedure' which includes an assessment of waste prior to their acceptance to site and the sampling to ensure their suitability. During pre-acceptance checks, the type of contamination of each waste load will be established as will the end use of the waste (after it has been treated). The waste will only be accepted if it is compliant with the permitted waste types and if the site is able to treat the waste. The treatment method is determined prior to the waste being delivered to the facility. In the event of any non-conforming wastes a waste rejection notification will be issued informing that the waste is not suitable for treatment Waste deemed not acceptable will be rejected as per written procedures (see Appendix 1). Rejected wastes will be stored within a designated quarantine area pending removal from site and a note will be made of the waste type, quantity, hazardous properties and storage requirements. The quarantine area is segregated from the storage areas for other permitted wastes to reduce the risk of cross contamination. Waste tracking and inventory Waste tracking system will be used as detailed in written procedures contained in Appendix 1. Written records will be maintained which will include information on the waste type, quantity, how the materials were stored and how they were subsequently disposed of. A daily assessment of the current capacity of the site is undertaken and waste is only accepted if there is sufficient capacity. A spreadsheet calculating how much waste is on site will be updated daily to account for waste received on site where waste tonnages have been dedicated (e.g. pre-storage, bioremediation treatment, wastes treated, and wastes removed from site). Written records will be maintained which will include information on the waste type, quantity, how the materials were stored and how they were subsequently disposed of.

	Output Quality Management System The Operator has a technically competent manager who is qualified to 'Level 4 in Waste Management Operations – Managing', and 'Treatment of Hazardous Waste (Remediation HROC6 or equivalent)'. The roles of sales and technical staff are clearly defined within the procedures and staff will only undertake activities for which they have received suitable training. All staff undertaking waste acceptance procedures will receive suitable training in the waste acceptance procedures, as well as in waste handling and the relevant health and safety and environmental procedures in place. The site will be manned by a minimum of two staff under normal circumstances, during waste reception periods, the operations manager to be qualified to at least HNC Chemistry or equivalent. Ensure waste segregation Segregation of the accepted waste types is not necessary as they are not considered to be reactive, however asbestos contaminated wastes will be separated, stored and treated separately. In the event of any non-conforming wastes, a waste rejection notification will be issued informing that the waste is not suitable for treatment. Waste deemed not acceptable will be rejected as per written procedures (see Appendix 1). Rejected wastes will be stored within a designated quarantine area pending removal from site and a note will be made of the waste type, quantity, hazardous properties and storage requirements. The quarantine area is segregated from the storage areas for other permitted wastes to reduce the risk of cross contamination. See the Proposed Site Layout Plan for the STF (bioremediation area and asbestos contaminated soils area) in drawing ref. 5193-CAU-XX-XX-DR-V-1805. Waste Compatibility Waste pre-acceptance and Waste acceptance procedures, soil testing and analysis will be in place to ensure that only waste types permitted are accepted for treatment, procedures are outlined in Section 2.2-2.6 and contained within Appendix 1 of this document. Section 2.6 details on-site verification, Reception and Compliance testing will be undertaken in accordance with written procedures (see Appendix 1). Testing will be performed to ensure that the materials accepted are consistent with the analysis and description supplied at the pre-characterisation stage. All external lab analysis will be carried out by MCerts and UKAS-accredited laboratories as detailed within the procedures. Samples shall be retained on site for a minimum of two days following sampling, the accredited laboratory will retain samples for 30 days.

	Sorting of Incoming waste As per Sections 2.3-2.6, following acceptance and valid-pre-acceptance testing result (dependant on the waste stream) wastes will undergo the following acceptance, sorting screening and storage. The treatment pads are used as reception/quarantine areas as shown in drawing ref. 5193-CAU-XX-XX-DR-V-1805, however the exact layouts will vary over time, dependent upon inputs and treatment timescales. The STF pipeline route from the treatment facility is shown in drawing ref: 5193-CAU-XX-XX-DR-V-1803. Demarcation of the areas will be managed via suitable signage. The waste storage area is impermeable concrete pavement with sealed drainage system any runoff will be treated and then either stored for reuse or discharged to sewer. All vehicles delivering waste travel over a calibrated weighbridge and a ticket is printed for a record. The driver is then directed to the designated unloading area by the site operation staff. The site is always manned during operational hours. Following pre-acceptance testing results and confirmation waste can be processed, asbestos wastes will undergo the following: • Three-way screening of asbestos-contaminated soils; • Handpicking of bonded asbestos fragments from soils; • Post-treatment validation testing; • Further treatment if visible asbestos still present, or hydrocarbons present; • Transfer of treated soils (once validated) to landfill for restoration; and, • Storage of asbestos materials after screening/hand-picking for asbestos for disposal in lockable skip. There is no change proposed to the bioremediation treatment processes at the existing STF.
BAT 3	*In order to facilitate the reduction of emissions to water and air, BAT is to establish and to maintain an inventory of waste water and waste gas streams as part of the environmental management system.*
	Water usage is minimal for the bioremediation process. Rainfall derived drainage water will be used for moisture control where required. Use of mains water restricted to washing plant etc. There is no change proposed for the water use in the bioremediation process. Water use in the asbestos processing and storage areas will be by continuous misting sprays with overlapping spray arcs for effective coverage of the area. Surfactant may be added to the sprays to better capture asbestos fibres. The Material Safety Data Sheet is included in Appendix 2. The wastewater discharge areas comprise of an impermeable concrete slab in the bioremediation area and a crushed concrete surface with geo-composite clay liner for the asbestos treatment area, which both drain to a collection pipework so that any runoff will be contained. The water will

either be used within the biopile process to maintain optimum moisture levels or discharged to sewer. Basic treatment of this potentially contaminated surface/process water will be undertaken prior to discharge to sewer. The discharge of effluent to sewer is already regulated by the existing permit for the soil treatment facility. Emissions to sewer have been assessed as part of the trade effluent/discharge consent and emission limit values have been set. The parameters detailed in the discharge consent are listed below:

Parameter	Limit (and unit)
Maximum volume of discharge	20m^3
Maximum rate of discharge	2 litres/sec
Ammonia and its compounds as N	250 mg/l
Cyanides and cyanogen compounds which produce hydrogen cyanide on acidification	1 mg/l
Separable grease and oil	100 mg/l
Sulphates as SO_4	1,000 mg/l
Sulphides, hydrosulphides, polysulphides and substances producing hydrogen suphide on acidification	1 mg/l
Total suspended solids	1000 mg/l
Toxic Metals	10,000 µg/l
Temperature	43°C
pH	6-10

It is not anticipated there will be any significant change in the quality of the discharge to sewer from the STF due to accepting the asbestos contaminated soils as per the proposed activity in this permit variation. Non-conforming wastes exceeding asbestos fibre limits will be rejected from site. Monitoring of the existing effluent from asbestos treatment areas on similar sites operated by FCC (Edwin Richards Quarry in Rowley Regis) has revealed that asbestos fibres are absent in surface run-off waters (examples of data from existing FCC sites that treat the same asbestos contaminated soils – Edwin Richards Quarry in Rowley Regis – see Appendix 5). This is due to the acceptance of bound asbestos only and the

	absence of mobile asbestos fibres that could enter the water treatment system. Therefore, further abatement measures are not considered necessary.
BAT 4	*In order to reduce the environmental risk associated the with storage of waste, BAT is to use all of the techniques given below* *Optimised storage location* *Adequate storage capacity* *Safe storage operations* *Separate area for storage and handling of packaged hazardous waste*
	See BAT 2 'Ensure waste segregation'. Waste Acceptance procedures, Waste Rejection Procedures outlined in Section 2.3-2.6 of this document and contained within Appendix 1. Waste storage is outlined in Section 2.7 of this report. A daily assessment of the current capacity of the site is undertaken and waste is only accepted if there is sufficient capacity. The waste storage area is impermeable concrete pavement for existing STF bioremediation area with sealed drainage system, and crushed concrete hardstanding with impermeable geo-composite clay membrane for the asbestos contaminated wastes area. Any runoff will be treated and then either stored for re-use or discharged to sewer. All vehicles delivering waste to site travel over a calibrated weighbridge and a ticket is printed for a record. The driver is then directed to the designated unloading area by the site operation staff. The site is always manned during operational hours. See the Site Layout Plan, drawing ref. 5193-CAU-XX-XX-DR-V-1805 for further detail on waste stockpile locations. The STF effluent pipeline route is shown in drawing ref. 5193-CAU-XX-XX-DR-V-1803. The site layout has been designed to ensure that treatment and storage areas are separate from the rest of the site so as to ensure segregation of activities, particularly separation of the proposed new asbestos contaminated soils storage and treatment area, to the west of the current STF. The facility is located within a predominantly rural setting, the closest residential receptors are located some 210m east of the site, with local highways or minor roads located within 150 m of the site. Materials are stored in in such a way as to avoid double handling i.e. wastes are received, stored, treated and moved to the post treatment area. Wastes will only be removed from the storage area if sufficient capacity is available for them to be treated. All areas will be clearly marked using signage.

	Storage vessels and containment systems for hazardous liquids will be in line with the CIRIA 'Containment systems for the prevention of pollution: Secondary, tertiary and other measures for industrial and commercial premises (C736;2014). Bunding will be provided to a minimum of 110% capacity. Treatment of wastes will normally occur within 10 working days of the material being accepted on site. once treated, the material is stored on the and used to restore the landfill in accordance with the approved restoration plan. A spreadsheet calculating how much waste is on site will be updated daily to account for waste received on site where waste tonnages have been dedicated (e.g. pre-storage, bioremediation treatment, wastes treated, and wastes removed from site).
BAT 5	*In order to reduce the environmental risk associated with the handling and transfer of waste, BAT is to set up and implement handling and transfer procedures.* *Handling and transfer procedures aim to ensure that wastes are safely handled and transferred to the respective storage or treatment. Including the following elements:* *Handling and transfer of waste are carried out by competent staff;* *Handling and transfer of waste are duly documented;* *Measures are taken to prevent, detect and mitigate spills;* *Operation and design precautions are taken when mixing or blending wastes;*
	The operator will have a technically competent manager who is qualified to 'Level 4 in Waste Management Operations – Managing', and 'Treatment of Hazardous Waste (Remediation HROC6 or equivalent)'. The roles of sales and technical staff are clearly defined within the procedures and staff will only undertake activities for which they have received suitable training. All staff undertaking waste acceptance procedures will receive suitable training in the waste acceptance procedures, as well as in waste handling and the relevant health and safety and environmental procedures in place. The site will be manned by a minimum of two staff under normal circumstances, during waste reception periods, the operations manager to be qualified to at least HNC Chemistry or equivalent. The following procedures are in place for the proposed activity (See Appendix 1) to reduce the environmental risk associated with the handling and transfer of waste: STC WI 002 Soil Reception Procedure STC WI 003 Soil Characterisation Procedure

	STC WI 004 Soil Treatment and Monitoring Procedure STC WI 006 Soil Analysis STC WI 007 Environmental Monitoring STC WI 010 Pad and Equipment Maintenance STC WI 011 Processing of Asbestos Contaminated Soils STC WI 012 Soil Rejection Procedure STC WI 013 Soil Disposal Procedure STC WI 014 GCL Pad Maintenance Decontamination Procedures In addition, environmental risks are assessed in detail in the updated Amenity and Accidents Risk Assessment, document ref: 5193-CAU-XX-XX-RP-V-0310 which includes risk management, control and mitigation for site activities and potential accidents i.e. leaks and spills. Storage vessels and containment systems will be in line with the CIRIA 'Containment systems for the prevention of pollution: Secondary, tertiary and other measures for industrial and commercial premises (C736;2014). Bunding will be provided to a minimum of 110% capacity.
	Monitoring
BAT 6	*For relevant emissions to water as identified by the inventory of waste water stream, BAT is to monitor key process parameters at key locations (e.g. at inlet and/or outlet of the pre-treatment, at the inlet to the final treatment, at the point where the emission leaves the installation)*
	Monitoring and reporting of emissions currently undertaken as a requirement of the permit. See the Activities and Operating Techniques report, document ref: 5193-CAU-XX-XX-RP-V-0311 for monitoring requirements and parameters.
BAT 7	*BAT is to monitor emissions to water with at least the frequency detailed in BAT 7 'best available techniques (BAT) conclusions for waste treatment industries (BREF), under Directive 2010/75/EU, from the Official Journal of the EU'*
	See response to BAT 6 and Section 5.5 of this document. Monitoring and reporting of emissions is currently undertaken as a requirement of the permit. There will be no groundwater monitoring required as part of the proposed operations. The waste discharge areas comprise of impermeable pads which drains to a collection pipework so that any runoff will be contained. The water is either be used within the process to maintain optimum moisture levels or discharged to sewer. Basic treatment of this potentially contaminated surface/process water will be undertaken prior to discharge to sewer. The discharge of effluent to sewer is already regulated by the existing permit

	with regards to the treatment of leachate. Emissions to sewer have been assessed as part of the trade effluent/discharge consent and emission limit values have been agreed in the discharge consent. Water monitoring from asbestos soils processing and storage areas at Edwin Richards Quarry in Rowley Regis Mobile Plant operation, a similar site operated by FCC, has not detected asbestos fibres to be present in effluent from asbestos processing areas (see Appendix 5) and therefore, no abatement of asbestos in effluent is proposed for the asbestos in soils treatment pad.
BAT 8	*BAT is to monitor channelled emissions to air with at least the frequency detailed in BAT 8 'best available techniques (BAT) conclusions for waste treatment industries (BREF), under Directive 20/10/75/EU, from the Official Journal of the EU' and in accordance with EN Standards. If EN standard are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.*
	See Section 5 of this document for Monitoring information. Daily visual monitoring to air for dust, litter and olfactory odour monitoring will be carried out on site. Monitoring is undertaken as per the Operating Techniques and requirements of the management system and operational procedures. Given the rural nature of this activity and the existing similar operations on site that have not given rise to complaints (in particular the existing mobile plant deployment at Maw Green STF for the treatment of asbestos in soils), noise modelling is not considered to be required. Noise management has been addressed within the Amenity and Accidents Report, document ref: 5193-CAU-XX-XX-RP-V-0310. Olfactory odour checks are also undertaken daily. Management plans are in place for odour, dust and emissions.
BAT 9	*BAT is to monitor diffuse emission or organic compounds to air from the regeneration of spent solvents, the decontamination of equipment containing POPS with solvents, and the physico-chemical treatment of solvents for the recovery of their calorific value, at least once per year using one or a combination of the techniques given below.*
	N/A
BAT 10	*BAT is to periodically monitor odour emissions*
	Monitoring is undertaken as per the requirements of the management plan, system and operational procedures. The wastes to be accepted are not inherently malodorous although hydrocarbons may produce slight odour - see Amenity and Accidents Risk Assessment (document ref. 5193-CAU-XX-XX-RP-V-0310). As none of the waste is putrescible, odour modelling is not deemed to be required for this installation. The waste types and treatment is not expected to cause odour at levels that will cause a nuisance outside of the permit boundary. An updated Amenity and Accidents Risk Assessment

	(included with the permit variation application under document ref: 5193-CAU-XX-XX-RP-V-0310) outline the techniques that will be employed to control odour. Given the nature of the activity and the odour control techniques that will be in place, the installation is not expected to generate high levels of odour. A suitability qualified person will do a perimeter walk on a daily basis, if the daily walk identifies high levels of odour at the site boundary, the operator will investigate what activities were occurring on site at the time. If the odour proves to be coming from the site, the operator may investigate further operating techniques to control/diminish the odour levels. See Amenity and Accident Risk Assessment (document ref. 5193-CAU-XX-XX-RP-V-0310). The facility will operate in accordance with the odour management techniques in this document and in the existing updated odour management plan already in place at Maw Green STF. All abatement equipment will be in place prior to operations commencing. The operator will operate the facility in accordance with BAT for the sector and will review the operating techniques on an annual basis, upon changes to regulations/guidance or after a substantiated complaint as verified by the Environment Agency. All waste will be thoroughly screened through pre-acceptance checks. Any waste which is likely to cause unacceptable odour will be rejected at this stage. If, upon arrival of waste at the site, the visual checks identify the odour content of waste may cause problems at the site, the waste will either be rejected, or if there is sufficient capacity to immediately treat or safely store the waste, the waste may be accepted. There will be no scrubber liquors associated with the site operations, therefore odours and their controls is not applicable. Regular daily checks will take place for odours on and around the treatment area. If excessive odours are identified, the source of odour will be assessed by the operator. It will be dealt with, for example, by a cessation of soil movement if required or covering of odorous soils with a tarpaulin etc. Observations shall be logged in the database system. Details of odour monitoring parameters are detailed within the existing Odour Management Plan already in place at Maw Green STF and referenced in the Activities and Operating Techniques Report, document ref: 5193-CAU-XX-XX-RP-V-0311.

BAT 11	*BAT is to monitor the annual consumption of waste, energy and raw materials as well as the annual generation of residue and wastewater, with a frequency of at least once per year.*
	Monitoring is undertaken as per the requirements of the management system and operational procedures. The annual consumption of waste, energy, raw materials and the generation of wastewater will be reported on an annual basis. It is considered however that the energy requirements of the operation are not considered to be significant, Specific Energy Consumption (SEC) information is not applicable to the site operations. FCC Environment shows its commitment to energy management through BSI certification to ISO50001. ISO 50001 enables FCC Environment to meet statutory energy efficiency requirements including cutting carbon emissions, lowering energy costs and demonstrating best practice in energy management to customers, employees and other stakeholders. The use of Raw Materials is detailed further in Section 7 of this document. The proposed activity will utilise the following raw materials: • Oil and fuels • Water for misting/suppression system. • Asbestos surfactant additive may be used in water misting system (see Appendix 2 of the Treatment Process Description & BAT Review report ref. 5193-CAU-XX-XX-RP-V-0312). • Sand and activated carbon used as part of the water treatment process. Datasheets for the raw materials will be kept on site. A regular review of raw materials will be carried out as per requirements of ISO14001 environmental management system, this will include quality-assurance procedures, waste minimisation and substitutions for less polluting options. Water requirements for the bioremediation process operations are minimal, rainfall derived drainage water will be used for moisture control where required. Use of mains water or other source of clean water will be used for the misting system around the asbestos process and storage areas. Other areas water use will be restricted to washing plant etc. Usage will be reported on a yearly basis within the annual report submitted to the Environment Agency. Water efficiency objectives will be identified and reported on in an annual basis with an annual report including investigations into water saving technologies. Techniques to minimise water usage will be employed as per requirements of ISO14001 environmental management system.

	Emissions to air
Bat 12	*In order to prevent, or where that is not practicable, to reduce odour emissions, BAT is set up, implement and regularly review an odour management plan, as part of the environmental management system, that includes all of the following elements:* *Protocol for containing actions and timelines;* *Protocol for conducting odour monitoring as set out in BAT 10;* *Protocol for response to identified odour incidents, e.g. complaints* *An odour prevention and reduction programme designed to identify the source(s); to characterise the contributions of the sources; and to implement prevention and/or reduction measures.*
	See response to BAT 10
BAT 13	*In order to prevent or, where that it not practicable, to reduce odour emissions, BAT is to use one of more a combination of the following techniques:* *minimise residence time* *of potentially odorous waste in storage on in handling systems (e.g., pipe, tank containers) in particular in anaerobic conditions* *Using chemical treatment* *Optimising aerobic treatment*
	See response to BAT 10
BAT 14	*In order to prevent or, where that is not practicable, to reduce emissions to air, in particular of dust, organic compounds and odour. BAT is to use an appropriate combination of the techniques given below:* *Minimizing the number of potential diffuse emissions sources* *Selection and use of high integrity equipment* *Corrosion prevention* *Containment, collection and treatment of diffuse emissions* *Dampening* *Maintenance* *Cleaning of waste treatment and storage areas* *Leaks detection and repair (LDAR) programme*
	Dust management will contain the following measures: - • Daily visual monitoring to air and litter.

	• Olfactory odour checks undertaken daily; • Air forced down through the biopiles via the extraction pipework system will pass through a biofilter before being discharged to air; • The waste acceptance procedures and strict contaminant limits in soils will eliminate fugitive emissions of elevated asbestos fibres; • Biofilter emissions to be tested monthly to ensure process parameter are within optimal range; • Provision on site of a water bowser equipped with rain gun, misting and adequate year-round water supply and dust suppression by regular spraying in dry conditions; • Mobile picking station an enclosed unit; • Continuous misting sprays with overlapping spray arcs fitted in the asbestos soils treatment and storage areas of the STF (surfactant may be added to water, see Material Safety Data Sheet in Appendix 2); • Use of uncontaminated water for dust suppression, to avoid re-circulating fine material; • High standards of housekeeping to minimise track-out and windblown dust; • A preventative maintenance programme, including readily available spares, to ensure the efficient operation of plant and equipment; • Minimisation of drop heights during tipping; • Clear delineation of stockpiles to deter vehicles from running over edges; • Effective staff training in respect of the causes and prevention of dust; • Inspection and maintenance of all trafficked surfaces; • Regular compaction, grading and maintenance of haul routes and unsurfaced routes; • Setting an appropriate speed limit; • Fitting all site vehicles and plant with upswept exhausts and radiator fan shields where practical; • Even loading of vehicles to avoid spillages; • Sheeting of haulage loads; • Regular removal of spilled material from site routes. For fugitive, dust and odour emissions, see the existing updated Odour Management Plan already in place at Maw Green STF and the Amenity & Accidents Risk Assessment (document ref: 5193-CAU-XX-XX-RP-V-0310) which assess the risk and mitigation measures in place to reduce emissions to air. As per the company EMS and detailed in the Amenity & Accidents Risk Assessment, maintenance of mobile plant/equipment will be in line with manufacturers specification.

	Plant and machinery will be selected to meet all legislation and statutory guidance on dust/fugitive emission levels and to minimise these from selected equipment and maintained to reduce dust/fugitive emissions where possible. If an equipment is found to generate unacceptable dust/fugitive emission levels, consideration will be given to modifying equipment to incorporate additional dust/fugitive suppression. A LDAR programme is not applicable to the proposed operations at Maw Green STF.
BAT 15	*BAT is to use flaring only for safety reasons or for non-routine operation conditions (e.g. start-ups, shut downs) by using techniques below* *correct plant design* *Plant management*
	N/A to the proposed operations.
BAT 16	*In order to reduce emissions to air from flares when flaring is unavoidable, BAT is to use the techniques detailed below:* *Correct design of flaring devices* *Monitoring and recording as part of flare management*
	N/A to the proposed operations.
	Noise and Vibrations
BAT 17	*In order to prevent, or where that is not practicable, to reduce noise and vibration emissions, BAT is to set up, implement and regularly review a noise and vibration management plan as part of the environmental management system.*
	Given the rural nature of this activity and the existing similar operations on site that have not given rise to complaints, noise modelling is not considered to be required. Noise management has been addressed within the Amenity and Accident Assessment, document ref: 5193-CAU-XX-XX-RP-V-0310 of this application. Noise management techniques are employed at the facility as set out in the Environmental Risk Assessment. In summary the site will employ the following BAT recognized techniques: - • Ensuring site roads and surfaces are kept in good working order; • Acoustic dampening of noise generating equipment; • Low level reversing alarms;

	• Plant and machinery will be selected to meet all legislation and statutory guidance on noise levels and to minimise noise levels from selected equipment and maintained to reduce noise emissions where possible; • If an item of plant is found to generate unacceptable noise levels, consideration will be given to modifying the equipment to incorporate noise suppression; • All plant and equipment in use will be regularly maintained to minimise noise resulting from their operation; • Deliveries and pickups from the site will only take place within the stipulated operational hours; and, • Minimizing drop heights when handling material.
BAT 18	*In order to prevent or where that is not practicable, to reduce noise and vibration emissions, BAT is to use of or a combination of the techniques given below.* *Appropriate location of equipment and buildings* *Operational measures* *Low-noise equipment* *Noise and vibration control equipment* *Noise Attenuation*
	See Response to BAT 17
	Emissions to Water
BAT 19	*In order to optimise water consumption, to reduce the volume of waste water generated and to prevent or, where that it not practicable, to reduce emissions to soil and water, BAT is to use an appropriate combination of the techniques given below.*
	There are no emissions to groundwater. The bioremediation operation will not have a dedicated water supply. The wastewater discharge area comprises of an impermeable concrete slab which drains to a collection pipework so that any run off will be contained. This water will either be used within the process to maintain optimum moisture levels or discharged to sewer. Basic treatment of this potentially contaminated surface/process water will be undertaken prior to discharge to sewer. The discharge of effluent to sewer is regulated by a discharge consent for the Maw Green Soil Treatment Facility Emissions to sewer have been assessed as part of the trade effluent/discharge consent and emission limit values have been set. The existing surface water storage tank (installed for composting operation) is used when required for storage prior to treatment plant. All site holding tanks are bunded to 110% and its condition monitored regularly.

	Water monitoring from asbestos soils processing and storage areas at Edwin Richards Quarry in Rowley Regis Mobile Plant operation, a similar site operated by FCC, has not detected asbestos fibres to be present in effluent from asbestos processing areas (see Appendix 5) and therefore, no abatement of asbestos in effluent is proposed for the asbestos in soils treatment pad. Further details of water treatment and discharge monitoring are outlined in Sections 5.4 of this document and in the Activities and Operating Techniques Report, 5193-CAU-XX-XX-RP-V-0311.
BAT 20	*In order to reduce emissions to water, BAT is to treat waste water using an appropriate combination of techniques.*
	See response to BAT 19
	Emissions from accidents and incidents
BAT 21	*In order to prevent or limit the environmental consequences of accidents and incidents, BAT is to use all for the techniques given below, as part of the accident management plan (See BAT 1)* *Protection measures* *Management of incidental/accidental emissions* *Incident/accident registration and assessment system*
	An existing Accident Management Plan is already in place at Maw Green STF. See Section 8 of this document, 'Emergency Procedures' that identifies: - • The likely causes of accidents; • The consequences of such accidents; • Prevention measures in place to reduce the likelihood of accidents; and • How any accidents that do occur will be managed. The potential for accidents and incidents hazards have been assessed and management techniques put in place as per: • Dust & Emissions Management Plan (document ref.5193-CAU-XX-XX-RP-V-0313); • Odour Management Plan (document ref. 5193-CAU-XX-XX-RP-V-0314); • BAT Review (this document); and,

	• Amenity and Accident Risk Assessment (document ref.5193-CAU-XX-XX-RP-V-0310). These documents have been prepared in support of this application, to ensure that in the unlikeliness of the any accidents or incidents occurring, the operator has sufficient contingency plans and management techniques to ensure they will not lead to an impact on the environment. The company Management system includes written procedures dealing with noncompliance. Any non-compliance will be reported to the site manager or foreman immediately. The site manager or their deputy will determine the course of action to be taken in accordance with the procedure. The company Management system includes written procedures for handling, investigating, communicating and reporting environmental complaints and implementation of appropriate actions. These are included in the BSI certification for 'Occupational Health & Safety Management System' (ISO45001) and 'Occupational Health and Safety certificate' (OHSAS 18001).
	Material Efficiency
BAT 22	*In order to use materials efficiently, BAT is to substitute materials with waste*
	The activities on site requires of resources and raw materials as part of the treatment process, See Section 7 'Resources Use – Raw Materials'. There is no change to the resources and raw materials required for the bioremediation process. The following raw materials are required for the asbestos soils treatment process: • Oil and fuels, and use of HVO fuel if possible. • Water for misting/suppression system. • Asbestos surfactant additive may be used in water misting system (see Appendix 2 of the Treatment Process Description & BAT Review report ref. 5193-CAU-XX-XX-RP-V-0312). • Sand and activated carbon used as part of the water treatment process. The operator has in place as per requirement of the ISO140001 Environmental Management system: Procedures for the regular review of new developments in raw materials and any suitable replacements with an improved profile; Quality assurance procedures for controlling the impurity content; and, Waste minimization and less polluting options favoured.
	Energy Efficiency

BAT 23	*In order to use energy efficiently, BAT is to use both of the techniques given below:* *Energy Efficiency plan* *Energy balance record*
	See BAT 11. Energy requirements of the operation are not considered to be significant and there are no buildings proposed that would require energy-efficient services. FCC Environment shows its commitment to energy management through BSI certification to ISO50001. ISO 50001 enables FCC Environment to meet statutory energy efficiency requirements including cutting carbon emissions, lowering energy costs and demonstrating best practice in energy management to customers, employees and other stakeholders. The energy efficiency plan relating to techniques relevant to the installation including operating, maintenance and housekeeping measure are in place and covered under an Environmental Management System. Housekeeping measures including maintenance and operational procedures are in place for all areas of the site where the breakdown of machinery could lead to an impact upon the environment or compromise the operator's ability to undertake normal site activities. These measures will be reviewed every year to determine if additional energy savings could be made and will include: - Switching off equipment when not in use; Careful operation and maintenance of plant & equipment; and, Regular cleaning of plant & equipment.
	General BAT Conclusion for the mechanical treatment of wastes **Emissions to air**
BAT 25	*In order to reduce emissions to air of dust, and of particulate-bound metals*
	See BAT 14
	BAT Conclusions for the mechanical treatment in shredders of metal waste
	BAT Conclusions 26-28
	N/A
	BAT Conclusions for the treatment of WEE containing VFCs and/or VHCs

	BAT Conclusions 29-30
	N/A
	BAT Conclusions for the mechanical treatment of waste with calorific value
	BAT Conclusions 31
	N/A
	BAT Conclusions for the mechanical treatment of WEEE containing mercury
	BAT Conclusions 32
	N/A
	BAT Conclusions for the biological treatment of waste
BAT 33	*In order to reduce odour emissions and to improve the overall performance, NAT is to select the waste input.*
	See BAT 2 regarding the pre-acceptance, acceptance and sorting of waste. The existing Odour Management Plan provides detail on odour source inventory – these remain unchanged as part of the variation proposals.
BAT 34	*Emissions to air* *In order to reduce channelled emissions to air of dust, organic compounds and odorous compounds, including H2S and NH3, BAT is to use one or a combination of the techniques given below:* *Adsorption* *Biofilter* *Fabric filter* *Thermal oxidation* *Wet scrubbing*
	See Section 4.1 'Control of emissions' and BAT 8 & 10 regarding the use of biofilter to reduce emissions to air.
BAT 35	*Emissions to water and water usage* *In order to reduce the generation of waste water and reduce water usage, BAT is required to use all of the techniques given below:* *Segregation of water streams* *Water circulation* *Minimisation of the generation of leachate*

	See BAT 3 and BAT 19 Water usage is minimal. Rainfall derived drainage water will be used for moisture control where required. Use of mains water restricted to washing plant etc. The waste water discharge areas comprise of impermeable concrete slabs which drains to a collection pipework so that any run off will be contained. This water will either be used within the process to maintain optimum moisture levels or discharged to sewer. Basic treatment of this potentially contaminated surface/ process water will be undertaken prior to discharge to sewer- a discharge consent is in place for the Soil Treatment Facility, a copy is contained in Appendix 3.
	BAT Conclusions for the aerobic treatment of waste
BAT 36	*In order to reduce emission to air and to improve the overall performance, BAT is to monitor and/or control the key waste and process parameters.*
	For emissions to air see Section 2.0 'Process Description', Section 4 'Control of Emissions'. For detail on monitoring, see Section 5 'Monitoring' and BAT: 6, 7, 8 and 10.
BAT 37	*Odour and diffuse emission to air* *In order to reduce the diffuse emissions to air of dust, odour and bioaerosols from open-air treatment steps, BAT is to use one or both of the techniques given below:* *Use of semipermeable membrane covers* *Adaption of operations to the meteorological conditions.*
	See BAT 10 and BAT 15. See Activities and Operating Techniques Report, document ref: 5193-CAU-XX-XX-RP-V-0311. For fugitive, dust and odour emissions, see the Amenity & Accidents Risk Assessment (document ref: 3982-CAU-XX-XX-RP-V-0310. An existing Odour Management Plan is already in place at Maw Green STF which has been updated. Meteorological conditions will be considered before site activities are carried out, where relevant, operational activities should be minimised during unfavourable wind conditions i.e. wind blowing towards sensitive receptors.
	BAT Conclusions for the anaerobic treatment of waste
	BAT 38
	N/A

	BAT Conclusions for the mechanical biological treatment (BMT) of waste
	BAT 39
	N/A
	BAT Conclusions for the physico-chemical treatment of solid and/or pasty waste
	BAT 40-41
	See BAT 1 and BAT 2. For emissions to air see Section 2.0'Process Description', Section 4 'Control of Emissions', Section 5 'Monitoring' and responses detailed in BAT 6, 7, 8 and 10.
	BAT Conclusions for the re-refining of waste oil
	BAT 42-44
	N/A
	BAT Conclusions for the physico-chemical treatment of waste with a calorific value
	BAT 45-47
	N/A
	BAT Conclusions for the thermal treatment of spent activated carbon, waste catalysts and excavated contaminated soil
	BAT 48-49
	N/A
	BAT Conclusions for the water washing of excavated contaminated soil
	BAT 50
	N/A
	BAT Conclusions for the decontamination of equipment containing PCB's
	BAT 51
	N/A
	BAT Conclusions for the treatment of waste-based liquid waste
	BAT 52-53
	N/A

DRAWINGS

5193-CAU-XX-XX-DR-V-1803	STF Effluent Pipeline
5193-CAU-XX-XX-DR-V-1805	Proposed Site Layout Plan
5193-CAU-XX-XX-DR-V-1806	Dust and Asbestos Monitoring Plan

LEGEND

- PERMIT BOUNDARY
- EFFLUENT PIPELINE ROUTE - OVER GROUND
- EFFLUENT PIPELINE ROUTE - BELOW GROUND
- PUBLIC SEWER BH3201

SOILS TREATMENT FACILITY

PROVECTUS SAMPLING POINT
PROVECTUS WATER METER

PROVECTUS CONNECTION POINT TO DISCHARGE LINE

LEACHATE PIPIELINE BELOW GROUND

LEACHATE PIPIELINE OVER GROUND

PUBLIC SEWER BH3201

MAW GREEN

Works

Pond

Shandon Barn

Shandon House Farm

Drain Road

Drain

Hollow

Foxes

The Barn House

Maw Green Farm

El Sub Sta

Windy Nook

Meadow Cottage

Meadow Croft Cottage

Maw Green Road

REV	MODIFICATIONS	BY	RE	AP	DATE
P01	ISSUED FOR INFORMATION	EJD	KB	KB	22.11.21

PURPOSE OF ISSUE: FOR INFORMATION
STATUS: S2

CLIENT: FCC Environment

PROJECT: MAW GREEN LANDFILL

TITLE: STF EFFLUENT PIPELINE ROUTE

DESIGNED BY	DRAWN BY	REVIEWED BY	AUTHORISED BY
AS	EJD	KB	KB

DATE	SCALE @ A1	JOB REF:	REVISION
03.11.2021	1:1000	5193	P01

DRAWING NUMBER: 5193-CAU-XX-XX-DR-V-1803

Caulmert engineering environmental planning

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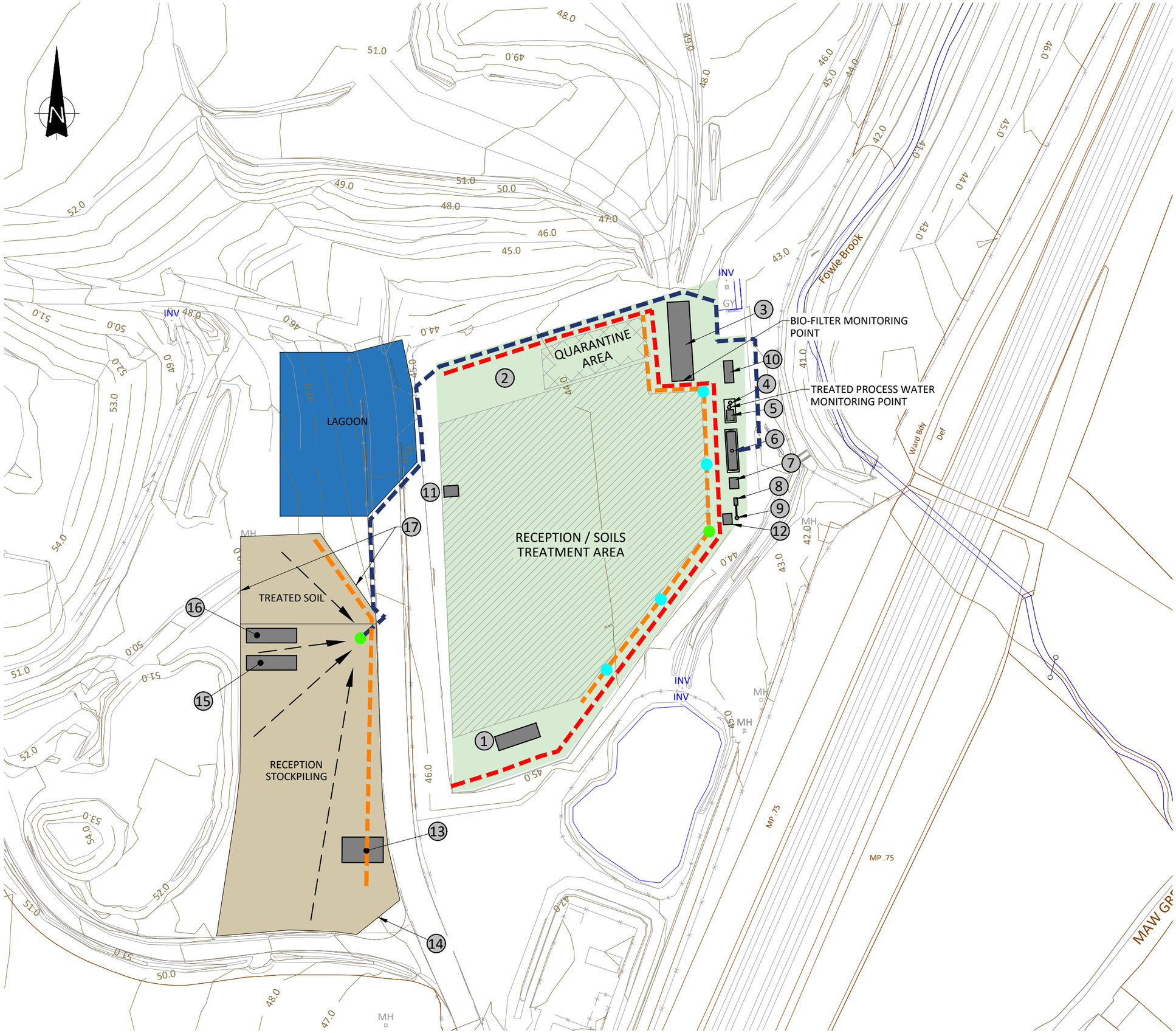
Registered Office: InTec, Parc Menai, Bangor, Gwynedd, LL57 4FG Company Registered No: 06716319



LEGEND

- CONCRETE IMPERMEABLE PAVING
- CRUSHED CONCRETE SITE SURFACING WITH GEO-COMPOSITE CLAY LINER (GCL)
- BOUNDARY KERB LINE
- WATER DRAINAGE PIPE
- DISCHARGE LINE
- FALL OF PAD
- DRAINAGE GULLY
- PUMPING CHAMBER
- 1 SITE OFFICE
- 2 NUTRIENT STORAGE
- 3 BIOFILTER
- 4 GRANULAR ACTIVATED CARBON FILTERS
- 5 TRANSFER TANK
- 6 PROCESS WATER SETTLEMENT TANK
- 7 10ft CONTAINER WITH CONTROL PANEL
- 8 BLOWER
- 9 AIR WATER SEPERATOR
- 10 20ft TOOL STORE
- 11 FUEL STORAGE
- 12 3WV
- 13 DECONTAMINATION UNIT
- 14 RECEPTION ENTRANCE AND EXIT
- 15 SOIL SCREENER
- 16 PICKING STATION
- 17 PLANT ENTRANCE AND EXIT

REV	MODIFICATIONS	BY	RE	AP	DATE
P02	UPDATED TO CLIENT INSTRUCTION	EJD	SH	SH	13.12.22
P01	ISSUED FOR INFORMATION	EJD	SH	SH	20.10.22

PURPOSE OF ISSUE: FOR INFORMATION
STATUS: S2

CLIENT: 3C WASTE LIMITED

PROJECT: MAW GREEN SOILS TREATMENT FACILITY PERMIT VARIATION

TITLE: PROPOSED SITE LAYOUT PLAN

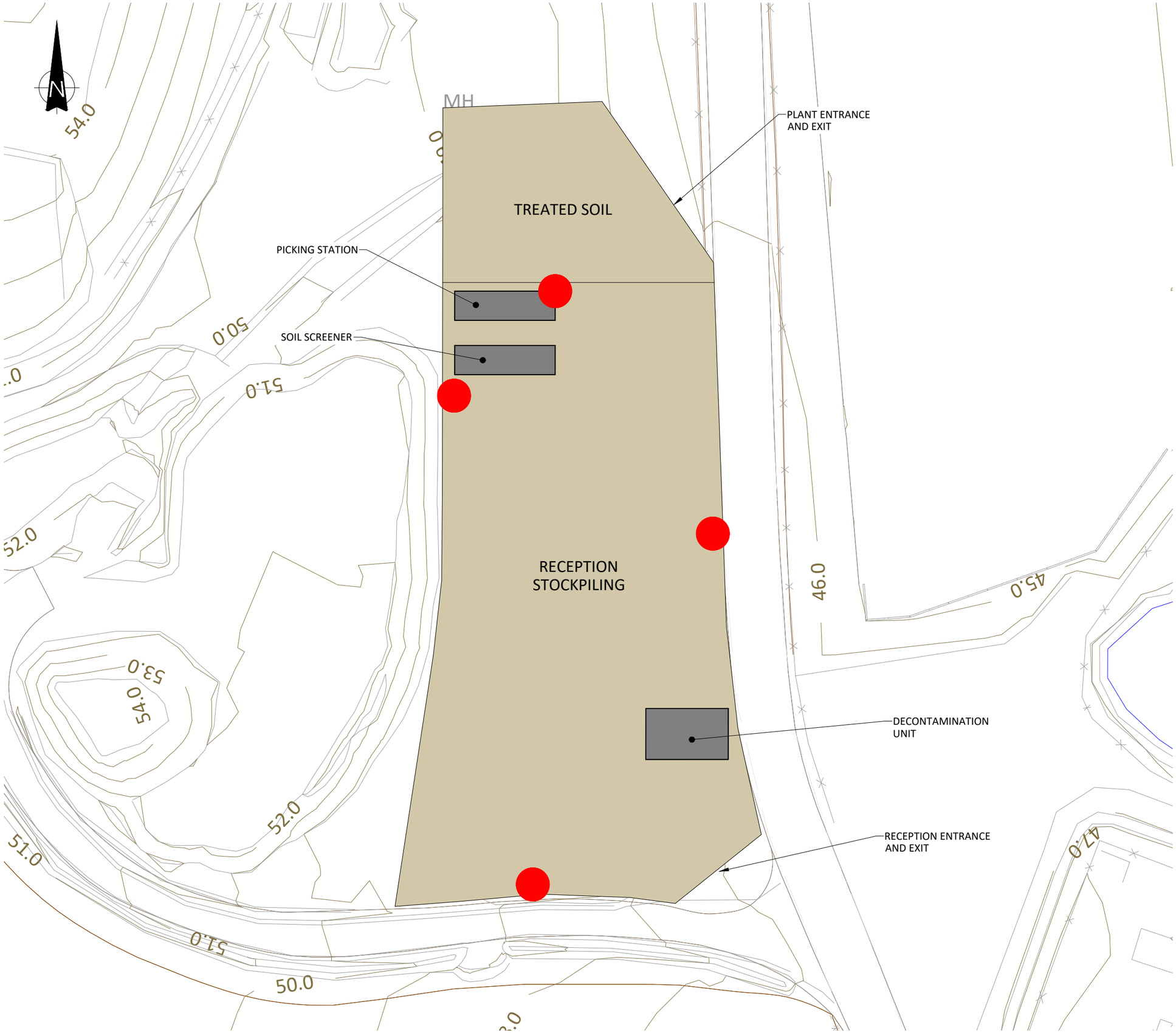
DESIGNED BY	DRAWN BY	REVIEWED BY	AUTHORISED BY
EJD	EJD	SH	SH

DATE	SCALE @ A3	JOB REF:	REVISION
19.10.2022	1:1000	5193	P02

DRAWING NUMBER: 5193-CAU-XX-XX-DR-V-1805

Caulmert engineering environmental planning

Registered Office: InTec, Parc Menai, Bangor, Gwynedd, LL57 4FG Company Registered No: 06716319



LEGEND

- CRUSHED CONCRETE SITE SURFACING WITH GEO-COMPOSITE CLAY LINER (GCL)
- MONITORING POINT

REV	MODIFICATIONS	BY	RE	AP	DATE
P01	ISSUED FOR INFORMATION	EJD	SH	SH	20.10.22

PURPOSE OF ISSUE	STATUS
FOR INFORMATION	S2

CLIENT:
3C WASTE LIMITED

PROJECT:
MAW GREEN
SOILS TREATMENT FACILITY
PERMIT VARIATION

TITLE:
PROPOSED MONITORING PLAN

DESIGNED BY	DRAWN BY	REVIEWED BY	AUTHORISED BY
EJD	EJD	SH	SH

DATE	SCALE @ A3	JOB REF:	REVISION
19.10.2022	1:500	5193	P01

DRAWING NUMBER
5193-CAU-XX-XX-DR-V-1806

Caulmert
engineering environmental planning

Registered Office: InTec, Parc Menai, Bangor, Gwynedd, LL57 4FG Company Registered No: 06716319

APPENDIX 1

Operating Procedures

STC – WI001 – QUOTE GENERATION PROCEDURE

Author:	Andy Clee – Ops Man	**Approved By:**	Jon Owens – STC Director
Distribution:	Z/QMS/Work Instructions - STC		

Document Changes

Revision No:	Summary of Changes - Date	Date
6	Slight change in wording	14.12.2022

Introduction

This procedure relates to the measures to be undertaken for the assessment of data from clients and the subsequent generation of quotes for acceptable soils into the Soil Treatment Centre (STC).

A separate User Guide for using the SKYNET software to create a quote is also available.

Principle of Operation

The receipt of enquiries will result in the generation of a quote if the soil meets the acceptance conditions for treatment and subsequently for reuse. In the event that there are samples which contain untreatable contaminants that do not meet the reuse criteria then these will be highlighted on the quote or no quote will be issued to the waste producer.

The STC manager or FCC are to be consulted in the event of any queries relating to the acceptance criteria for waste soils.

Procedure

Pre-Acceptance Assessment

This is undertaken by the Provectus sales manager or project co-ordinator to confirm treatability to meet the reuse criteria. Each job is assessed individually for treatability. Consideration of contaminant concentrations, volumes and soil type are needed to determine the overall impact that the incoming material has on the batch of soil it is to be placed into. Degradation rates for hydrocarbon impacted soils vary depending on their oil ranges, but are typically between 40-95%, batch average concentrations should aim, but are not limited, to be within these limits to allow for effective treatment of materials.
Hazardous and non-hazardous materials are to ideally be treated separately, although on occasion it is more beneficial for the treatment process to mix these materials, for example, using 20 03 03 material as a form of amendment in a hazardous batch of soil.

The concentrations for the reuse of soils is determined by the specific FCC site risk assessment and must be deemed non-hazardous by the FCC compliance team in order to be reused on site.

A set of standard terms and conditions for acceptance are contained within the formal quote sent to the client. Any site-specific terms and conditions need to be included within the notes section of the quote.

The analysis and any accompanying information is to be stored on SKYNET alongside each

quote.

Quote Issue and Acceptance

The quote is issued to the client within 24hrs of receiving the enquiry. The price per tonne is to be determined by the sales manager. Any jobs priced lower than £25/t need to be discussed with other senior STC employees. Lower prices may be required to secure soils from larger projects or sites that are a significant distance from the treatment site.

Quotes issued to different clients for the same project shall be recorded as 'multiple' quotes on SKYNET to ensure that potential soil volumes in the pipelines are not overestimated.

Quotes raised from FCC client enquiries and any subsequent inputs via FCC will be marked as 'non-billable' to ensure invoices are not incorrectly raised for these clients.

After issuing the enquiry the sales manager will undertake a follow up within 3 days to ensure the quote meets the client expectations.

Once the quote has been signed and formally accepted by the client, the sales manager will notify FCC with the following information supplied by the client:

- Site Address:
- Site History
- Contamination:
- EWC:
- Hazardous Property:
- SIC Code:
- Tonnage:
- Price per tonne:
- Site visit attended:

Once this has been approved by FCC internally, they will issue a Waste Summary Form and an authorisation number (DW number) that is to be referenced on all consignment notes relating to that particular job.

Supporting data will be made available to the site manager with the corresponding DW number (provided by FCC) as a basis for compliance checks on loads.

STC – WI 002 - SOIL RECEPTION PROCEDURE

Author:	Andy Clee – Ops Man	**Approved By:**	Jon Owens – STC Director
Distribution:	Z/QMS/Work Instructions - STC		

Document Changes

Revision No:	Summary of Changes	Date
5	Incorporates asbestos reception procedure	16.12.2022

Introduction

This procedure relates to the measures to be undertaken for the assessment of data and inspection of waste received at the soil treatment facility. It allows rejection of non-conforming waste to ensure no contaminated soils are accepted which cannot be treated by the treatment facility to a standard suitable for reuse, or which breach the list of permitted wastes as shown in the site's Environmental permit.

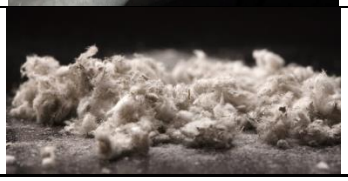
Principle of Operation

The inspection will allow the following to be assessed prior to acceptance:

1. Presence of untreatable and hazardous materials (e.g. tars, clinker, asbestos insulation etc.) in the contaminated soil.
2. Presence of excessive litter/debris in the contaminated soil.
3. Compliance with the previously supplied chemical/physical analysis information (supplied by waste producer).
4. Potential for the waste to behave as a liquid or have free water/oil in the waste

If the waste material is not compliant with the agreed conditions of the Environmental Permit and pre-acceptance assessment, then the waste will be declined/rejected. As a note, if the STC is permitted to accept asbestos the forms of untreatable asbestos described in point 1 are predominantly insulation products as follows in Table 1.

Table 1. Unacceptable Forms of Asbestos Insulation Products

Form of asbestos	Example
Asbestos pipe lagging	
Loose asbestos fill	

Asbestos insulation board (AIB)	

Procedure

Pre-Acceptance Assessment

Pre-acceptance is undertaken by Provectus to confirm treatability to meet the reuse criteria. A set of Terms and Conditions for acceptance are sent to the Waste Producer/client including a clear statement of any waste characterisation samples that are deemed untreatable. These are agreed in writing between the Waste Producer/client and Provectus prior to an authorisation number (contract line) being issued by FCC at the weighbridge for deposit at the Soil Treatment Facility.

Where data gaps exist or queries remain about the suitability of material for treatment, Provectus or FCC will offer to attend the site of origin to undertake pre-acceptance analysis and visually inspect the material and obtain further information about the waste description. Alternatively, the material may be quarantined on arrival at the STF and subject to further testing.

If the moisture content of the material is >30% then the potential for free water or oil will be further reviewed. Where moisture contents are at this level and the material does not behave as a liquid, have the potential for releasing water/oil etc and is suitable for the site infrastructure then it would be accepted on a case by case basis. Material must be able to support its own weight and ideally be able to be formed into a larger batch.

Should either Provectus, or after consultation, FCC determine that there is the high potential for material to contain untreatable inclusions or to behave as a liquid or contain free water or oil then the waste will be rejected for acceptance.

Duty of Care Documentation

No tipping on the STC will be permitted without relevant duty of care documentation from the waste producer. With this information, the job can be set up with FCC and a DW number issued to the client. All loads must be accompanied wit the correct paperwork which must be checked on-site at the STC to ensure that the load is indeed destined for the STC, and that the documents are correctly completed. The consignee section of Consignment notes, for hazardous waste, and waste transfer notes for non-hazardous waste, shall be completed by Provectus at the STC once the load has been deemed acceptable by the STC site manager.

Health and Safety

The STC manager is to provide guidance on where the soil is to be tipped, and any relevant safety information prior to tipping of soil. On STC's where asbestos is permitted, it is crucial that loads are placed in the correct tipping areas.

Technicians and site personnel are to stand well away from the lorry when tipping to avoid any crush injuries/incidents as a result of being in close proximity to the tipping lorry. Any drivers must be informed of the requirement to wear a hard hat and high visibility vest when outside of the lorry cabin.

Lorries shall be informed to check that any waste/debris is removed from their lorry prior to leaving the STF.

If loads are to be tipped into the asbestos area, then additional site-specific driver rules apply and must be adhered too.

Visual Inspection: Waste Input

The following locations will be used for accepting wastes:

- Hydrocarbons only: biopile treatment area
- Asbestos only, or asbestos and hydrocarbons: designated asbestos processing area

The following plant and personnel are required as part of this procedure:

- Provectus STC manager
- Excavator

Each load of soil for inspection (new jobs) will be tipped onto the designated area. The STC manager will inform the tipper lorry driver to remain at the tipping area until the inspection has been completed.

In the event of the material containing free water or oil, the load will be immediately rejected.

In the event of untreatable forms of asbestos being present, the load will be immediately rejected

If the STC is not permitted to accept asbestos, any asbestos found will result in a rejection

The excavator will be used to expose any unsuitable materials and allow a comprehensive visual assessment. The technician will determine the next action when this has been completed, this will comprise of the following:

- Waste is accepted and tipper lorry is permitted to leave the STF with the accompanying paperwork, or;
- Waste is not accepted and the unsuitable element of waste load, either partial or complete load is removed by excavator and placed back into the tipper lorry. A rejection form is filled in on-site and both Landfill Manager (LM) and Sales Manager (SM) are informed. It is the duty of FCC to inform the Environment Agency of any rejected loads.

At the end of the formal waste acceptance procedure the soil will be prepared for processing or biotreatment. Coordination of further treatment/processing events is to be decided by the STC Manager.

Continual visual inspections are to be made by the trained excavator operator who is to inform the STC manager of any material that may be deemed unsuitable.

Chemical Analysis: Waste Input

Based on visual inspection, sampling frequency will be considered; this is in relation to the volume from each hazardous waste production site. Sampling will be undertaken on soils using composite sampling methods described in BS812.

The chemical analysis of soils generally takes 5-7 days to complete, therefore limited storage times are required. Materials will be placed into treatment as soon as practicable from the receipt of chemical analysis and formal acceptance of the waste.

The range of contaminants for analysis will be based upon the original contaminating substances. A copy of the analysis shall be checked by the STC operations manager for

verification against the original client data. In the event of non-conformity, the STC operations manager shall liaise with the STC sales manager, and a decision on the next course of action will be taken.

For avoidance of doubt, the limits for asbestos from laboratory testing will be as follows:

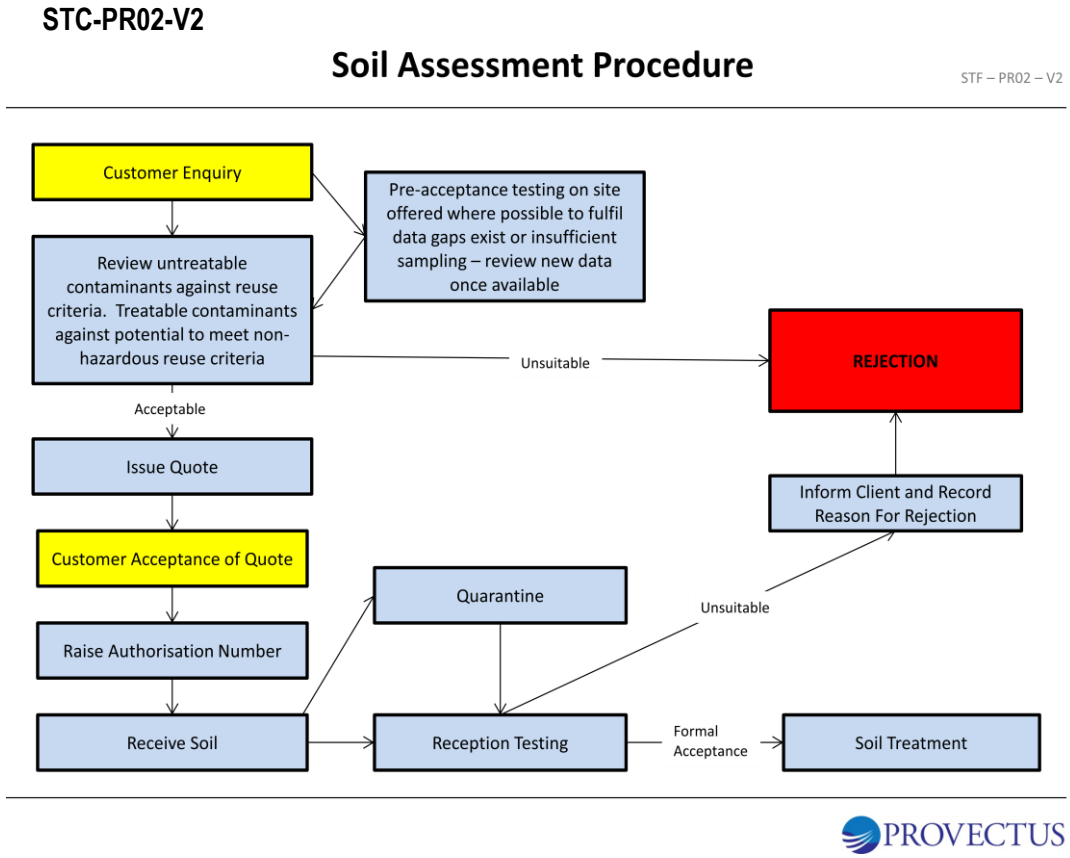
- Chrysotile only: 0.1%
- Other forms of asbestos (or chrysotile and others): 0.01%
- Asbestos debris limited to those which can be removed as Notifiable Non-Licensed Works (NNLW) if the site is permitted to accept asbestos.

The waste will only be formally accepted once reception analyses are received and approved in accordance with Soil Assessment Procedure illustrated in STC-PR02-V2 (Figure 1) below.

Summary of Waste Reception

Figure 1 is a flow diagram for the waste reception procedure. The procedure is implemented to ensure that the waste is only formally accepted once visual inspections and chemical analysis of received wastes have been successfully completed. This ensures that any soils that are formally accepted are suitable for further soil processing/treatment. All non-compliant wastes will be rejected.

Figure 1. Summary of Waste Acceptance Procedure



STC – WI 003 - SOIL CHARACTERISATION PROCEDURE

Author:	Andy Clee – Ops Man	**Approved By:**	Jon Owens – STC Director
Distribution:	Z/QMS/Work Instructions - STC		

Document Changes

Revision No:	Summary of Changes	Date
8	Slight change in wording	14.12.22

Introduction

This procedure relates to the measures to be undertaken for the sampling of soils received at the STC. See procedure STC – WI 002 Soil Reception for background information.

Objectives

The main objective of the operation is to ensure soils received at the Soil Treatment Centre (STC) are visually, structurally, and chemically similar to those described by the waste producer/client during pre-acceptance, and therefore compliant with the Environmental permit and suitable for treatment and reuse. This will allow any non-conforming waste to be rejected.

Procedure

The sampling of soils will be performed by the STC technician or STC site manager. The procedure follows composite sampling methods as described in BS812.

A minimum of at least one composite sample must be taken from each job (unique authorisation code/DW number) and at the frequency highlighted in Table 1 below.
Chemical testing is undertaken to ensure that the material being tipped is consistent with the analysis and description provided by the client at the pre-characterisation stage. It also checks to see if the material remains consistent throughout the project.

Table 1: Requirements for sampling:

Volume of soil (t)	No. of samples needed (before or during acceptance at STC)
< 100	1
100 - 500	2
500 +	2 + 1 for every 500t

The general suite of analysis for soils shall include:

- pH
- CLEA Metals
- Total TPH
- Total PAHs
- Total Cyanide

- Phenols
- SVOCs and VOCs (where required)
- PCBs (where required)
- Asbestos (screen and quantification where asbestos is identified)
- Moisture content

These parameters may be adapted by the STC operations manager or FCC compliance due to prior knowledge of contaminants derived from client waste description, history and data.

Liquid oil phase wastes are not permitted for treatment at the site.

All analysis will be undertaken by a UKAS/MCERTS accredited laboratory using accredited methods.

Once the analysis results are received, they will be assessed by a suitably qualified and experienced STC manager to confirm they meet the requirements for treatment. These results are to be stored electronically onto the STC server.

Where possible, the soils are to be placed into a batch with similar contamination level. The receiving batch has contaminant limits (these are not contaminant limits for soil inputs which can vary and exceed the average batch limits). The hydrocarbons in the batches will be limited to an average as shown in Table 2.

Concentrations for inorganics to be reviewed in accordance with WM3 (Jan 2021).

Asbestos concentrations to be assessed using criteria in Table 3.

Should the results not conform to the requirements for treatment the waste will be rejected following the formal rejection procedure.

Table 2. Maximum Average Contaminant Concentrations for Receiving Batch

Substance	Carbon Range	Lower Elimination Rate	Upper Elimination Rate	Maximum average batch concentration (lower level) - mg/kg	Maximum average batch concentration upper level) - mg/kg	Comments
Petrol range organics	C6-C10	95%	99%	20,000	100,000	Limited by odour potential
Diesel	C10-C25	60%	90%	2,500	10,000	Target of below 1,000mg/kg for reuse even though diesel is only hazardous at 1% (10,000mg/kg)
Lube Oils	C25+	40%	65%	1,667	2,857	Review age of spill and soil type before assessing which elimination rate to use
Unknown Oil	C10+	40%	80%	1,667	5,000	Review age of spill, source and soil type before assessing which elimination rate to use
PAHs	C10+	30%	90%	1,429	10,000	Limited by odour potential
Phenols	C6+	90%	99%	10,000	100,000	Limited by odour potential
Solvents	C2+	95%	99%	20,000	100,000	Limited by odour potential
VOCs	C2+	99%	99%	100,000	100,000	Limited by odour potential

Table 3. Maximum Asbestos Contaminant Concentrations for Treatment

Substance	Maximum concentration (%)	Comments
Chrysotile	<0.1%	Bound forms of ACM only
Amphibole ACM Types	<0.01%	Bound forms of ACM only
Asbestos insulation/unbound asbestos	Absent	No acceptance of any form of asbestos in friable/insulation form

STC – WI 004 - SOIL TREATMENT AND MONITORING PROCEDURE

Author:	Andy Clee – Ops Man	**Approved By:**	Jon Owens – STC Director
Distribution:	Z/QMS/Work Instructions - STC		

Document Changes

Revision No:	Summary of Changes	Date
5	Wording changes	14.12.2022

Introduction

This procedure relates to the monitoring of the soil treatment process undertaken by Provectus. The purpose of the treatment is to reduce concentrations of certain contaminants within a soil, prior to its reuse by FCC. This shall form, in conjunction with other routine observations, the monitoring programme for the soil treatment process.

Principle of Operation

Certain process parameters are vital for Provectus' soil treatment system to operate successfully; hence regular and frequent inspection and assessments must be made of these process parameters, in order to monitor the performance efficiency of the soil treatment process and allow for alterations to be made as required.

Procedure

A weekly equipment follow-up sheet shall be filled in by the Soil Treatment Centre (STC) technician or site manager. This record shall be entered on the STC server and/or site files and compared to previous follow-up sheets, by the STC site manager, to highlight any significant short-term changes in the operational parameters. Additionally, the long-term performance efficiency can be monitored. Any necessary re-adjustments can be discussed and agreed with the STC operations manager, this advice/instruction at the earliest possible time or at the agreed time to improve efficiency.

"In-process" soil sampling of batches, in accordance with procedure STC WI 003, shall be undertaken. The location and frequency of this "in-process" sampling is decided at the discretion of the STC site manager. This soil analysis shall provide information relating to concentrations of pollutants and nutrient availability within the soil batch. From this information, the degradation of contaminants over time may be observed and any follow up actions, such as additional amendments or "turnovers" (as per STC WI 005) or further testing, can be made by the STC operations manager and STC site manager. All operations undertaken on the batch of soil shall be recorded for future reference.

In process samples should be submitted for the following analytical tests:

- Moisture content
- pH
- Ammoniacal nitrogen
- Nitrate
- TPH
- Other analytical tests may be scheduled by the site operations manager or site manager of case by case basis

Analysis results shall be entered on to the STC server and thus electronically recorded as part of the quality control procedure.

On a daily basis, visual monitoring of equipment, including plant, and soil biopiles shall be undertaken. Equipment modules will be inspected every morning and evening upon module opening and closing respectively. Noise, vibration and temperature observations of equipment shall also be executed at these times.

Daily site walk-overs shall be conducted by the STC site manager in order to monitor for potential leaks in pipework and water conduits. Weekly checks of airflow in secondary pipes for flowrates and temperature (plus any other site specific requirements) shall be undertaken by the STC site technician. Water filters/strainers shall be cleaned once weekly or as required.

STC – WI 005 - SOIL TURNOVER

Author:	Andy Clee – Ops Man	**Approved By:**	Jon Owens – STC Director
Distribution:	Z/QMS/Work Instructions - STC		

Document Changes

Revision No:	Summary of Changes	Date
5	Minor alteration to wording	14.12.2022

Introduction

This procedure relates to the periodic process referred to as 'turnover', which is an important and necessary undertaking for the treatment of soils at the Soil Treatment Centre (STC). The process improves air flow through the soil by decompaction and allows soils to be inspected as part of the overall treatment programme. It consists of moving soil sections in a batch/biopile, using an excavator, to an adjacent piping section of the biopile. Occasionally a turnover is conducted *in-situ*, *i.e.* - the soil is moved around within the section it already occupies. This is typically done when there is no spare room to relocate the soil. The biopile is also effectively inverted in order to perform a more homogeneous treatment.

Principle of Operation

There is no set pattern of frequency for a turnover, since it is usually dependent upon soil-specific characteristics, and will often follow the receipt of 'in-process/interim' chemical analysis undertaken on soil sampled from the biopile. The programme for the soil turnover events shall be determined by the STC manager, in conjunction with the STC operations manager. A turnover may involve the addition of one or more types of amendments into the soil and will usually entail movement along the treatment pad to form a new similarly shaped biopile.

Procedure

The operation shall only be carried out by trained and competent excavator drivers, under the supervision of Provectus personnel. Before any soil is moved on to new secondary pipes, the new pipe must be covered with gravel, typically, though not exclusively 20-40mm clean gravel; formed into an apex above the centre line of the secondary pipe, giving a triangular profile. This is to allow for even flow of air and to prevent holes from blocking up.

Trenches created during the turnover shall be always made safe with a 1 in 1 batter (45° slope) and regular checks will be undertaken by the STC manager to ensure this is occurring.

During the turnover, underlying secondary pipes may be damaged, when this occurs the area around the damage must be made safe to allow access by STC site technicians so repairs can be made. The STC manager is to be informed prior to the repair taking place to ensure it is safe to do so. The damaged section of pipe shall be removed, disposed of and replaced; it must not be left in the biopile. Gravel will be reinstated on the new pipe section prior to continuing with the soil turnover. During any pipe repairs the excavator driver shall act as a top man on top of the biopile to ensure no access is permitted to the pipe repair area by unauthorised personnel.

Any operation, turnover or amendment added to the batch shall be recorded electronically onto the SKYNET system, in compliance with Provectus' quality control system.

STC – WI 006 - SOIL ANALYSIS

Author:	Andy Clee – Ops Man	**Approved By:**	Jon Owens – STC Director
Distribution:	Z/QMS/Work Instructions - STC		

Document Changes

Revision No:	Summary of Changes	Date
5	Minor alteration to wording	14.12.2022

Introduction

This procedure relates to the measures to be undertaken for the testing of soils treated at the Soil Treatment Centre (STC). This ensures that soils are suitable when received, maintained in optimal treatment ranges, and are validated in accordance with the permit. Once treatment is complete soils may be reused in several ways depending on the site. This includes quarry backfill works or restoration soil for the landfill site.

Principle of Operation

The main objective is to ensure, in accordance with the Environmental Permit, that any soil treated by Provectus is reused in a safe and environmentally acceptable manner. Quality control measures are implemented in order to prevent the reuse of soils to destinations either unintended, or unsuitable for the receipt of such soils. This operation is performed in conjunction with FCC, who operate the sites where the soils shall be reused.

In-treatment batches of soil are monitored periodically as described in STC WI 004. When a batch of treated soil displays strong chemical evidence of meeting a non-hazardous reuse standard, a 'validation' sample is to be taken and used to generate a data report. This is to be reviewed by the STC operations manager and can then be sent to FCC to be formally approved for disposal.

Validation sampling is to be carried out by the STC site technician or site manager, using a grid formation sampling plan. As a general rule one composite sample should be taken for every 500t.

The reception and validation samples should be submitted for the following analytical tests –

- Metals (As, B, Cd, Cr, Cu, Pb, Hg, Ni, Se & Zn)
- pH
- Speciated TPH (including BTEX)
- Speciated PAHs
- Phenols
- Total Sulphate
- Elemental sulphur
- Free Cyanide
- Total Cyanide
- Asbestos screen

Dependent on the contaminants of concern it may be necessary to request further parameters for testing on validation. Leachate analyses are required for reuse of soils in the restoration part of the landfill in accordance with the agreed risk assessment.

Procedure

Once the soil batch has been analysed by an accredited laboratory, and the results reviewed by the STC operations manager; a validation report shall be complied with information regarding soil volumes, validation analysis results, soil origin and ultimate destination. This shall be communicated to both the FCC Waste Assessment team and to the FCC site manager for approval and so that provisions can be made for the transfer of soils to the approved destination. The validation report and any supporting information shall be stored on the STC server.

STC – WI 007 – ENVIRONMENTAL MONITORING

Author:	Andy Clee – Ops Man	**Approved By:**	Jon Owens – STC Director
Distribution:	Z/QMS/Work Instructions - STC		

Document Changes

Revision No:	Summary of Changes	Date
6	Minor wording change	14.12.2022

Introduction

This procedure relates to the measures to be undertaken for environmental monitoring at the STC, in order that all emission points are regularly monitored to ensure that the operation is compliant with the conditions of the Environmental Permit. This procedure does not replace any general monitoring of the site undertaken by FCC.

Principle of Operations

The main objective of the operation is to monitor and record the emission points on the STC. These included, but are not limited to the following:

- Air emissions from the biofilter (see WI 008 for further detail).
- Material measurements from the biofilter (see WI 008 for further detail).
- Water quality from the water discharge point at the STC (see WI 009 for further detail).
- Dust concentrations in air at the STC.
- PID measurements for Volatile Organic Compounds (VOC) at the STC.
- Noise assessment
- Odour assessment

Procedure

Site environmental monitoring aims to ensure compliance with the Environmental Permit as well as our internal procedures for PPE and RPE.

Process Emissions

The point emissions from the STC include process wate, air emissions from the biofilter, dust and odour from general site works. The monitoring for these processes includes:

- Biofilter sampling (from exhaust vents only).
- Process water sampling.
- Visual and olfactive assessment for dust and odour on site at Environmental Monitoring Locations.
- Dust monitoring at locations Environmental Monitoring Locations.

Environmental monitoring locations (EML) are specific for each site and are shown on individual site plans within the site files.

Biofilter Monitoring

The procedure for biofilter monitoring is documented in STC – WI 008.

Process Water Monitoring

The procedure for process water monitoring is documented in STC – WI 009.

STC Dust Control

Monitoring shall be done daily on a visual basis in addition to independent dust measurement carried out by nominated laboratory/subcontractor through on site frisbee gauges. Sampling locations are shown on site plans located within the site files.

Dust suppression is to be undertaken when soil movement is generating excessive dust, this includes traffic movements and soil turnovers. Measures for this are included within the Site-Specific Working Plan submitted to the Environment Agency. The source of dust will be identified and the operation creating a dust presence ceased. Mitigation measures will include the use of the on-site water bowser with spray rail and sweeper brush or equivalent.

PID Measurements

A photo-ionisation detector (PID) shall be used on a weekly basis at the Environmental Monitoring Locations and near the biofilter to quantify gaseous emissions. If PID readings for Benzene exceed 1ppm (based on EH40 guidance), then the source shall be identified and assessed by Provectus. It will be dealt with, for example, by increasing PPE and RPE levels on site, a cessation of soil movement or covering of odorous soils with a tarpaulin or woodfines etc.

If site activity involves the movement of soil that has been identified as having high levels of VOC's which may be harmful to personnel working in the vicinity or other off-site receptors, then PID and benzene monitoring shall occur on a daily basis.

Results shall be stored on the STC server and/or site files.

Noise Measurements

Weekly observations relating to excessive noise incidents shall be recorded in the STC server and/or site files.

STC Odour Control

Daily observations and weekly recorded checks will take place for odours on and around the treatment area. If excessive odours are identified, the source of odour will be assessed by Provectus and the site specific odour management plan should be consulted. On site odours will be dealt with, for example, by a cessation of soil movement if required or covering of odorous soils with a tarpaulin or woodfines etc. Observations shall be logged on the STC server and/or site files.

Recording of Results

All analytical results and monitoring results shall be stored onto the STC server and/or site files. Any changes made to the type of monitoring or adjustment to the biofilter shall also be recorded here.

STC – WI 008 – BIOFILTER OPERATION AND MONITORING

Author:	Andy Clee – Ops Man	**Approved By:**	Jon Owens – STC Director
Distribution:	Z/QMS/Work Instructions - STC		

Document Changes

Revision No:	Summary of Changes	Date
5	Change in wording for BF replacement	14.12.2022

Definitions and Abbreviations

VOC – Volatile Organic Compound
TPH – Total Petroleum Hydrocarbon
PAH – Polycyclic Aromatic Hydrocarbon
BTEX – Benzene, Toluene, Ethyl Benzene, Xylene

Introduction

This procedure relates to the measures to be undertaken for the regular monitoring of the quality and performance of the biofilter located on the STC. The biofilter is a compost mixture, acting as a natural filter medium for exhaust gases from the treatment pads. Its function is to absorb and control exhaust gases, including VOCs, TPHs, PAHs, and BTEX. In order to maintain moisture and temperature levels and to maximise process efficiency, the biofilter will normally kept under a tarpaulin cover. Both visual inspections and chemical analyses will constitute the quality control procedure relating to biofilter performance.

Principle of Operation

Air and process water are drawn from the treatment pads, *via* secondary pipes, into a primary pipe. This mixture then enters an air-water separator, where water is separated from the air fraction by gravity. This air fraction is then extracted through a treatment module, and eventually exhausted to the biofilter.

In order to maintain a moisture film on the matrix of the biofilter, re-circulating process water may be pumped periodically onto the surface of the biofilter. The moisture film must be maintained in order to facilitate desorption of organic gases onto the biofilter matrix. This, in conjunction with periodic visual inspections, decompaction, re-fertilisation and replacement techniques; ensures the continuing operation of a high-performance biofilter at the Soil Treatment Centre (STC).

Procedure

As part of the quality control system for the STC, Provectus will replace or “top up” the biofilter media on an annual basis unless gas analysis results show that the biofilter is still operating efficiently. This will involve the removal of the existing biofilter media and replacement with a similar material. The biofilter shall be turned, in a similar way to that described for the biopiles, on a recommended 6 monthly period or as required dependant on analytical results. At this point, if necessary, manual spraying of the biofilter *via* a transfer hose assembly from the water collection tank may be undertaken. Any such additions of water, turnovers and replacements shall be recorded as part of the quality control system on the STC server and/or site files. Physical monthly samples shall be taken from the biofilter to assess the moisture content and structure of the material. Other parameters such as pH, grain size, exchangeable ammoniacal nitrogen and phosphorus are also to be tested monthly.

Sampling of the gases directly exhausted from the biofilter will be undertaken as required by the Environmental permit for the site and sent to an independent laboratory. The parameters to be tested are described in the site specific Environmental permit, typically this includes VOC's, TPH, BTEX and PAH.

Result shall be reviewed by the STC operations manager and STC site manager and stored onto the STC server and/or site files.

STC – WI 009 – PROCESS WATER MONITORING

Author:	Andy Clee – Ops Man	**Approved By:**	Jon Owens – STC Director
Distribution:	Z/QMS/Work Instructions - STC		

Document Changes

Revision No:	Summary of Changes	Date
5	Change in wording	16.12.2022

Definitions and Abbreviations

VOC – Volatile Organic Compound
TPH – Total Petroleum Hydrocarbon
PAH – Polycyclic Aromatic Hydrocarbon
BTEX – Benzene, Toluene, Ethyl Benzene, Xylene

Introduction

This procedure relates to the monitoring of process water from the biotreatment area and asbestos area (if applicable) at the Soil Treatment Centre (STC). The water treatment system is designed to reduce the concentrations of suspended solids, TPH/BTEX, PAHs and VOCs from from the biotreatment pad and asbestos area (if applicable) prior to discharge.

The standard layout of the water treatment system is provided in Figure 1 and comprise of:

- 54m^3 primary settlement tank and transfer pump
- Oil water separator/secondary settlement tank and transfer pump
- Sand/carbon vessels in series
- Water discharge meter
- Discharge sampling point on effluent pipe to foul sewer

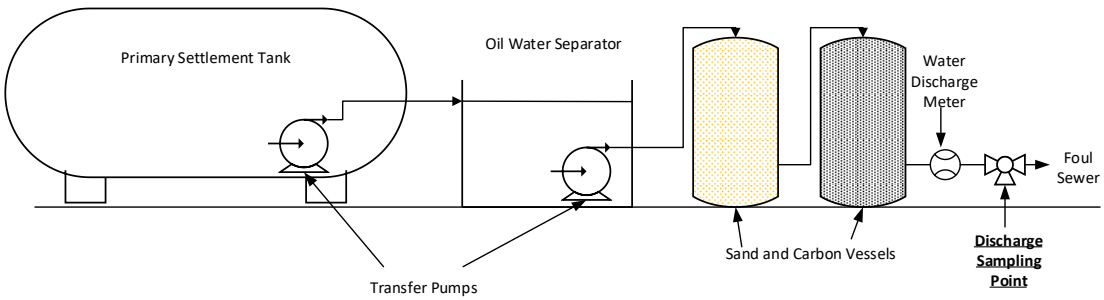


Figure 1. Standard Water Treatment System

Principle of Operation

Air and process water are drawn from the treatment pads, *via* secondary pipes, into a primary pipe. This mixture then enters an air-water separator, where water is separated from the air fraction by gravity. This air fraction is then extracted through a treatment module, and eventually exhausted to the biofilter.

The water is pumped to the primary settlement tank (Figure 1). On the Biotreatment pad and in the asbestos shed (if applicable) there are drainage gullies that intercept water run-off. Water collected in these drainage gullies is pumped directly into the primary settlement tank.

Water in the primary settlement tank is pumped into the oil-water separator/secondary settlement tank and then into the sand/carbon filters. The treated water leaves the carbon vessel and is discharged into foul sewer under consent – this is sometimes via a final holding tank.

Procedure

As part of the quality control system for the STC, Provectus will sample the treated water on a monthly basis to provide analytical results to FCC to pass onto the Environment Agency at the frequency required by the Environmental Permit.

The analysis results are to be compared with the contaminant limits on the discharge consent (Appendix 1) immediately upon receipt by the STC site manager and STC operations manager, with results recorded on the STC server. Any parameters that are found to be close to the discharge consent limits shall result in an action plan being created by Provectus. If any exceedances occur, then the discharge shall be stopped immediately until further investigations/alterations are made to the treatment system as well as additional sampling.

STC – WI 010 – PAD AND EQUIPMENT MAINTENANCE

Author:	Andy Clee – Ops Man	**Approved By:**	Jon Owens – STC Director
Distribution:	Z/QMS/Work Instructions - STC		

Document Changes

Revision No:	Summary of Changes	Date
5	Included settlement tanks in equipment	16.12.2022

Introduction

This procedure relates to the operations required to keep the Soil Treatment Centre (STC) fully functional, including maintaining an efficient and safe method of working. This maintenance comes under the remit of Provectus' quality control system. It is also seen as a desirable health and safety practice, since it incorporates measures which control the possibility of equipment, plant and permanent installations presenting dangers to operatives by entering a state of disrepair and untidiness.

Principle of Operation

The main aim is to ensure that the process performed at the STC is safely operating at a high level of efficiency, including the reduction of potential infringements. It is undertaken to keep the STC in a clean state of appearance, and to provide a safe working environment for all employees and other operatives in the vicinity of, and within the boundaries of, the STC.

Procedure

There is no specific, set procedure that can be listed to cover general maintenance. It comprises of constant visual monitoring of the state of the biopiles, soil treatment pad, equipment and any such areas of operation on the STC. Such things included in this operation are:

- regular monitoring checks and maintenance on equipment (including plant)
- tidy deployment of tools and equipment
- stockpiles of soils, gravels, amendments and materials kept in a safe and organised form
- the on-site office/decon area shall be cleaned as required
- the edges of the biopiles shall be kept clean and tidy
- the kerbs, drains and sumps along the edges of the biopiles and within the treatment area shall be regularly purged of any debris
- use of a road sweeper and water bowser with spray rail as required

The use of earthworks plant shall be used keep the treatment pads and associated areas clean. All of the procedures listed above shall be particularly observed during any operations on the STC, namely soil deliveries and the formation of biopiles, turnovers and soil removal for subsequent disposal.

As part of a good traffic management system, the regular maintenance of signs shall also be undertaken. The levels on the pad shall be visually monitored for differential settlement. Any potholes or deformation of the pad or associated roads will be reported to the STC operations manager and the matter resolved within an appropriate timescale.

Air/Water, Oil/Water, settlement Tanks and Carbon Filter Maintenance

It is important that the air/water separator (AWS), oil/water separator (OWS) and settlement tanks are regularly monitored and maintained with associated sumps cleared of sludge to maintain water treatment to an acceptable level to achieve foul sewer discharge consent.
Sludge removal of the AWS and OWS is to be done on a regular basis (recommended every six months or as required) by an external VAC tanker contractor.

Carbon and sand vessel pressure levels are to be checked weekly replaced/backflushed where possible. Water quality results are also to be used to help indicate when media needs to be changed within the carbon vessels.

The STC site manager is to ensure systems are correctly shut down prior to any maintenance work commencing and they are also responsible for supervision of any maintenance contractors whilst on site. Once complete the STC site manager is to ensure the treatment system is tested and fully operational. All maintenance records are to be recorded on the STC server and/or site files.

STC – WI 011 – PROCESSING OF SOILS WITH VISIBLE ASBESTOS DEBRIS

Author:	Andy Clee – Ops Man	**Approved By:**	Jon Owens – STC Director
Distribution:	Z/QMS/Work Instructions - STC		

Document Changes

Revision No:	Summary of Changes	Date
8	Change of wording	16.12.2022

Definitions and Abbreviations

ACM – Asbestos Containing Materials
NNLW – Notifiable non-licensed works

Introduction

This procedure relates to the measures to be undertaken for the removal of visible ACM fragments from soil received at the STC if permitted to do so. The purpose of the removal of asbestos debris would be to allow further treatment of soils by biotreatment or to stockpile processed soils for disposal in the non-hazardous void or to be reused as part of the landfill restoration scheme.

Principle of Operation

The general principle of the operation is to receive and treat soils at the site with visible asbestos fragments that would be classified as hazardous waste under Environment Agency guidance WM3.

The aim of the processing works would be to remove visible asbestos fragments from the soil to facilitate direct reuse in the adjacent non-hazardous void, to be reused as part of the restoration scheme on the landfill, or for further biotreatment to reduce hydrocarbons to concentrations suitable for reuse as described above.

Pre-acceptance checks and analysis of the received soil and processed soil will ensure that no unsuitable soil is received at the facility either for treatment or reuse in the non-hazardous void or restoration scheme. Strict RPE and air monitoring during the soil processing works will ensure the protection of site workers and surrounding receptors.

The works would be notified to the HSE as notifiable non-licensed works (NNLW) on the basis that ACMs are potentially broken/degraded and require effective management to ensure the protection of workers and surrounding receptors. No licensed works are proposed for treating soils at the site.

Procedure

Analysis for soils impacted with visible asbestos fragments would be reviewed prior to any offer to accept at the appropriately licensed sites. Waste acceptance limits for asbestos fibres in soils would be **0.1%** for serpentine asbestos (chrysotile) and **0.01%** for amphibole asbestos types. Site visits will be undertaken where required and any supplementary analysis undertaken to comply with STC-WI 002 and STC – WI 003 to ensure that soils are suitable for treatment using the available methodology at the site.

Should any non-compliant wastes be encountered, the standard rejection procedure will be implemented. In the event that the works to reject waste would constitute licensed asbestos works in accordance with HSE guidance, the standard notification would be made and works would cease until the non-compliant waste is removed.

Soils would be received at the site and placed in asbestos storage area. Soils will be visually inspected to ensure non-compliant materials (e.g. insulation products) are not present, sampled and covered with a tarpaulin to ensure control of any potential emissions during the reception analysis phase. The reception analysis will be reviewed and only soils that are deemed to have no potential to generate asbestos fibres above the detection limit of 0.1% (chrysotile) and 0.01% (amphibole) will be formally accepted. Soils that have the potential to generate airborne asbestos fibres, i.e. they exceed the asbestos fibre acceptance criteria or contain non-compliant products (e.g lagging, asbestos insulation board etc) will be rejected and removed from site.

Stockpiled soils will be transferred to the asbestos processing area and loaded onto a three way screen with a fines, mid range and oversize separation system. The mid range fraction will be loaded onto the picking station with asbestos operatives removing visible fragments and double bagging prior to storage in a locked skip. The fines and oversize will be visually inspected prior to storage for validation testing. If visually identifiable asbestos is present in the fines or oversize fraction these will be loaded onto the picking station, or spread out on the ground for picking prior to validation testing.

The locked asbestos skip will be removed from site when full and taken to a licensed hazardous landfill for disposal.

All personnel will enter and leave the asbestos area via the designated decontamination facility.

Plant/Equipment to be Used:

- Tarpaulins
- Asbestos air monitoring equipment
- 360 excavator
- Dumper truck
- 3 way screener
- Picking station
- Hopper feeder
- Decontamination Unit
- Pressure washer/misting unit

Plant/Operator Certification Required:

- CPCS/CSCS Cards
- Asbestos Awareness
- CAT B asbestos training (pickers)

Summary of Known or Suspected Hazards (either construction, physical or contamination hazards identified):

- The stored soil from a variety of sources will contain low levels of ACM debris and asbestos fibre concentrations lower than the waste acceptance limits previously described. The potential for airborne asbestos fibres being generated is considered extremely low.
- The potential routes of asbestos exposure are by inhalation of dust.
- Construction hazards (slips, trips and falls on uneven ground, machinery)
- Physical hazards associated with moving equipment & machinery.

General Description of Work

- Soils received will be covered with tarpaulins whilst awaiting reception analysis
- Reception analysis to be reviewed and approved by the Operations Manager prior to any transfer to the asbestos processing area.
- All screening and hand picking works to be undertaken with background air monitoring to confirm if asbestos fibres are being generated
- Enter clean end of decontamination unit and pick up disposable overalls/overshoes (if used) and disposable RPE if used
- Don PPE and where required RPE (as specified) prior to entering designated area of site via dirty exit of decontamination unit
- Excavate and screen stockpiled soils in a controlled manner with handpicking of debris into waste asbestos sack directly where possible. Where required, use the surfactant spray if any asbestiform materials appear dry/friable. Place double bagged ACM debris in the dedicated lockable skip at the end of each work period.
- Wipe all tools, etc. with a dampened cloth.
- Place used damp rags in a waste sack and seal.
- At the edge of the work area, clean the outside of all waste sacks and seal.
- Wipe off boots and face mask (if worn) with a cloth and bucket provided.
- Disposable overalls (turned inside out), gloves and where required, any used disposable respirators in asbestos waste bag. Seal the clear bag.
- Once soils have nil visible asbestos and are chemically approved as suitable for further treatment or reuse, they can be sent to the non-hazardous void or restoration scheme following approval from FCC Compliance.
- Ambient asbestos monitoring in air to be undertaken daily during screening/hand picking works. Works must cease to allow damping down measures to be implemented if fibre concentrations exceed **0.01f/cm3**.

Site Manager to conduct a visual inspection of work areas and transit routes.

Personal Protection

PPE:

- Hi-Visibility vest/jacket (where required)
- Hard Hat
- Protective boots (steel toecap/midsole)
- Disposable overalls: Type 5 (BS EN ISO 13982-1)
- Disposable overshoes (where required)
- Disposable gloves

RPE:

- disposable respirator to standards EN149 (type FFP3) or EN1827 (type
- FMP3);
- half or full mask respirator (to standard EN140) with P3 filter; or semi-disposable respirator (to EN405) with P3 filter. Masks may be positive or negative pressure depending on face fit requirements. Should negative pressure masks be used then a break every hour of continuous use should be undertaken.

Also:

- Surfactant spay (e.g. Idenden Dampstrip Asbestos Penetrant 30-330 or similar)
- First Aid Kit
- Mobile Phone
- Site radio

Emergency Procedures

Personnel injury/overexposure:

Remove to fresh air and provide first aid procedures as required; Contact Emergency services if accident/injuries warrants; Decontaminate personnel if required (remove overalls and PPE, wash hands and forearms).

Fire or Explosion:

Evacuate the work area and summon local Fire Brigade. Do not attempt to fight fire. Remain upwind of smoke in safe area. Follow existing Emergency Site Procedures.

Decontamination Procedure

Personnel: 1) Remove disposable contaminated clothing and discard in the designated waste container.
2) Wash hands/face/forearms prior to leaving decontamination unit.

Site Rules

- **NO SMOKING**, No eating, drinking, or chewing of gum.
- Wear protective equipment specified above.
- Utilise good personal hygiene habits – wash hands and exposed skin with soap and water prior to leaving site.
- Remove and dispose of contaminated clothing as described above before leaving the working area.

The safe working procedures detailed in this method statement must be adhered to.

STC – WI 012 - SOIL REJECTION PROCEDURE

Author:	Andy Clee – Ops Man	**Approved By:**	Jon Owens – STC Director
Distribution:	Z/QMS/Work Instructions - STC		

Document Changes

Revision No:	Summary of Changes	Date
5	Addition of new consignment note requirement	16.12.22

Introduction

This procedure relates to the rejection of non-conforming waste received at the Soil Treatment Centre (STC). It allows rejection of non-conforming waste to ensure no unacceptable materials are accepted which cannot be treated by the STC to a quality suitable for reuse, or which breach the list of permitted wastes as shown in the site's Environmental Permit.

Principle of Operation

The procedure allows for the rejection of non-conforming soils with:

- untreatable and hazardous materials (e.g. tars, clinker etc.) in the contaminated soil
- excessive litter/debris in the contaminated soil
- non-compliance with the previously supplied chemical/physical analysis information (supplied by waste producer)
- the potential for waste to behave as a liquid, have free water/oil in the waste or have too high a moisture content
- unacceptable levels of asbestos

The procedure also outlines the method for reporting the rejection to the site operator (FCC).

Procedure

Visual Inspection: Waste Input

Following the completion of the inspection procedure, described in STC-WI 002, and a decision to reject the waste is made. The following procedure is to be implemented:

- The material is to be reloaded into either the original lorry that delivered the load or a replacement lorry supplied by the waste producer
- The consignment note is completed accordingly with section E clearly stating that the waste has been REJECTED
- The customer is to be told that the material is being rejected by the Sales Manager and the customer is to advise on where the material will then be taken to.
- A new consignment note is to be written, the information authorised by the original producer of the waste but the note itself can be completed and signed in part D by the haulier as per EA guidance notes. https://www.gov.uk/guidance/hazardous-waste-rejected-loads-supplementary-guidance
- The consignment note code for the new ticket is to be a duplicate of the original ticket, with an "R" added into the additional box at the end.
- A rejection form is also completed with a copy given back to the haulier and customer and a copy retained at the STC along with the completed consignment note. This is to be stored on the STC server and/or site files
- FCC Landfill Manager is to be informed of the rejection and given a copy of the rejection form and consignment note. It is then FCC's responsibility to inform the Environment Agency of the rejection

STC – WI 013 - SOIL DISPOSAL PROCEDURE

Author:	Andy Clee – Ops Man	**Approved By:**	Jon Owens – STC Director
Distribution:	Z/QMS/Work Instructions - STC		

Document Changes

Revision No:	Summary of Changes	Date
4	Change of wording	16.12.2022

Introduction

This procedure relates to the disposal of treated soils that are to be backfilled in the FCC engineered void, placed in the non-hazardous stockpiling area or used as restoration soils.

Principle of Operation

The procedure allows for the disposal of treated soils with FCC approval by:

- Validating the soils using STC - WI 006
- Issuing a validation report to FCC
- Obtaining approval from the FCC compliance team
- Setting up disposal with the FCC site manager

Procedure

Validation Reporting and Disposal

The analysis results of the validation testing per batch are to be reviewed by the STC operations manager. Once the analysis indicates suitability for reuse a validation report is to be produced.

The validation report provides the following information to FCC:

- Name of the batch
- Inputs in the batch per DW Number
- Total volume (tonnes) proposed for disposal
- Photograph of soil proposed for disposal
- Soil analysis for the batch including leachability versus the water risk assessment for the site (if applicable)

The report needs to be sent in excel format, with a pdf copy of the soil analysis, to the FCC compliance team.

Once the FCC compliance approval has been received the Provectus site manager will arrange disposal timescales and locations with the FCC site manager.

Once the batch is disposed, the STC operations manager is update the SKYNET system to reflect this and a waste transfer note is to be issued to the FCC manager and weighbridge, so that they can record the soil movements out of the STC and into FCC.

STC – WI– 014 GCL STC PAD MAINTENANCE

Author:	Andy Clee – Ops Man	**Approved By:**	Jon Owens – STC Director
Distribution:	Z/QMS/Work Instructions - STC		

Document Changes

Revision No:	Summary of Changes	Date
2	Title and wording changes to make generic	16.12.2022

Introduction

This procedure relates to the checks and maintenance required to keep the Soil Treatment Centre (STC) treatment pad integrity if it is constructed using a geosynthetic clay liner (GCL). This maintenance comes under the remit of Provectus' quality control system. It is also seen as a desirable environmental, health and safety practice, since it incorporates measures which control the possibility of permanent installations presenting harm to the local environment and to operatives by entering into a state of disrepair and untidiness.

Principle of Operation

The main aim is to ensure that the bioremediation process at the STC is performed on a treatment surface that contains the contaminated soil and prevents the uncontrolled escape of process water into the local environment. If the treatment pad will have been constructed following an approved CQA plan and this work instruction (WI) has been produced to ensure that the pad integrity remains throughout the life of the STC.

Procedure

Figure 1 shows the typical construction layers of a GCL treatment pad at an STC as detailed in the CQA Plan.

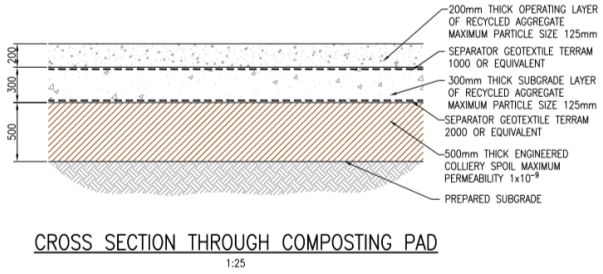


Figure 1

The top surface layer of the treatment pad consists of <125mm recycled aggregate. Weekly visual checks are to be made by the STF operator on areas of the treatment pad that are not covered in material for treatment. This will consist of looking for dips, troughs, tyre ruts or puddles on the pad surface. Formation of these defects are likely to eventually lead to that area of the pad being eroded quicker that other areas of the pad which could lead to the pad becoming permeable in localised areas.

Should a defect be found it is to be inspected closer to ensure that the 2nd layer of the treatment pad, the geotexile terram, is not compromised. If it is not, then a top up layer of <125mm recycled aggregate is to be used to redress the area in order to prevent further erosion. This will be tracked into the treatment pad using a roller or an excavator.

Should the geotextile terram be damaged, then the surface aggregate shall be carefully scraped away to expose all edges of the damaged terram, which can then be patch repaired before replacing the surface aggregate.

All repairs made are to be recorded on the company server and marked on a site map.

Where required, the pad will be inspected (where accessible) by a CQA engineer to make a more thorough test on the integrity and permeability of the underlying formation of the treatment pad. Any areas of concern will be repaired as per the above.

As well as pad surface checks, the perimeter of the treatment pad shall be walked weekly to inspect any peripheral surface water drainage structures.

Confirmation of checks both on the pad and around the perimeter are to be recorded on the weekly check sheet and filed in the site folders and/or the online server.

APPENDIX 2

Materials Safety Data Sheet – Asbestos Surfactant

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name: EVERGARD WETTING AGENT

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.3. Details of the supplier of the safety data sheet

Company name: SMH Products Ltd
SMH House
Maxwell Street
South Shields
Tyne & Wear
NE33 4PU
Tel: 0191 456 6000
Fax: 0191 456 7777
Email: enquiries@smhproducts.com

1.4. Emergency telephone number

Section 2: Hazards identification

2.1. Classification of the substance or mixture

Classification under CLP: Aquatic Chronic 3: H412

Most important adverse effects: Harmful to aquatic life with long lasting effects.

[cont...]

Hazardous ingredients:

STEOL CS-230

EINECS	CAS	PBT / WEL	CLP Classification	Percent
-	-	-	Eye Dam. 1: H318; Skin Irrit. 2: H315; Aquatic Chronic 3: H412	1-10%

PRIMARY ALCOHOL ETHOXYLATE

614-482-0	68439-46-3	-	Eye Dam. 1: H318; Acute Tox. 4: H302	<1%

Section 4: First aid measures

4.1. Description of first aid measures

Skin contact: Wash immediately with plenty of soap and water.

Eye contact: Bathe the eye with running water for 15 minutes.

Ingestion: Wash out mouth with water.

Inhalation: Remove casualty from exposure ensuring one's own safety whilst doing so.

4.2. Most important symptoms and effects, both acute and delayed

Skin contact: There may be mild irritation at the site of contact.

Eye contact: There may be irritation and redness.

Ingestion: There may be irritation of the throat.

Inhalation: No symptoms.

Delayed / immediate effects: Immediate effects can be expected after short-term exposure.

4.3. Indication of any immediate medical attention and special treatment needed

Immediate / special treatment: Not applicable.

Section 5: Fire-fighting measures

5.1. Extinguishing media

Extinguishing media: Suitable extinguishing media for the surrounding fire should be used. Use water spray to cool containers.

5.2. Special hazards arising from the substance or mixture

Exposure hazards: In combustion emits toxic fumes.

5.3. Advice for fire-fighters

Advice for fire-fighters: Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: Refer to section 8 of SDS for personal protection details. Turn leaking containers leak-side up to prevent the escape of liquid. Mark out the contaminated area with signs and prevent access to unauthorised personnel.

 [cont...]

6.2. Environmental precautions

Environmental precautions: Do not discharge into drains or rivers. Contain the spillage using bunding.

6.3. Methods and material for containment and cleaning up

Clean-up procedures: Absorb into dry earth or sand. Transfer to a closable, labelled salvage container for disposal by an appropriate method.

6.4. Reference to other sections

Reference to other sections: Refer to section 8 of SDS.

Section 7: Handling and storage

7.1. Precautions for safe handling

Handling requirements: Avoid direct contact with the substance. Ensure there is sufficient ventilation of the area. Avoid the formation or spread of mists in the air.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store in a cool, well ventilated area. Keep container tightly closed. The floor of the storage room must be impermeable to prevent the escape of liquids.

7.3. Specific end use(s)

Specific end use(s): No data available.

Section 8: Exposure controls/personal protection

8.1. Control parameters

Workplace exposure limits: No data available.

DNEL/PNEC Values

Hazardous ingredients:

STEOL CS-230

Type	Exposure	Value	Population	Effect
DNEL	Dermal	2750	Workers	Systemic
DNEL	Inhalation	175	Workers	Systemic
DNEL	Oral	15	General Population	Systemic
DNEL	Dermal	1650	General Population	Systemic
DNEL	Inhalation	52	General Population	Systemic
PNEC	Fresh water	0.24	-	-
PNEC	Marine water	0.024	-	-
PNEC	Fresh water sediments	0.9168	-	-
PNEC	Marine sediments	0.0917	-	-

PNEC	Soil (agricultural)	0.946	-	-
PNEC	Microorganisms in sewage treatment	10	-	-

8.2. Exposure controls

Engineering measures: The floor of the storage room must be impermeable to prevent the escape of liquids.

Respiratory protection: Respiratory protection not required.

Hand protection: Protective gloves.

Eye protection: Safety glasses.

Skin protection: Protective clothing.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

State: Liquid

Colour: Colourless

Odour: Characteristic odour

Viscosity: Non-viscous

pH: 3.00

9.2. Other information

Other information: No data available.

Section 10: Stability and reactivity

10.1. Reactivity

Reactivity: Stable under recommended transport or storage conditions.

10.2. Chemical stability

Chemical stability: Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions: Hazardous reactions will not occur under normal transport or storage conditions.

Decomposition may occur on exposure to conditions or materials listed below.

10.4. Conditions to avoid

Conditions to avoid: Heat.

10.5. Incompatible materials

Materials to avoid: Strong oxidising agents. Strong acids.

10.6. Hazardous decomposition products

Haz. decomp. products: In combustion emits toxic fumes.

Section 11: Toxicological information

11.1. Information on toxicological effects

Hazardous ingredients:

STEOL CS-230

DERMAL	RAT	LD50	>2000	mg/kg
ORAL	RAT	LD50	>2000	mg/kg

PRIMARY ALCOHOL ETHOXYLATE

ORL	RAT	LD50	>200<2000	mg/kg

Toxicity values: No data available.

Symptoms / routes of exposure

Skin contact: There may be mild irritation at the site of contact.

Eye contact: There may be irritation and redness.

Ingestion: There may be irritation of the throat.

Inhalation: No symptoms.

Delayed / immediate effects: Immediate effects can be expected after short-term exposure.

Section 12: Ecological information

12.1. Toxicity

Hazardous ingredients:

STEOL CS-230

ALGAE	48H EC50	27.7	mg/l
DAPHNIA	48H EC50	7.4	mg/l
FISH	96H LC50	7.1	mg/l

PRIMARY ALCOHOL ETHOXYLATE

FISH	96H LC50	1-10	mg/l

12.2. Persistence and degradability

Persistence and degradability: Not biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential: Bioaccumulation potential.

12.4. Mobility in soil

Mobility: Readily absorbed into soil.

12.5. Results of PBT and vPvB assessment

PBT identification: This product is not identified as a PBT/vPvB substance.

12.6. Other adverse effects

Other adverse effects: Toxic to aquatic organisms. Toxic to soil organisms.

Section 13: Disposal considerations

13.1. Waste treatment methods

Disposal operations: Transfer to a suitable container and arrange for collection by specialised disposal company.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

Section 14: Transport information

Transport class: This product does not require a classification for transport.

Section 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Specific regulations: Not applicable.

15.2. Chemical Safety Assessment

Chemical safety assessment: A chemical safety assessment has not been carried out for the substance or the mixture by the supplier.

Section 16: Other information

Other information

Other information: This safety data sheet is prepared in accordance with Commission Regulation (EU) No 2015/830.

* indicates text in the SDS which has changed since the last revision.

Phrases used in s.2 and s.3: H302: Harmful if swallowed.

H315: Causes skin irritation.

H318: Causes serious eye damage.

H412: Harmful to aquatic life with long lasting effects.

Legal disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.

APPENDIX 3

Maw Green – Asbestos Fibre Airborne Emissions Monitoring Data 2022

working for a healthy and sustainable world

CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
Regent House
Bath Avenue
Wolverhampton
WV1 4EG

CONTRACT NO: S27510

DATE OF ISSUE: 31.08.22

DATE ANALYSIS REQUESTED: 24.08.22

DATE ANALYSIS COMPLETED: 30.08.22

SAMPLES: Five airborne dust samples each supplied as two half gridded MCE membrane filters.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each pair of half membrane filters is ashed in a low temperature plasma asher. The combined residue from each pair is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

www.iom-world.org

Registered Address: Research Avenue North, Riccarton, Edinburgh, EH14 4AP, United Kingdom
Tel: 0131 449 8000 Fax: 0131 449 8084 Email: iom@iom-world.org

UKAS TESTING

RESULTS:

Client Ref: PO – MG184

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp Fibres/ Fibre Conc (fml^{-1})*
ASB MG (15/08/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005
ASB MG (16/08/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005
ASB MG (17/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
ASB MG (18/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
ASB MG (19/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005

AMX-Amphibole Asbestos **CMX**-Chrysotile Asbestos **MMMF-M**achine Made Mineral Fibres **NAM-N**on Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to thr
confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre con
confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005

CONTRACT NO: S27510
DATE OF ISSUE: 31.08.22

COMMENTS:

No asbestos fibres were detected during the analysis of any of these samples.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

Each sample supplied for analysis comprised two half membrane filters. These were combined during plasma ashing to form single samples with combined sample volumes of 1440 litres.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

AUTHORISED BY:

S Clark
Head of Mineralogy

working for a healthy and sustainable world

CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
Regent House
Bath Avenue
Wolverhampton
WV1 4EG

CONTRACT NO: S27631

DATE OF ISSUE: 05.09.22

DATE ANALYSIS REQUESTED: 01.09.22

DATE ANALYSIS COMPLETED: 05.09.22

SAMPLES: Five airborne dust samples each supplied as two half gridded MCE membrane filters.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each pair of half membrane filters is ashed in a low temperature plasma asher. The combined residue from each pair is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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Registered Address: Research Avenue North, Riccarton, Edinburgh, EH14 4AP, United Kingdom
Tel: 0131 449 8000 Fax: 0131 449 8084 Email: iom@iom-world.org

RESULTS:

Client Ref: PO – MG184

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp Fibres/ Fibre Conc (fml^{-1})*
ASB MG (22/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
ASB MG (23/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
ASB MG (24/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
ASB MG (25/08/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005
ASB MG (26/08/22)	1440	2.5	150	<0.0005*	0 / <0.0005*	0 / <0.0005

AMX-Amphibole Asbestos **CMX**-Chrysotile Asbestos **MMMF-M**achine Made Mineral Fibres **NAM**-Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to thr
confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre con
confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005

CONTRACT NO: S27631
DATE OF ISSUE: 05.09.22

COMMENTS:

No asbestos fibres were detected during the analysis of any of these samples.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

Each sample supplied for analysis comprised two half membrane filters. These were combined during plasma ashing to form single samples with combined sample volumes of 1440 litres.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

AUTHORISED BY:

S Clark
Head of Mineralogy

working for a healthy and sustainable world

CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
Regent House
Bath Avenue
Wolverhampton
WV1 4EG

CONTRACT NO: S27729

DATE OF ISSUE: 13.09.22

DATE ANALYSIS REQUESTED: 07.09.22

DATE ANALYSIS COMPLETED: 13.09.22

SAMPLES: Four airborne dust samples each supplied as two half gridded MCE membrane filters.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each pair of half membrane filters is ashed in a low temperature plasma asher. The residue is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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Tel: 0131 449 8000 Fax: 0131 449 8084 Email: iom@iom-world.org

IOM CONSULTING LIMITED, registered in Scotland No. SC205670

UKAS TESTING

RESULTS:

Client Ref: PO – MG184

Sample No.	Volume (l)	[1] No. of Resp. Fibres Found	[1] No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp Fibres/ Fibre Conc (fml^{-1})*
ASB MG (30/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
ASB MG (31/08/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005
ASB MG (01/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005
ASB MG (02/09/22)	1440	2	150	<0.0005*	0 / <0.0005*	0 / <0.0005

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-N**on Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to thr
confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre con
confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005

CONTRACT NO: S27729
DATE OF ISSUE: 13.09.22

COMMENTS:

No asbestos fibres were detected during the analysis of any of these samples.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

Each sample supplied for analysis comprised two half membrane filters. These were combined during plasma ashing to form single samples with combined sample volumes of 1440 litres.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

AUTHORISED BY:

S Clark
Head of Mineralogy

working for a healthy and sustainable world

CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
Regent House
Bath Avenue
Wolverhampton
WV1 4EG

CONTRACT NO: S27808

DATE OF ISSUE: 19.09.22

DATE ANALYSIS REQUESTED: 12.09.22

DATE ANALYSIS COMPLETED: 16.09.22

SAMPLES: Eleven airborne dust samples each supplied on whole gridded or as two half gridded MCE membrane filters.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each membrane filter is ashed in a low temperature plasma asher. The residue is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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Registered Address: Research Avenue North, Riccarton, Edinburgh, EH14 4AP, United Kingdom
Tel: 0131 449 8000 Fax: 0131 449 8084 Email: iom@iom-world.org

RESULTS:

Client Ref: PO – MG184

Sample No.	Volume (l)	[1] No. of Resp. Fibres Found	[1] No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp Fibres/ Fibre Conc (fml^{-1})*
ASB MG (05/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005
ASB MG (06/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005
[1]MG SCR-01 (07/09/22)	1440	1	300	<0.0005*	1 / <0.0005*	0 / <0.0005
MG SCR-02 (07/09/22)	1440	1	150	<0.0005*	1 / <0.0005*	0 / <0.0005
[1]MG SCR-03 (07/09/22)	1440	1	300	<0.0005*	0 / <0.0005*	0 / <0.0005
[1]MG SCR-01 (08/09/22)	1440	6.5	300	0.0011	3.5 / 0.0006	0 / <0.0005
MG SCR-02 (08/09/22)	1440	3	150	0.0005	2 / <0.0005*	0 / <0.0005
[1]MG SCR-03 (08/09/22)	1440	2	150	<0.0005*	1 / <0.0005*	0 / <0.0005
MG SCR-01 (09/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-02 (09/09/22)	1440	2	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-03 (09/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005

AMX-Amphibole Asbestos **CMX-C**hrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-N**on Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to thr
confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre con
confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005

CONTRACT NO: S27808
DATE OF ISSUE: 19.09.22

COMMENTS:

Small numbers of asbestos fibres were detected during the analysis of five of the eleven samples supplied for this analysis.

[1]These samples were too dusty to be analysed as received. Following plasma ashing, the residue from each sample was made up in solution using a measured amount of filtered distilled water and an aliquot of the resultant suspension was used to prepare a filter suitable for analysis. This dilution factor was taken into account when calculating the results therefore the fibre concentrations reported above reflect the level of fibres on each entire original sample. This aspect of the work was outside the scope of our UKAS accreditation.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

At the client's request, a greater number of screen areas than that used for our standard analysis were analysed in order to achieve a lower limit of detection for any samples that required dilution.

Sample numbers ASB MG 05&06/09/22 supplied for analysis comprised two half membrane filters. These were combined during plasma ashing to form single samples with combined sample volumes of 1440 litres.

[1] UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

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CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
Regent House
Bath Avenue
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WV1 4EG

CONTRACT NO: S27958

DATE OF ISSUE: 27.09.22

DATE ANALYSIS REQUESTED: 20.09.22

DATE ANALYSIS COMPLETED: 26.09.22

SAMPLES: Sixteen airborne dust samples each supplied on a gridded MCE membrane filter.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each membrane filter is ashed in a low temperature plasma asher. The residue is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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RESULTS:

Client Ref: PO – MG184

Sample No.	Volume (l)	[1] No. of Resp. Fibres Found	[1] No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp Fibres/ Fibre Conc (fml^{-1})*
MG SCR-01(12/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-02(12/09/22)	1440	1	150	<0.0005*	1 / <0.0005*	0 / <0.0005
MG SCR-03(12/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-01(13/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-02(13/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-03(13/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG PS-01(13/09/22)	1440	3	150	0.0005	0 / <0.0005*	1 / <0.0005
MG SCR-01(14/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-02(14/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-03(14/09/22)	1440	1	150	<0.0005*	1 / <0.0005*	0 / <0.0005
MG SCR-01(15/09/22)	1440	1	150	<0.0005*	1 / <0.0005*	0 / <0.0005
MG SCR-02(15/09/22)	1440	2	150	<0.0005*	1 / <0.0005*	0 / <0.0005
MG SCR-03(15/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-01(16/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-02(16/09/22)	1440	3	150	0.0005	1 / <0.0005*	0 / <0.0005
MG SCR-03(16/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to thr
confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre con
confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005

CONTRACT NO: S27958
DATE OF ISSUE: 27.09.22

COMMENTS:

Single asbestos fibres were detected during the analysis of six of the sixteen samples supplied for this analysis.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

AUTHORISED BY:

S Clark
Head of Mineralogy

working for a healthy and sustainable world

CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
Regent House
Bath Avenue
Wolverhampton
WV1 4EG

CONTRACT NO: S28093

DATE OF ISSUE: 28.09.22

DATE ANALYSIS REQUESTED: 26.09.22

DATE ANALYSIS COMPLETED: 28.09.22

SAMPLES: Twelve airborne dust samples each supplied on a gridded MCE membrane filter.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each membrane filter is ashed in a low temperature plasma asher. The residue is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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IOM CONSULTING LIMITED, registered in Scotland No. SC205670

UKAS TESTING

RESULTS:

Client Ref: PO – MG184

Sample No.	Volume (l)	[1] No. of Resp. Fibres Found	[1] No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp Fibres/ Fibre Conc (fml^{-1})*
MG SCR-01(20/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-02(20/09/22)	1440	2	150	<0.0005*	1 / <0.0005*	0 / <0.0005
MG SCR-03(20/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-01(21/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-02(21/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-03(21/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-01(22/09/22)	1440	1	150	<0.0005*	1 / <0.0005*	0 / <0.0005
MG SCR-02(22/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-03(22/09/22)	1440	2	150	<0.0005*	1 / <0.0005*	0 / <0.0005
MG SCR-01(23/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-02(23/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-03(23/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005

AMX-Amphibole Asbestos **CMX**-Chrysotile Asbestos **MMMF**-Machine Made Mineral Fibres **NAM**-Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to thr
confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre con
confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005

CONTRACT NO: S28093
DATE OF ISSUE: 28.09.22

COMMENTS:

Single asbestos fibres were detected during the analysis of three of the twelve samples supplied for this analysis.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

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CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
Regent House
Bath Avenue
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WV1 4EG

CONTRACT NO: S28297

DATE OF ISSUE: 11.10.22

DATE ANALYSIS REQUESTED: 05.10.22

DATE ANALYSIS COMPLETED: 10.10.22

SAMPLES: Fifteen airborne dust samples each supplied on a gridded MCE membrane filter.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each membrane filter is ashed in a low temperature plasma asher. The residue is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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IOM CONSULTING LIMITED, registered in Scotland No. SC205670

UKAS TESTING

RESULTS:

Client Ref: PO – MG184

Sample No.	Volume (l)	[1] No. of Resp. Fibres Found	[1] No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp Fibres/ Fibre Conc (fml^{-1})*
MG SCR-01(26/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-02(26/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-03(26/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-01(27/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-02(27/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-03(27/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-01(28/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-02(28/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-03(28/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-01(29/09/22)	1440	2	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-02(29/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-03(29/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-01(30/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-02(30/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-03(30/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005

AMX-Amphibole Asbestos **CMX**-Chrysotile Asbestos **MMMF**-Machine Made Mineral Fibres **NAM**-Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to thr
confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre con
confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005

CONTRACT NO: S28297
DATE OF ISSUE: 11.10.22

COMMENTS:

No asbestos fibres were detected during the analysis of any of the samples supplied for this analysis.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

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IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

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CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
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Bath Avenue
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CONTRACT NO: S28333

DATE OF ISSUE: 18.10.22

DATE ANALYSIS REQUESTED: 10.10.22

DATE ANALYSIS COMPLETED: 17.10.22

SAMPLES: Thirteen airborne dust samples each supplied on a gridded MCE membrane filter.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each membrane filter is ashed in a low temperature plasma asher. The residue is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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UKAS TESTING
0374

RESULTS:

Client Ref: PO – MG184

Sample No.	Volume (l)	[1] No. of Resp. Fibres Found	[1] No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp Fibres/ Fibre Conc (fml^{-1})*
MG SCR-01(03/10/22)	1440	2	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-02(03/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-03(03/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-01(04/10/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-02(04/10/22)	1440	2	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-03(04/10/22)	1440	3	150	0.0005	3 / 0.0005	0 / <0.0005
MG SCR-01(06/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-02(06/10/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG SCR-03(06/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005
MG PS-01(06/10/22)	1440	2	150	<0.0005*	2 / <0.0005*	0 / <0.0005
^MG SCR-01(07/10/22)	1440	0	300	<0.0005*	0 / <0.0005*	0 / <0.0005
^MG SCR-02(07/10/22)	1440	3	300	0.0005	2 / <0.0005*	0 / <0.0005
MG SCR-03(07/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005

AMX-Amphibole Asbestos **CMX**-Chrysotile Asbestos **MMMF**-Machine Made Mineral Fibres **NAM**-Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to thr
confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre con
confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005

CONTRACT NO: S28333
DATE OF ISSUE: 18.10.22

COMMENTS:

Small numbers of amphibole asbestos fibres were detected during the analysis of three of the thirteen samples supplied for this analysis.

^ These samples were too dusty to be analysed as received. Following plasma ashing, the residue from each sample is made up in solution using a measured amount of filtered distilled water and an aliquot of the resultant suspension used to prepare a filter suitable for analysis. This dilution factor is taken into account when calculating the results therefore the fibre concentrations reported above reflect the level of fibres on each entire original sample. This aspect of the work is outside the scope of our UKAS accreditation. Any organic fibres present on the original samples would be destroyed during plasma ashing.

At the client's request, a greater number of screen areas than that used for our standard analysis were analysed in order to achieve a lower limit of detection for any samples that required dilution.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

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AUTHORISED BY:

S Clark
Head of Mineralogy

APPENDIX 4

Edwin Richards & Maw Green - Asbestos Emissions Report 2022

Asbestos Emissions Report

RRMG/AER/001

FCC Environment Ltd

Asbestos Emissions Report
Soil Treatment Facilities at Maw Green and Rowley Regis

14 December 2022

PROVECTUS

www.provectusgroup.com

Project Quality Assurance
Information Sheet

Report Type	:	Asbestos Emissions Report
Site Location	:	Soil Treatment Facilities at Maw Green and Rowley Regis
Report Number	:	RRMG/AER/001
Report Status	:	Issue 1
Report Date	:	14 December 2022
Prepared for	:	FCC Environment Ltd
Prepared by	:	Provectus Soils Management Limited Regent House Bath Avenue Wolverhampton West Midlands WV1 4EG

Compiled by	:	Jonathan Owens Operations Director

Authorised by	:	Steve Langford Managing Director

TABLE OF CONTENTS

APPENDICES

1 INTRODUCTION

1.1 Background

This report provides details of the emissions from the use of a soil screener to pre-treat soils containing bound asbestos debris at two separate soil treatment facilities located at Rowley Regis in the West Midlands and Maw Green, near Crewe in Cheshire.

The aim of the report was to demonstrate the air quality during the screening of soils and subsequent hand picking. This monitoring data also validates the effectiveness of the pre-acceptance criteria for asbestos content which are designed to prevent elevated airborne asbestos emissions.

To allow the screening of soils with asbestos debris, a mobile treatment license was deployed by Provectus for a 12 month period on both sites (Appendix A). The aim of the MTL deployment was to monitor emissions and provide a dataset for review by the Environment Agency who have previously been unable to assess the actual emissions from the process. This is due to the relatively recent introduction of this approach onto long term installations which has been undertaken for many years with Environment Agency approval under a mobile treatment license.

The data set will validate the initial emissions from the soil screening and establish if the screening process increases concentrations of airborne asbestos and the effectiveness of any abatement measures on emissions.

There is a need in the construction industry for a compliant and cost effective treatment and disposal option for soils with visible asbestos. There is no cost effective or robust treatment recovery option for asbestos and therefore once removed from soil it requires ultimate disposal in hazardous landfill.

This report uses methods that are implemented as standard in the land remediation industry to facilitate the minimisation of the amount of asbestos impacted waste that requires hazardous landfill disposal. This aim is aligned with the requirements of the waste hierarchy and landfill directive to reduce minimise waste/reduce waste volumes, reduce its hazardous nature, facilitate its handling, and enhance its recovery.

1.2 Information Sources

The following data sources were used in the preparation of this report:

- CL: AIRE, 2016. Control of Asbestos Regulations 2012 - Interpretation for Managing and Working with Asbestos in Soil and Construction and Demolition Materials: Industry guidance. CL: AIRE, London August 2016.
- Managing and working with asbestos. Control of Asbestos Regulations 2012. Approved Code of Practice and Guidance (L143). HSE 2013
- A Tiered Approach for the Assessment of the Human Health Risks of Asbestos in Soils. Frank A. Swartjes and Peter C. Tromp. *Soil & Sediment Contamination*, 17:137–149, 2008
- Guidance on the classification and assessment of waste. Technical Guidance WM3 (v1.2.GB). Environment Agency October 2021.
- Chemical Waste: Appropriate Measures for Permitted Facilities. Environment Agency, 18 November 2020.
- Asbestos in soil: A pan European Perspective. NICOLE 2021 (Appendix B)
- Asbestos Monitoring Data (Appendix C to E)
- World Health Organization. Regional Office for Europe. (2000). Air quality guidelines for Europe, 2nd ed. World Health Organization

2 ASBESTOS IN SOIL TREATMENT APPROACH

2.1 Background

The overall aim for the physico-chemical treatment method proposed is to receive hazardous asbestos impacted soils that can be treated effectively to ultimately recover soil with a non-hazardous classification; this would then result in the disposal of a minimised volume of asbestos to an off-site hazardous waste landfill.

The treatable waste streams would be limited to soils that are hazardous due to the presence of bound asbestos fragments but do not contain either hazardous concentrations of asbestos fibres, or fibre concentrations that could generate airborne fibres at concentrations above the permit threshold limit of 0.01f/ml.

The overall approach has the aim to allow the soil screening and subsequent treatment to be undertaken whilst achieving the World Health Organisation air quality target for asbestos of <0.0005f/ml.

2.2 Waste Acceptance Criteria

2.2.1 Establishing Asbestos Concentration Criteria for Soil

Our previous experience on other land remediation projects involving asbestos in soil has shown that the airborne emissions are always below the detection limit of 0.01f/ml. However, the data set that this experience covers is insufficient to demonstrate any correlation between asbestos type, concentration in soil and expected emissions to air of asbestos fibres.

For summarising the anticipated emissions and developing our methods of work over many years we regularly review peer reviewed studies of large data sets. To present this relationship we have included a graph from a published article[1] which summarised over 1,000 separate data sets that measured the concentration of asbestos in soils and the corresponding measured concentrations of asbestos in air. This was taken from the journal article published by Swartjes and Trompe as referenced in Section 1.2.

The data presented is from worst case scenarios of using a blower to dry soil with known concentrations of different types of asbestos: serpentine (chrysotile) or amphibole. The air was sampled to assess the concentration of airborne asbestos fibres.

- [1] A Tiered Approach for the Assessment of the Human Health Risks of Asbestos in Soils. Frank A. Swartjes and Peter C. Tromp. *Soil & Sediment Contamination*, 17:137–149, 2008

The Dutch study used fibre equivalents rather than fibre count as they weighted the fibres based upon the expected risk to human health as follows:

- 1 chrysotile fibre, length >5 μm: equivalence factor 1;
- 1 chrysotile fibre, length <5 μm: equivalence factor 0.1;
- 1 amphibole fibre, length >5 μm: equivalence factor 10;
- 1 amphibole fibre, length <5 μm: equivalence factor 1.

The study compared the results to the Dutch the following human health quality criteria in air; these were defined as yearly average values:

- Negligible Risk level: 1,000 fibre equivalents/m^3air;
- Maximum Permissible Risk level: 100,000 fibre equivalents/m^3air.

The study resulted in the data plotted in the graph below.

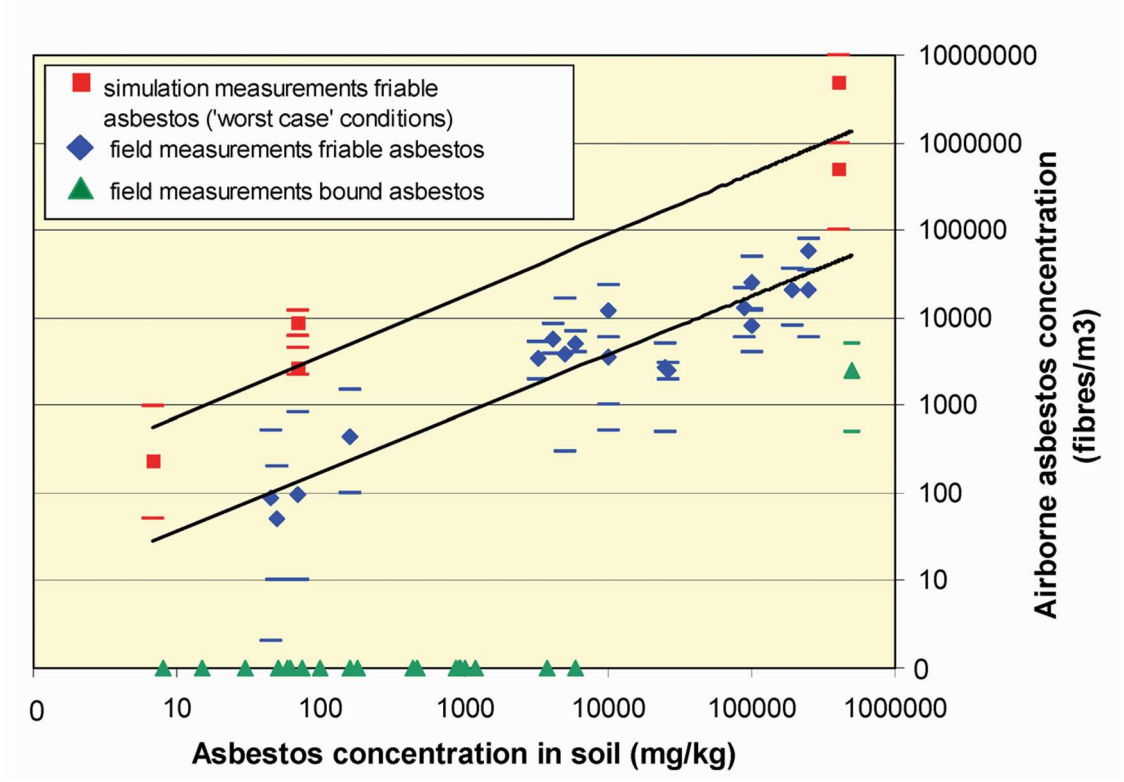


Figure 1. Relationship of Airborne Asbestos Concentration and Soil Concentrations (source: Frank A. Swartjes and Peter C. Tromp, 2008).

The interpretation of the data concluded that for less contaminated soils with bound asbestos (less than 10,000 mg/kg soil (1%)) no airborne asbestos fibres were found. For less contaminated soils with friable asbestos materials (less than 100 mg/kg soil (0.01%)) the Maximal Permissible Risk (MPR) risk level in the air is never exceeded and the

Negligible Risk (NR) level in the air is hardly exceeded. The same conclusion holds in case of activities such as digging, dumping, and sifting.

The report then presents data to confirm the: reduction in asbestos fibre concentrations at the receptor with increased distance from the source; and decreased fibre release with increased soil humidity. The report concludes with describing different tiers of assessment and modelling of human health risks from asbestos in soil.

In the Dutch context the tier one intervention value for asbestos regardless of type is stated as 100mg/kg (**0.01%**). This is unless it is proven that the asbestos is bound and then the criteria stated is 1,000mg/kg (**0.1%**) and if this criteria is met then exposure to asbestos is deemed impossible or unlikely and human health risks can be excluded. There are a number of other criteria relating to the depth of asbestos in soils, vegetation cover, moisture content (sediments) etc but for the purpose of this document we have based this proposal on the basis that no mitigation of emissions will need to be undertaken.

2.2.2 Agreed Asbestos Acceptance Criteria

In order to determine if soils are suitable for treatment, they need to meet a number of pre-acceptance conditions. This ensures that untreatable soils or soils which would result in unacceptable emissions are not accepted. The criteria used is the levels described in Section 2.2.2.

The asbestos criteria in the FCC EPR for the Edwin Richards Quarry site (ref: EPR/HP3632RP) are included in Table S2.4 Permitted waste types and quantities for handpicking of asbestos waste and are as follows:

- Soil and stones containing hazardous substances (CONTAINS IDENTIFIABLE PIECES OF BONDED ASBESTOS (any particle of a size that can be identified as potentially being asbestos by a competent person if examined by the naked eye))
- Asbestos in unbound fibrous form (FREE CHRYSOTILE FIBROUS ASBESTOS IN THE SOIL MUST BE **<0.1%** w/w. OTHER FORMS OR MIXED FORMS OF FIBROUS ASBESTOS IN THE SOIL MUST BE **<0.01%** w/w)

2.2.3 Formal Acceptance or Rejection of Soils

If a visual inspection of the soil confirms that there are no apparent reasons for immediate rejection, then soils will be stockpiled in a quarantine area and subject to formal soil sampling and analysis at a MCERTs accredited laboratory.

As soon as reception testing has been completed the soils will either be formally accepted or rejected subject to the acceptance criteria described later in this document.

2.3 Overview of Soil Treatment Approach involving Screening

An overview of the approach for managing soils with visible asbestos is provided in Figure 2. The overall approach aims to recover soils for subsequent disposal as non-hazardous waste and dispose of a small amount of asbestos as hazardous waste.

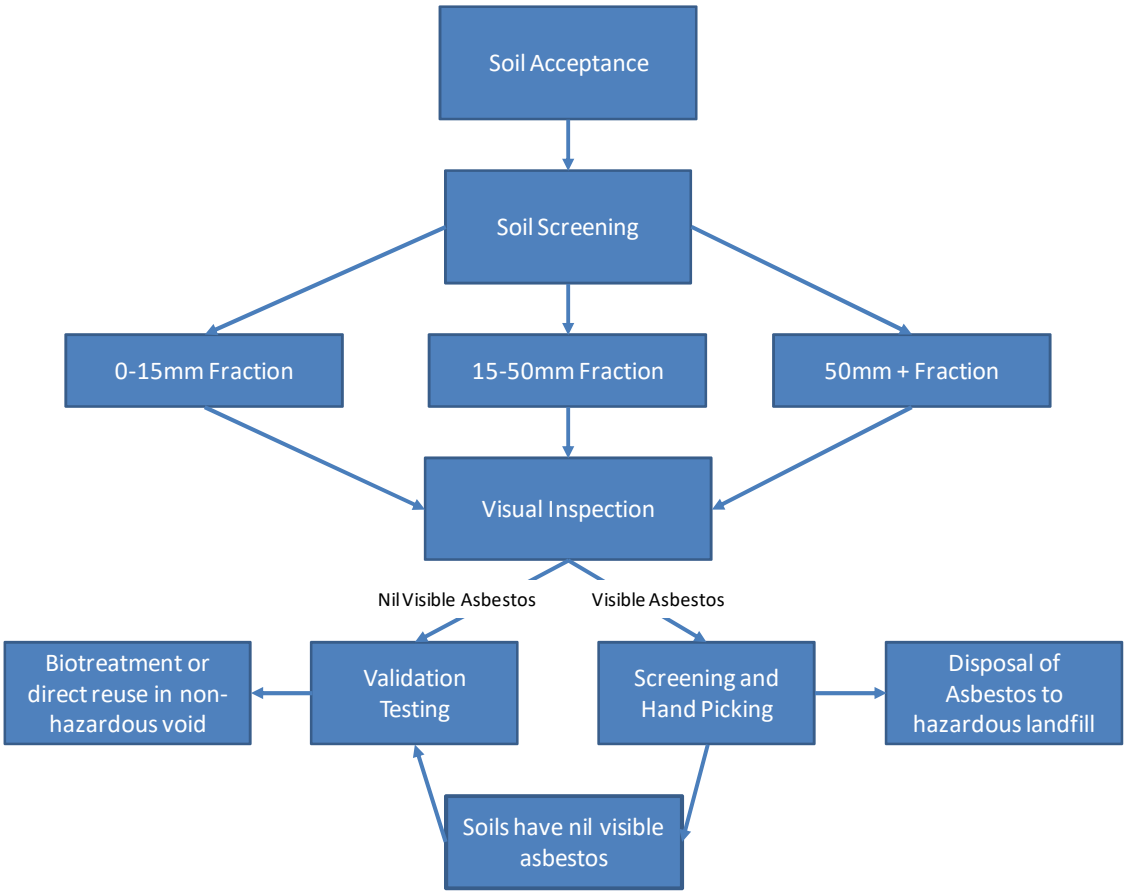


Figure 2. Soil Treatment Overview

3 ASBESTOS EMISSIONS FROM CONTAMINATED SOIL

3.1 Introduction

The main area of concern we would anticipate from any external regulator is the potential for emissions of asbestos fibres as a result of the acceptance and processing of contaminated soil at the treatment site.

3.1.1 Licensing of Soil Screening

Provectus hold a Mobile Treatment License ref: EA/EPR/EB3636AK/A001 (EAWML 105284). This environmental permit is deployed on a site by site basis where soil and groundwater treatment is undertaken on a client's development site.

3.2 Airborne Asbestos Monitoring Data from Storage of Soils and Hand Picking

As a minimum the monitoring of asbestos in air at the site requires the use of methods described in HSG248[2] and Technical Guidance Document M17[3]. From July 2021, a modified version of the method to reduce the reported detection limit from <0.01f/ml as stated in the installation permit held by FCC to <0.0005f/ml which is the WHO air quality guidance for Europe that is deemed to be a threshold at which no excess carcinogenic risk is present. This requires the volume of air that is filtered in the sample to increase from 480l to 1440l, a threefold increase.

3.3 Soil Screening Approach

The soil screener commenced operation on the 27 June 2022 under the MTL deployment at Rowley Regis and 15 August 2022 at Maw Green (Appendix A).

The soil screener has been run using three different configurations. The first one described in Section 3.3.1. The two different configurations at Rowley Regis inside the building were to establish the emissions from using covers on an enclosed screener and under negative pressure from a ducted HEPA filter.

The second configuration was to screen soils using an uncovered screener inside the building as this was the approach that was approved by the Environment Agency for the mobile treatment license deployment.

The third configuration at the Maw Green site was to undertake the uncovered screening externally and monitor the asbestos fibre concentrations in air in accordance with the mobile treatment license deployment.

[2] Asbestos: The Analysts Guide, HSG248 (2nd Edition) May 2021

[3] TGN M17. Monitoring Particulate Matter in Ambient Air around Waste Facilities. Environment Agency Ver 2 July 2013.

3.3.1 Use of Covered Screener with HEPA Filter

The screener deck and arms of the screener were enclosed to prevent dust emissions during the screening of soil. These covered areas were linked with a piping system to a HEPA filter (Aerial AMH 100 Industrial HEPA Air Scrubber). The HEPA filter has a capacity of 1,600m3/hr to ensure that the internal area of the hopper and screening decks were fully contained as well as ensuring the air flow from around the screener is directed through the HEPA filter. A schematic drawing of the screener with covers is shown in Figure 3.

Figure 3. Areas of Covering on Soil Screener

Figure 4. Covers on screener, note the asbestos monitoring pump located under the sheet on the screener deck

3.3.2 Use of uncovered soil screener with continuous dust suppression

During the w/c 22 August the covers on the soil screener and HEPA filter were removed (Figure 5). The uncovered screener deck was monitored directly from 22 August to 25 August 2022. Screening from the additional points inside the building continued from 22 August 2022 onwards whilst the screening and hand picking of soils was undertaken (Figure 6).

3.3.3 Use of uncovered soil screener with continuous dust suppression

During the w/c 22 August the covers on the soil screener and HEPA filter were removed (Figure 5). The uncovered screener deck was monitored directly from 22 August to 25 August 2022. Screening from the additional points inside the building continued from 22 August 2022 onwards whilst the screening and hand picking of soils was undertaken (Figure 6).

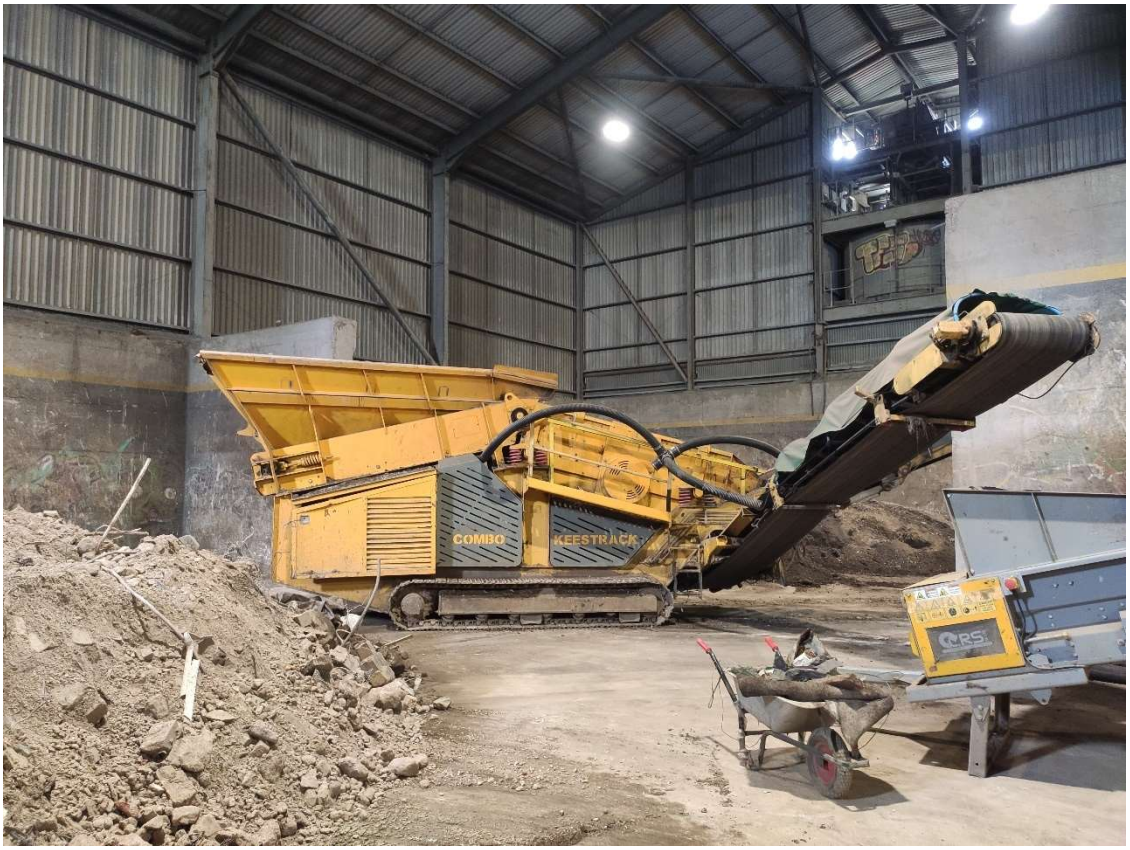


Figure 5. Uncovered soil screener inside asbestos building (Rowley Regis)

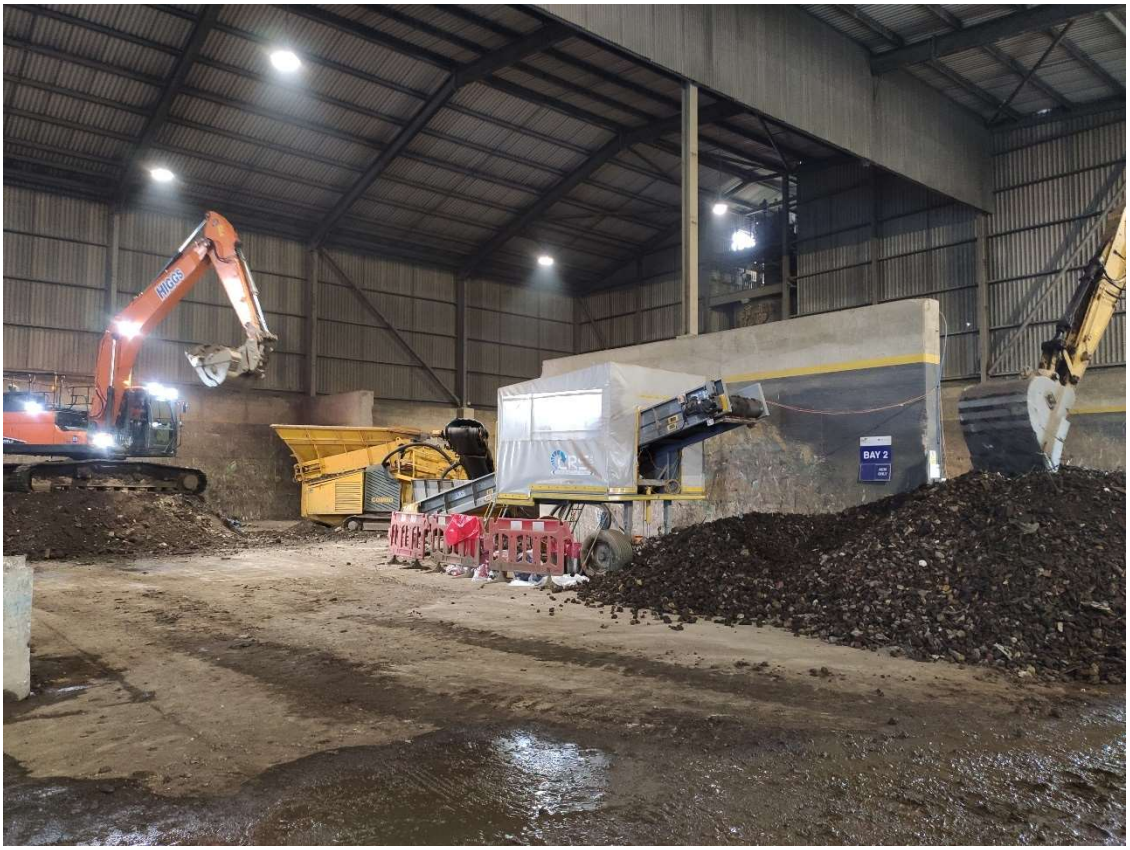


Figure 6. Soil screening and hand picking of soil (Rowley Regis)

Figure 7. Soil Screening and hand picking of soil (Maw Green)

3.4 Monitoring Locations (Rowley Regis)

To review the effectiveness of the screener covers and HEPA filter, air samples were obtained over between 27 June 2022 to 6 July 2022 from below the screener cover whilst soils were being screened.

Monitoring undertaken until 7 July 2022 was undertaken with one sample inside the building and 3 locations externally when soils were placed on the soil storage pad. The external soils were uncovered from 7 July to 22 July.

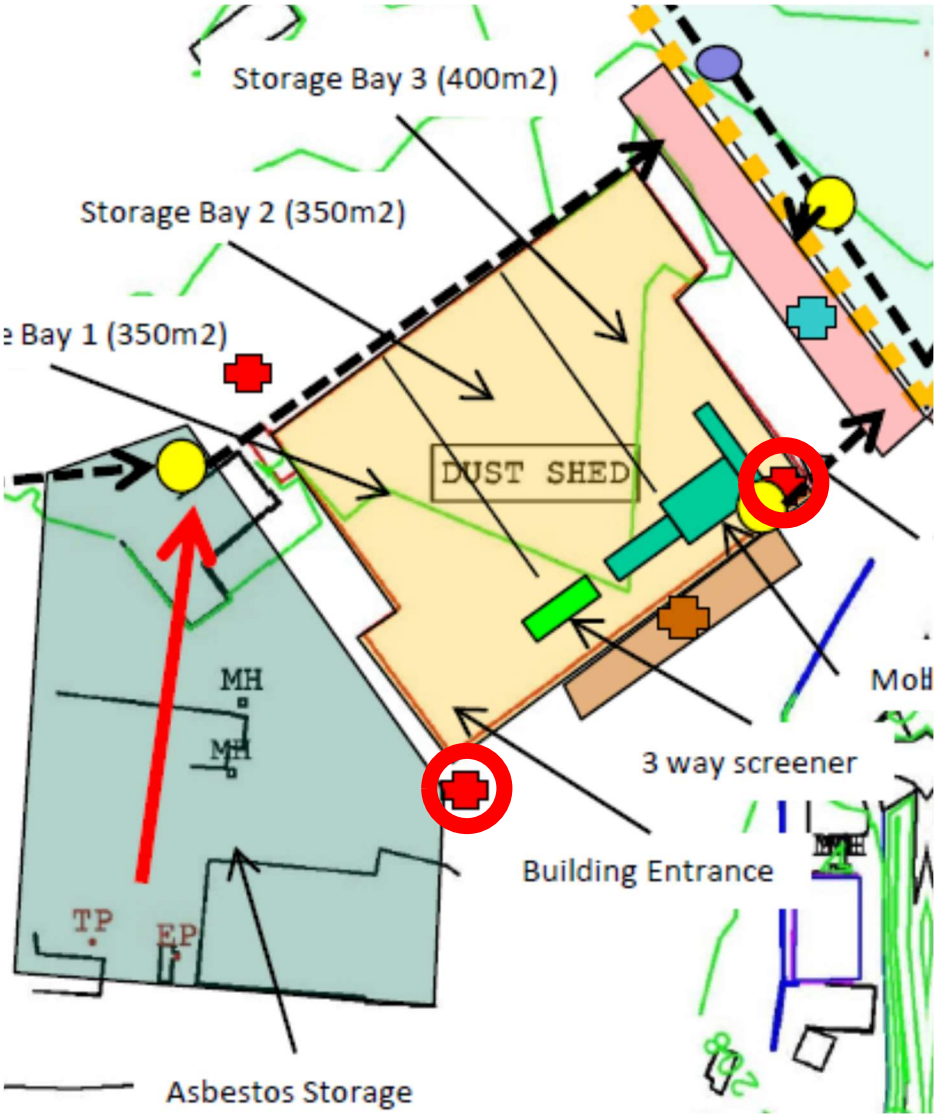


Figure 8. Initial Sampling Locations (circled in red)

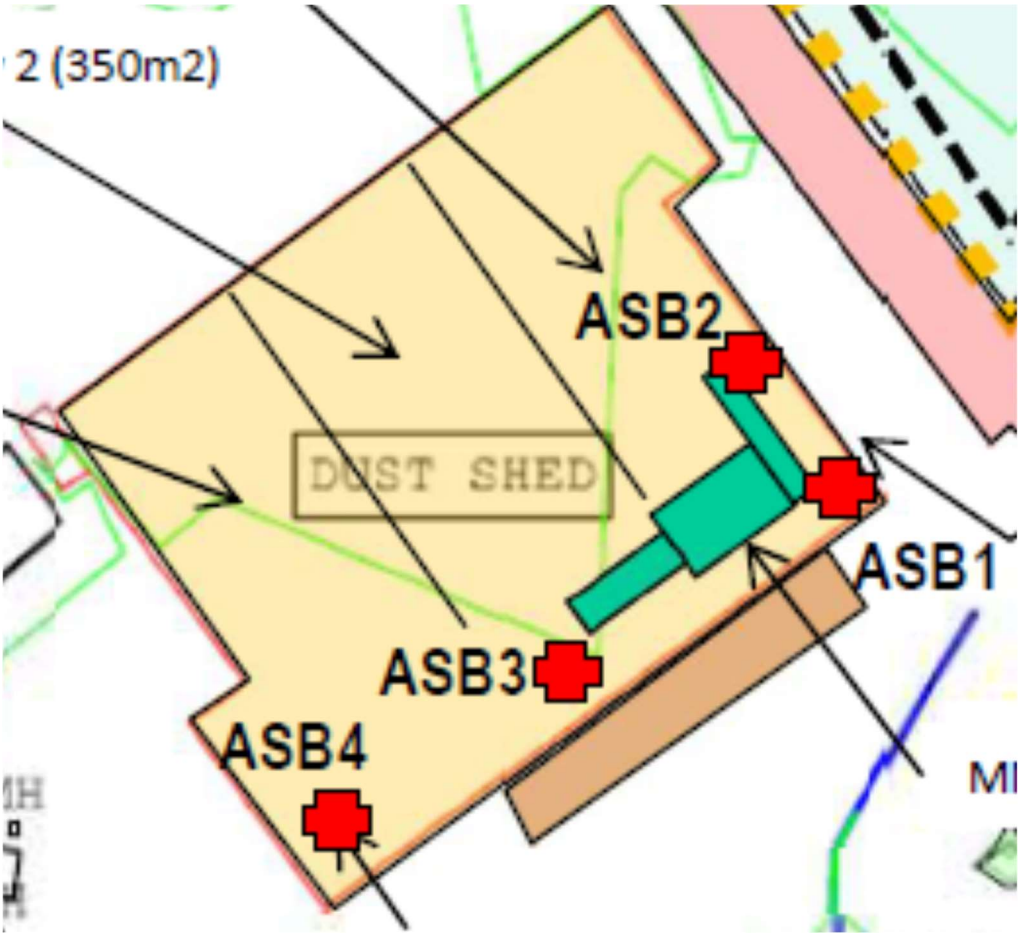


Figure 9. Internal Monitoring Locations 1-4 Sampling Locations (in red)

3.5 Monitoring Locations (Maw Green)

To review the emissions from the soil screener and picking stations, air samples were obtained from 15 August to review the effect of screening soil and compare these results with the pre-operational screening results. The monitoring locations are taken from the mobile treatment deployment application.

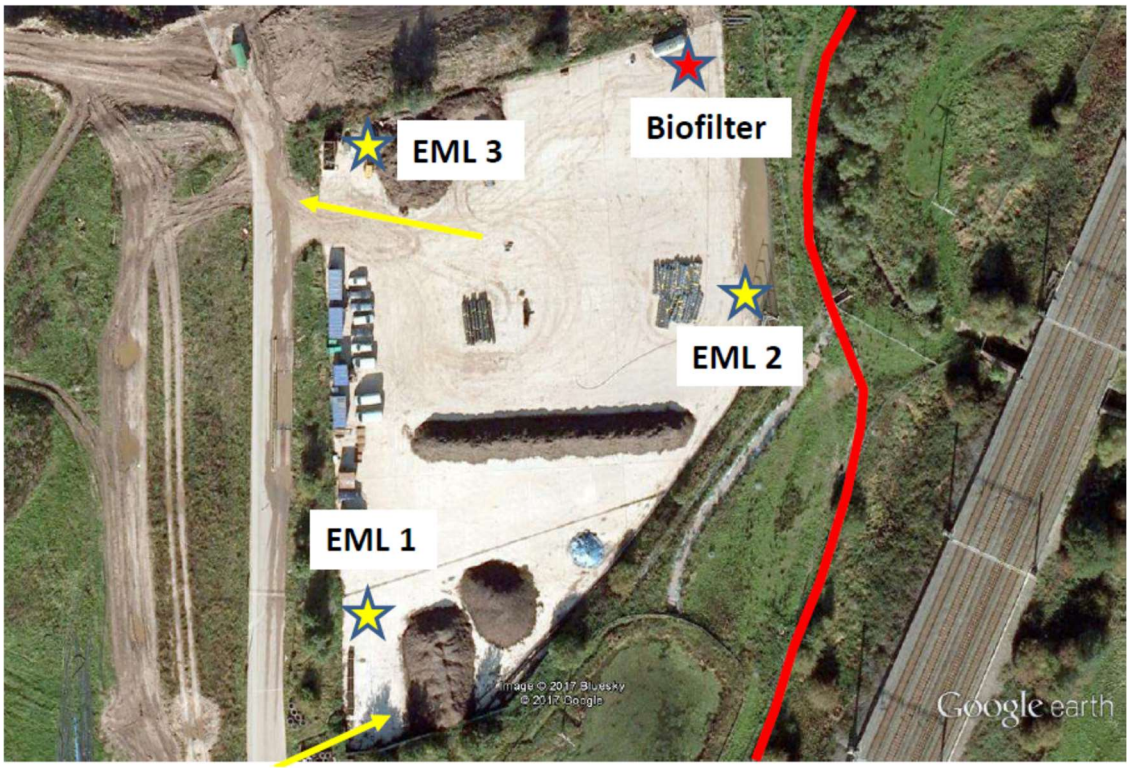


Figure 10. Environmental Monitoring Locations 1-3 Sampling Locations

4 ASBESTOS EMISSIONS RESULTS

4.1 Introduction

The following section provides a summary of the results obtained from the different screener configurations.

Prior to the use of a screener the asbestos monitoring results from 2018 through to the 15 June 2022 was undertaken to monitor emissions from uncovered storage of ACM in soils and hand picking from inside the asbestos building.

All monitoring that was undertaken demonstrated that the airborne asbestos fibre concentrations were below the permit threshold of <0.01f/ml.

4.1.1 Soil screener with cover and HEPA filter (Rowley Regis)

The monitoring was undertaken from 27 June until 22 August to provide a 4 week data set on asbestos emissions.

The screener deck of the screener under a cover with the HEPA filter operational was monitored between 27/06/22 – 06/07/22. This ceased due to the results having a maximum concentration of 0.0005f/ml and equivalent to the method detection limit.

All monitoring was undertaken using the monitoring points shown in Figure 8 up to the 06/07/22. Between 07/07/22 and 12/08/22 the sampling points were as per the points described in Table S3.3 of the Rowley Regis permit. Asbestos DWG3/Rev1 dated October 2020. This included one internal monitoring location next to the screening and picking operation but accidentally omitted the further internal locations shown on drawing 100993 – Asbestos DWG1 dated January 2018.

From 13/08/22, the sampling points have been as per 100993 – Asbestos DWG1 dated January 2018 (Figure 8). Soils treated after the initial storage bays inside the building were emptied have been from lorries delivered into the building from external sites. Some limited soil inputs from the external storage area commenced on 20/09/22 to supplement soils stored within the building (results to follow).

A summary of the results are provided in Table 1.

4.1.2 Soil screener uncovered and with continuous misting abatement (Rowley Regis)

The use of an uncovered screener with dust suppression in the form of mobile atomisers and dust cannons was described in the MTL deployment.

The screener was uncovered on 22 August 2022, predominantly due to the number of blockages that were observed to occur with the enclosed screener that prevented a longer term assessment of emissions from a contained screener than the initial c.4 weeks. The continual blockages posed additional health and safety risks to personal as well as causing damage to the conveyor belts and other equipment.

The sampling points shown in Figure 9 were used to monitor the screening and hand picking operation as shown in Figure 6. Monitoring of the uncovered screener deck was implemented between 22/08/22 – 25/08/22 (4 days) and 30/08/22 - 21/09/22 (17 days) and were below the method detection limit – although this detection limit varied with the presence of exhaust particulates from the screener within the building.

All the results are summarised in Table 1.

4.1.3 External soil screener uncovered and with continuous misting abatement (Maw Green)

The three sampling points were monitored from 15 August 2022 with the latest results from 04/11/22 included. On the spreadsheet in Appendix E prior to the laboratory certificate there is a summary of the activity on site corresponding to the sampling date.

All the results are summarised in Table 2.

Table 1. Summary of Asbestos Monitoring Results

Asbestos Treatment Description	Date Range	Number of Internal Monitoring Points	Number of External Monitoring Points	Detection Limit (f/ml)	Maximum Concentrations (f/ml)	Permit Threshold (f/ml)
Storage and Hand Picking	08/05/18 - 05/07/21	4	-	<0.01	<0.01	<0.01
Storage and Hand Picking	09/07/22 - 17/06/22	4	-	<0.0005	0.0007	<0.01
Covered Screener/HEPA and Hand Picking	27/06/22 - 06/07/22	1	1	<0.0005	0.0007	<0.01
Screener Deck inside cover	27/06/2022 – 06/07/22	1	-	<0.0005	0.0006	<0.01
Covered Screener/HEPA and Hand Picking	07/07/22 - 12/08/22	1	3	<0.0005	0.0007	<0.01
Covered Screener/HEPA and Hand Picking	13/08/22 - 19/08/22	4		<0.0005	<0.0005	<0.01
Uncovered Screener and Hand Picking	22/08/2022 – 21/09/22	4	3	<0.0005/<0.002*	0.0009/<0.002*	<0.01
Uncovered Screener Deck	22/08/22 - 24/08/22, 30/08/22 - 02/09/22, 05/09/22 – 08/09/22	1	-	<0.0005 - <0.0061*	<0.0061*	<0.01

*Indicates detection limit due to occluded slides from combustion residues from operating mobile plant

Table 2. Summary of Asbestos Monitoring Results

Asbestos Treatment Description	Date Range	Number of External Monitoring Results	Detection Limit (f/ml)	Maximum Concentrations (f/ml)	Permit Threshold (f/ml)
Reception of soils/background	15/08/22 – 06/09/22	16-	<0.0005	<0.0005	<0.01
Uncovered Screener and Hand Picking	07/09/22 – 04/11/22	120	<0.0005	0.0006	<0.01
Control Test (no activity)	27/10/22	1	<0.0005	<0.0005	<0.01

4.2 Summary

Prior to the MTL deployment, it was established that the storage of soils and hand picking of asbestos debris does not result in airborne asbestos concentrations above the permit threshold of <0.01f/ml at the Rowley Regis site.

The method detection limit was reduced to <0.0005f/ml in July 2021 and the results from the monitoring during hand picking works did not exceed this detection limit.

The following is a summary of the results obtained from the different scenarios implemented and monitored.

1. Hand picking only without screening inside the building at Rowley Regis resulted in monitored concentrations in air ranging from <0.0005f/ml to a maximum of 0.0007f/ml
2. The use of a covered screener with HEPA filter inside the building at Rowley Regis resulted in monitored concentrations in air ranging from <0.0005f/ml to a maximum of 0.0007f/ml
3. The use of an uncovered screener inside the building at Rowley Regis resulted in monitored concentrations in air ranging from <0.0005f/ml to a maximum of 0.0009f/ml
4. The use of an uncovered screener externally at Maw Green resulted in monitored concentrations in air ranging from <0.0005f/ml to a maximum of 0.0006f/ml

Whilst not an objective of this report, there was no increase in the asbestos content of the soil resulting from soil screening which correlates with historical data from physical treatment of soils with asbestos. The screening resulted in no detrimental impact to soil quality or its ability for recovery.

4.3 Conclusion

- The waste acceptance criteria have proven to be entirely efficient at preventing the release of unacceptable asbestos fibres during soil screening
- The air quality targets described in the FCC permit for asbestos were achieved irrespective of the processing or abatement method implemented
- The covering of the screener and use of a HEPA filter resulted in operational problems due to the need to unblock the screener arms and change HEPA filters. This significantly slowed down the processing of soils, increased exhaust emissions,

the potential for harm to operatives due to restricted working areas whilst providing no benefit to air quality from asbestos concentrations.

- There were no emissions that required abatement other than the precautionary use of boundary dust suppression using water and propriety asbestos surfactant solution dispersed via an atomiser system
- Due to the use of a temporary diesel powered screener inside a building at Rowley Regis increased the occlusion of slides due to the diesel combustion emissions. This issue can be resolved through the use of an exhaust abatement system or procurement of an electric screener for dedicated use within the building
- There is no discernible difference in asbestos emissions between the several different scenarios (hand picking/screening etc) inside buildings or externally based upon the monitoring results
- The soil screening does not result in elevated airborne asbestos concentrations and poses no risk of exceeding the normal EA permit threshold of <0.01f/ml

4.4 Proposed Soil Processing Approach

The following approach is therefore proposed from a review of the monitoring data to date:

- Continue to use the existing waste acceptance criteria that are designed to support a risk elimination approach
- Continue to implement a reassurance boundary dust suppression system via atomisers fed by a water and surfactant solution as this provides secondary abatement for general fugitive dust emissions
- The use of an uncovered screener with dust suppression atomisers (mixed with asbestos specific surfactant) to ensure that low reporting limits of <0.0005f/ml can be achieved consistently
- Continue to monitor to reporting limits of <0.0005f/ml to ensure that there is sufficient visibility on airborne asbestos concentrations below the permit threshold of <0.01f/ml.

APPENDICES

APPENDIX A. MTL DEPLOYMENT

Provectus Remediation Ltd
Regent House
Bath Avenue
Wolverhampton
West Midlands
WV1 4EG

Our ref: EB3636AK/W0028

Date: 15/07/2022

Dear Mr Jon Owens

Environmental Permitting (England and Wales) Regulations 2016

Deployment ref: EB3636AK/W0028
Permit holder: Provectus Remediation Ltd
Location of the deployment: Maw Green Landfill, Maw Green Road, Maw Green, Crewe, CW1 5NG,

Following assessment of your deployment notification reference number EB3636AK/W0028 I can confirm that we have agreed your deployment form and you may now start to operate.

You have up to 12 months to notify us that your deployment activities are commencing. Once notified your deployment lasts for 52 weeks. If you wish to continue beyond this 52 week period you can request an extension up to a maximum of 12 months or submit a new deployment application for a further 12 month extension. Please see section 4.1 of the Land and groundwater remediation deployment form guidance.

You must comply with your permit and carry out the activities in accordance with the requirements of the agreed deployment form and further information;

- Supporting Document: Environmental Monitoring Location Plan
  from Jon Owens received on 15/07/2022 at 11:45

You must seek written permission from us if any of the details provided in the deployment form change.

This approval letter is associated with the mobile plant permitting regime only. As the operator, it is your responsibility to agree other authorisations, for example, planning permission, remedial strategy, abstraction or discharge consents with the relevant regulatory authority.

Please note that operating under your Mobile Plant Permit / Mobile Treatment Licence does not imply that the remediation processes used will be suitable for meeting any remediation objectives specified. These issues must be considered separately by the developer/consultant and our local area Groundwater and Contaminated Land team. These

must be defined in the site remedial strategy which sets out the remediation options to reduce or control the risks from pollution linkages associated with the site as a whole. You may need to carry out further remediation if an unacceptable risk to the environment remains at the site.

Please notify us at least seven days prior to starting the remediation activities, at psc@environment-agency.gov.uk & GMMCLandandWater@environment-agency.gov.uk

If you have any queries about this matter please contact us by telephone on 03708 506 506 or email us at enquiries@environment-agency.gov.uk quoting your deployment application reference EB3636AK/W0028.

Yours faithfully

Maria Gibbons,
Team Leader,
National Permitting Service

The Company Director and/or Secretary
Provectus Remediation Ltd
9 Kingsdale Business Centre
Regina Road
Chelmsford
Essex
CM1 1PE

Our ref: EB3636AK/W0027

Date: 6th May 2022

Dear Sir or Madam,

Environmental Permitting (England and Wales) Regulations 2016

Deployment ref: EB3636AK/W0027
Permit holder: Provectus Remediation Ltd
Location of the deployment: Edwin Richards Quarry, Portway Road, Rowley Regis, B65 9DS,

Following assessment of your deployment notification reference number EB3636AK/W0027 I can confirm that we have agreed your deployment form and you may now start to operate.

This deployment lasts for one year from the date the activity starts on site. If you wish to continue beyond this one year period you must re-notify.

You must comply with your permit and carry out the activities in accordance with the requirements of the agreed deployment form and

- further information (Ref: Appendix A – Location of Soil Screening updated Drawing & Monitoring) received by us on 04/05/2022

You must seek written permission from us if any of the details provided in the deployment form change.

This approval letter is associated with the mobile plant permitting regime only. As the operator, it is your responsibility to agree other authorisations, for example, planning permission, remedial strategy, abstraction or discharge consents with the relevant regulatory authority.

Please note that operating under your Mobile Plant Permit / Mobile Treatment Licence does not imply that the remediation processes used will be suitable for meeting any remediation objectives specified. These issues must be considered separately by the developer/consultant and our local area Groundwater and Contaminated Land team. These must be defined in the site remedial strategy which sets out the remediation options to reduce or control the risks from pollution linkages associated with the site as a whole. You may need to carry out further remediation if an unacceptable risk to the environment remains at the site.

Please notify us at least seven days prior to starting the remediation activities, at psc@environment-agency.gov.uk & WMDEPR@environment-agency.gov.uk

If you have any queries about this matter please contact us by telephone on 03708 506 506 or email us at enquiries@environment-agency.gov.uk quoting your deployment application reference EB3636AK/W0027.

Yours faithfully

Grant Wilson
Team Leader,
National Permitting Service

APPENDIX B. NICOLE – ASBESTOS: A PAN EUROPEAN PERSPECTIVE

ASBESTOS IN SOIL

A pan european perspective

Demolition earthworks | AECOM

ASBESTOS IN SOIL

A pan european perspective

NICOLE

Network for Industrially Co-ordinated Sustainable Land Management in Europe

ASBESTOS IN SOIL - A PAN EUROPEAN PERSPECTIVE

Foreword

There are common themes and good practice running throughout Europe with respect to the management of asbestos in soil, although many variations in approach exist.

As with other contaminants, the assessment and management of asbestos risks should follow a risk based assessment approach (source-pathway-receptor analysis) with selection of appropriate remediation following a suitable remedial options appraisal.

However, many decisions regarding the remediation and management of asbestos in soils are based on stakeholder perception and a subjective or emotive response (i.e. hazard based rather than risk-based).

As demonstrated in this report there are few European countries with clear standards and detailed guidance. This document provides an overview of best practice in the industry with a pan European perspective and with some case studies to illustrate typical responses to asbestos in soils impacts.

Contents

Asbestos warning sign | AECOM

1 Introduction

Asbestos is a common and challenging contaminant in soil; a legacy of widespread historic use in buildings and poor historic control of construction waste, building demolition, and re-use of crushed demolition aggregate as made ground.

Hazard, risk perception and acceptance can vary widely amongst stakeholders and the management of asbestos in soil can vary widely as a result.

Differing stakeholder positions on risk acceptance or risk avoidance (zero tolerance) can have a significant impact on project designs, programmes, and costs, and there is little harmonisation in approach across Europe.

Asbestos in soils is increasingly recognised by those involved in the management of brownfield

Degraded asbestos debris in soil | AECOM

Visual detection of asbestos during remediation | NTP

land regeneration as a potentially high-cost, risk-driven issue, and this publication seeks to: provide a pan-European perspective; identifying opportunities for harmonisation; improve awareness and understanding; and promote greater consistency.

The content of this publication reflects the work of the NICOLE Asbestos Working Group from 2017 to 2021.

The aims of the NICOLE Working Group were to:
Compare and contrast current industry approaches, regulatory positions and quality and availability of existing guidance in European Countries as an initial "baselining" exercise to help identify significant differences and opportunities for harmonisation.

Improve awareness and understanding in managing the risks of asbestos in soil (considering its occurrence both on its own and as a co-contaminant with other pollutants) by advocating a pragmatic approach and promoting greater consistency where possible.

These aims were to be achieved by:

1. Collating information on, and benchmarking of, current methods, standards and guidance for the characterisation, risk assessment, remediation and regulation of asbestos in soils that are currently adopted by industry and regulators in European Countries;
2. Identifying how asbestos contaminated soils (including those also contaminated with other pollutants) are currently remediated in different countries, considering different treatment technologies and the availability (or otherwise) of appropriate disposal/ treatment facilities;
3. Identify existing research efforts into characterisation, risk assessment and remediation, and identify research opportunities that could support a sustainable pragmatic approach; and
4. Identifying case studies that support and improve confidence in risk management decisions and in developing best practice.

2 NICOLE Survey of Members

To establish a baseline of current legislation, guidance and practice in European countries, a detailed survey was issued to NICOLE and Common Forum members in 2018. Three years on and very little has changed. The survey comprised 70 questions covering 6 topic areas.

These were:

1. Legislative provision and regulatory position
2. Good practice industry guidance
3. Laboratory methods
4. Waste classification, handling and disposal
5. Remediation options
6. Research and innovation

12 responses were received for 6 countries.

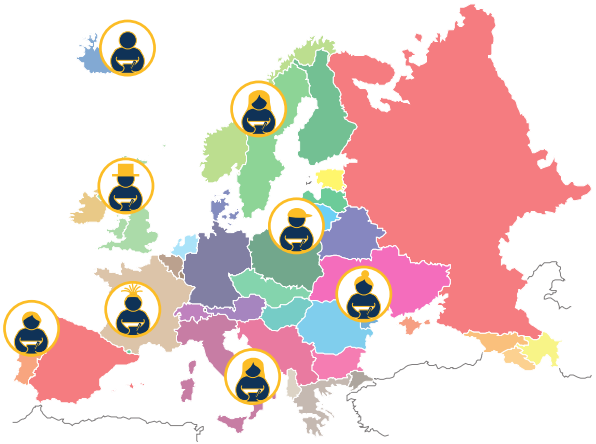


Figure 2.1 NICOLE Network Survey of members

3 Legislative and Regulatory Positions

One potential harmonising factor is EU Directive 2009/148/EC, on the protection of workers from the risks related to exposure to asbestos at work, that sets out occupational health and safety requirements for work involving asbestos. However, even with this in place, the control limits for asbestos in air vary considerably across Europe, ranging from the Directive Control Limit of 0.1f/ml in the UK to 0.002f/ml in The Netherlands (50x lower). No country has specific legal provision solely addressing exposure to asbestos in soil, although it is increasingly recognised that disturbance of asbestos containing soil is an activity that is captured by existing asbestos-specific occupational regulations relating to work in buildings (e.g. maintenance, refurbishment and demolition).

Asbestos cement fragments in soil | AECOM

Country	Occupational exposure limit (f/ml 8hr TWA)
EU limit value (2009/148/EC)	0.1 (100,000f/m^3)
UK	0.1
France	0.01
Italy	0.01
Germany	0.001
Netherlands	0.002 (with intention to reduce to 0.0003)

Table 3.1 Occupational exposure limit

Presence of AiS guidance. Detailed sampling and testing protocols. Air and soil guidelines. Regular testing

Absence of AiS guidance. Reliance on OSH and waste regulations. No regular testing

There is a stark divergence between those countries with detailed regulatory guidance on the risk management of asbestos in soil and those countries with no specific regulatory guidance for asbestos in soil. It was discussed at the NICOLE workshop in Warsaw in November 2019 that asbestos is considered to be an emerging soil contaminant in Germany, and in many Eastern European countries, even though in other countries it has been recognised as a contaminant of concern for decades. Where detailed gui-dance is in place, it is largely based on the research of RIVM and TNO published between 2003-2008.

The only European regulatory guidance levels for asbestos in soil are those published by the Dutch, Belgian and Italian authorities. The Dutch and Belgian authorities adopt a Tiered approach and use the same Tier 1 value, but importantly use different definitions for those values.

Dutch Tier 1 Intervention value = 100mg/kg (sum of chrysotile+10x amphibole as measured by NEN 5707)

Flanders Tier 1 Intervention value = 100mg/kg (sum of fixed + x10 loose fibres (all asbestos types) as measured by TEM)

4 Industry Good Practice

It is only common among a small number of European Countries to test made ground soil samples for asbestos as part of a normal site investigation. Sampling is either carried out using typical practice adopted for contaminated land or using detailed prescriptive practice specific to asbestos (such as for the Netherlands and Belgium). Guidance on sampling strategies, sample plans, laboratory test methods, and requirements for site staff competency/qualifications is mixed, with no common approach across the countries surveyed.

When suspected asbestos is observed in the soil there is a legal requirement under workplace regulations to put in place procedures to manage the associated risks. If suspected asbestos is found onsite during site investigation or remediation works, the general procedure is to stop work, make the work area safe and temporarily vacate the area until the risk assessment and method statements for the work can be revised. Actions can include the use of dust suppression, asbestos survey of the area, confirmatory laboratory testing of the identified material, and use of Licensed contractors to remove the asbestos. Work should only ever continue if safe methods of work can be put in place.

Signing of an asbestos impacted area | NTP

Guidance Questions	Belgium (Flanders)	Belgium (Wallonia)	France	Italy	Portugal	Spain	UK
Is the testing of brownfield sites for asbestos commonplace?	yes	yes	no	yes	yes	not	yes
Is guidance available for the risk management of asbestos in soil?	yes	yes	yes	no	no	no	yes
Does the guidance fill a gap in regulatory guidance?	yes	no	yes	no	no	no	yes
Is the guidance entirely country specific?	no	no	yes	yes	no	no	yes
Does the guidance advocate a tiered approach?	yes	no	no	no	no	no	yes
Does guidance include method on soil sampling if asbestos is present?	yes	yes	no	yes	no	no	yes
Does the guidance recommend air testing during site-based activities?	no	no	yes	yes	yes	no	yes
Does the guidance advocate health and safety precautions during sitebased activities?	yes	yes	yes	yes	yes	yes	yes
Does the guidance advocate a guideline for asbestos in soil?	yes	yes	no	no	no	no	no
Is there any guidance on how to assess risk from asbestos fibres being present in water?	no	no	no	no	no	no	no

Table 4.1 Summary of questionnaire responses on good practice guidance

5 Approaches to Ground Investigation

Some of the specific aspects of ground investigation identified in the survey included:

The importance of desk study and site walkover to establish the likelihood of asbestos being present. Sampling strategies — can be targeted or random/ systematic.

Sampling approach — size and frequency. Dutch, Belgian, and SoBRA guidance require/advocate the use of much larger sample sizes that typically used for other soil contaminants. The Dutch and Belgian guidance also specify sample frequency, e.g. 1 sample per 50 m^3 or 1 per 1000 m^2.

Activity based sampling is occasionally used. This is in essence what the RIVM/TNO guidance was based on, what is described in US EPA guidance,

Asbestos sampling activities in Belgium | AECOM

and what is advocated in SoBRA guidance to better understand the likelihood of asbestos fibres becoming airborne as a result of soil disturbance.

Other ground condition factors are important to risk, including soil type, vegetation or other surface cover, and moisture content.

Asbestos sampling activities in Belgium | AECOM

Differing views exist as to whether ground investigation falls under occupational regulations for work with asbestos (as per in buildings).

Requirement for suitably trained/experienced staff. For example, Dutch guidance requires specific certification and accreditation for inspection and sampling of soils.

Asbestos was found to be present in up to 20% of made ground samples according to SoBRA research in the UK based on 150,000 soil samples submitted to UK laboratories between 2015 and 2018.

6 Detecting asbestos in soil

Asbestos sampling activity in UK | AECOM

The conceptual understanding of the spatial distribution of asbestos is fundamental to the design of an investigation and the interpretation of the results. Is it a delineable area subject to asbestos disposal? Is it dispersed fragments across a wide area? What is the likelihood of detecting the asbestos using your sampling strategy?

Grid Size	Probability of detecting one ACM fragment	Sample size as a proportion of grid square
100	1 in 100,000	0.01%
50	1 in 10,000	0.04%
10	1 in 1000	1%

Table 6.1 Probability of detecting asbestos based on a soil sample size of 1 litre

The reliability of the site investigation is a function of:

- Sample size
- Sample density

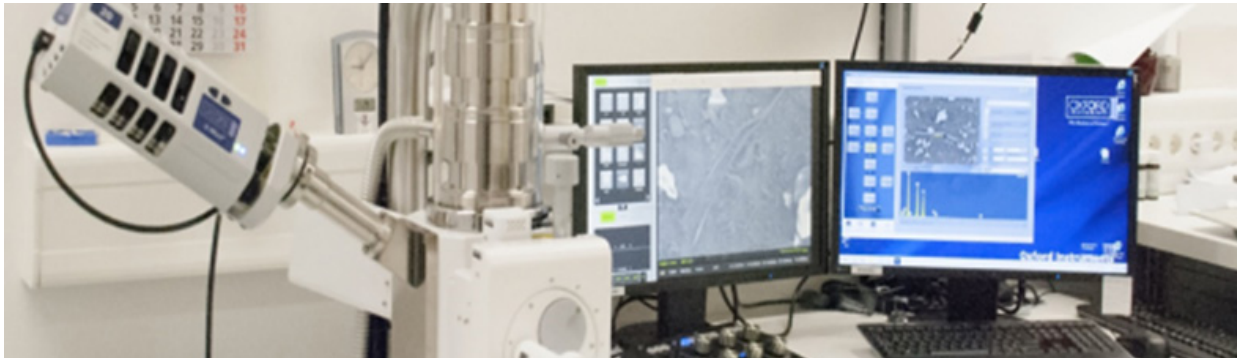
As noted previously the Dutch and Belgian authorities, and SoBRA in the UK, advocate taking larger samples for asbestos compared to typical size of soil samples taken for other contaminant testing because of the greater uncertainties involved in sampling for asbestos in soil.

The theoretical probability of detecting a small area of isolated asbestos fragments in soil can be extremely low. If random fragments are found in soil the probability of more unidentified fragments being present in the soil can be high.

Samples taken in The Netherlands | NTP

7 Laboratory Methods

Electron microscope



Laboratory methods vary widely across Europe. Some countries have very detailed analytical methods that are embedded in the regulatory guidance (for example the Netherlands and NEN Standard 5707). Other countries such as the UK have a mixture of methods published by regulatory bodies (HSE for HSG248) and industry bodies (SCA Blue Book Method*).

Current European Standards specifically for quantifying asbestos in soil include: NEN 5707 (The Netherlands) SCA Blue Book Method (UK)*

** Withdrawn in October 2020 due to concerns over validation triggered by AISS results*

The methods that are available vary depending on the regulatory context and purpose of the test.

The three most common purposes are:

1. Bulk analysis for the presence of asbestos (driven by occupational regulation)
2. Air monitoring (also driven by occupational regulation)
3. Gravimetric quantification for waste classification

The reliability of laboratory test methods can be better understood by studying the inter-laboratory proficiency schemes, such as those provided by the UK Health & Safety Laboratory schemes (including AISS) **[link]**

Detailed standards for quantification in soil are the least common and also tend to have the greatest variability. When a single standard method is not mandated by regulation, interlaboratory variability can be high. Each laboratory undertaking the often multi-stage analytical process slightly differently—be it in the sample preparation, the mass of sub-sample analysed, the magnification of the microscope used, the type of microscopic method (PLM, PCOM, SEM, TEM), the assumed composition of man-made asbestos products, or the fibre counting rules employed.

8 Waste Classification, Handling and Disposal

The classification, handling and disposal of asbestos and soil impacted asbestos waste is addressed by the EU Waste Framework Directive (2008/98/EC) and is potentially the most harmonised aspect of dealing with asbestos in soil across Europe as a result.

All European countries adopt the 0.1% hazardous waste threshold.

Soil that contains identifiable pieces of asbestos containing material (i.e. any particle of a size that can be identified as potentially being asbestos by a competent person if examined by the naked eye), then the soil is regarded as hazardous waste.

Collection of asbestos fragments should be done using double bagged, be labelled asbestos waste,

Double bagging of asbestos waste in UK | Ramboll

Double bagging of asbestos waste in UK | Ramboll

and shipped using the correct waste transfer documentation.

Large asbestos sheets can be wrapped in 1000 gauge polythene sheeting, labelled as above and placed in an enclosed and locked skip.

The transport of asbestos impacted soils can be either in enclosed containers or in sheeted lorries by a licensed waste carrier.
It is important to note that in accordance with the waste hierarchy, the volume of hazardous waste should be reduced by physical separation of visible asbestos from residual soils (if feasible).

9 Approaches to Risk Assessment

Motor-powered breathing system | NTP

The most established approaches to risk assessment for asbestos in soil in Europe are the frameworks developed by VROM (now IenW) and OVAM, and with the latter OVAM framework being highly influenced by the earlier VROM framework. Further steps to better understand the potential fibre release of asbestos from the affected land are introduced by the US EPA framework that advocates activity-based sampling, and UK good practice that advocates the better understanding of dust and asbestos fibre release from soil disturbance.

Published research on which the frameworks are based is limited, and dated—the research that

forms the basis of the VROM framework dates from the 1990s, and a core piece of research advocated in the UK guidance dates from the 1980s.

Whilst individual frameworks vary in the detail, and the data requirements for those frameworks vary (see section on Ground Investigation), there is a common theme to the frameworks that is illustrated in the diagram below.

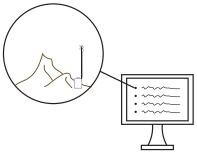
Tier	Tier 1	Tier 2	Tier 3	Tier 4
Data	Basic soil characterisation 	Differentiation in asbestos form and type 	Respirable fibre content in soil. Particle size fraction of interest 	Site-specific fibre-release data 
Criteria	Generic assessment criteria (not asbestos type specific)	Generic assessment criteria for asbestos types and/or forms	Generic assessment criteria for respirable fibre content	Site-specific assessment criteria

Figure 9.1 Common theme in frameworks

Hobmoor School – Birmingham, UK | Google Maps

Ramboll was commissioned by Balfour Beatty Construction Limited to develop and implement an asbestos remediation strategy to enable the construction of a new school.

Previously developed as industrial land, the historic review and site visit established significant volumes of demolition rubble from prefabricated buildings across the site. The proposed development included landscaping, sports areas and

Frequently occurring fragments of asbestos cement and AIB were discovered

Asbestos finds | Ramboll

earthworks reprofiling. This meant significant cut and fill works across the site with soil containing demolition rubble.

Asbestos Containing Material (ACM) was encountered during site clearance, so a specialist survey contractor was commissioned for soil sampling and perimeter air monitoring. The asbestos detected in this survey was asbestos cement (chrysotile), asbestos insulation board (amosite) and found in the topsoil till a depth of 1,00-1,50 meters. The pollutant linkages identified during construction and operation were potential exposure to free fibres from friable materials from the asbestos cement and insulation board.

The remedial options appraisal included:

- Dig contaminated soil and dump on site in vegetation strip; costs over £800 000,
- Hand pick asbestos material, capping with imported top soil (0,3 meters) and install a marker layer between clean top soil and contaminated soil underneath; costs approximately £500 000,
- Assess the risks of in situ reusing the top soil.

Pockets of asbestos covered much of the site at depths up to 5m.

Asbestos finds—hand picking | Ramboll

Processing plant | Ramboll

Based on the options appraisal a bespoke methodology was developed and a comprehensive worldwide review of asbestos legislation and guidelines was undertaken. The final remediation strategy designed comprised of:

1. Hand picking of asbestos cement and asbestos insulation board fragments,
2. Trommel sieving of soil on a 14 mm mesh,
3. Air monitoring for fibres across the perimeter of the site and in the "Control Zone",
4. Works carried out by a licensed contractor with a HSE approved asbestos methodology.

A dust and fibre release experiment was designed to estimate the potential fibre release during school operation, which could be released by soil derived indoor dust. This was done by simulating a realistic and real time situation. For this a 12 m^3 sealed enclosure was built into the school with an air lock entry. The soil in the sealed enclosure was vigorously disturbed to generate dust. The indoor air was monitored and sampled. The samples were tested with Phase Contrast Optical Microscopy (PCOM) analyses.

The remediation delivered a screened top soil which was suitable for re-use in the landscape area

Indoor air experiment | Ramboll

without requirement of a cover layer. The worst case activities were simulated and tested and concluded no residual fibres and low residual risks. All air monitoring results were below detection limit of the standard HSE method i.e. <0.01 f/ml during the earthworks. And the air testing experiment (samples repeatedly disturbed) did not generate airborne fibre concentrations above limit of detection of the standard HSE method (<0.01 f/ml).

The new school is in place and the landscaping offers a nice area around it.

Before and after construction | Ramboll

10 Risk-Based Soil Guidelines

There are few published guideline values for asbestos in soil in Europe. Those that are published are summarised below:

Country/ Region	Guideline Value	Additional Information
The Netherlands	Tier 1: 100mg/kg Tier 2: 1000mg/kg (non-friable) or 100mg/kg friable Tier 3: 10mg/kg respirable fibres	Soil Remediation Circular 2013 Annex 3. Concentrations defined as the sum of chrysotile + x10 amphibole and as the average dry weight concentration over a maximum spatial unit of 1000m2. Samples to be taken and analysed as per SIKB Protocol 2018 and NEN 5707.
Italy	1000mg/kg	D.Lgs 152/06. Analysis required to be either SEM for asbestos content <1% or DRX/FTIR for asbestos contents >1%.
Belgium/ Flanders	100mg/kg	Phase 1—minimum of two 10 litre sieved soil samples per 1000m2 of unpaved ground. If concentration < 100mg/kg or >70cm bgl, no action required. If >100mg/kg, further site-specific inspection (Phase 2) required. Concentrations defined as the sum of fixed fibres + x10 loose fibres.
Belgium/ Wallonia	100mg/kg	Concentrations defined as the sum of bonded fibres + x10 unbound fibres. If concentration is > 100mg/kg but <500mg/kg it is acceptable to use soil beneath 1m clean soil + geotextile.
Belgium/ Brussels	100mg/kg Intervention Value 80mg/kg Remediation Value	If the results obtained for a sample exceed the intervention standard for asbestos or if there is a question of pollution (in the sense of art. 3 25° of the Soil Ordinance), a detailed soil survey must be carried out.

Table 10.1 Published guidelines in Europe

11 Approaches to Risk Management

Risk perception and stakeholder acceptance of a risk-based approach to asbestos is potentially a far stronger driver of intervention than for many other soil contaminants. Zero tolerance or an abundance of caution towards asbestos can drive remediation towards “non-detect” solutions.

There are well established risk assessment decision frameworks available, for example the Australian, US EPA, Dutch, and Belgian approaches. What is not well understood is how often those frameworks are used past “Tier 1”.

Is the challenge to prove the worth of the more detailed risk assessment Tiers? Is the scientific evidence sufficient to be able to persuade stakeholders that the risk is acceptable? Does the retention of asbestos-containing soils on-site leave constraints on land-use that is not cost-beneficial? Detailed risk assessment has its place and can be valuable in situations where it is not possible and not sustainable to remove the asbestos entirely. This is illustrated in the decision flowchart on the next page.

The difference in the prescriptive nature and detail of frameworks for individual countries and the sustainability of the output from those frameworks is worth further consideration.

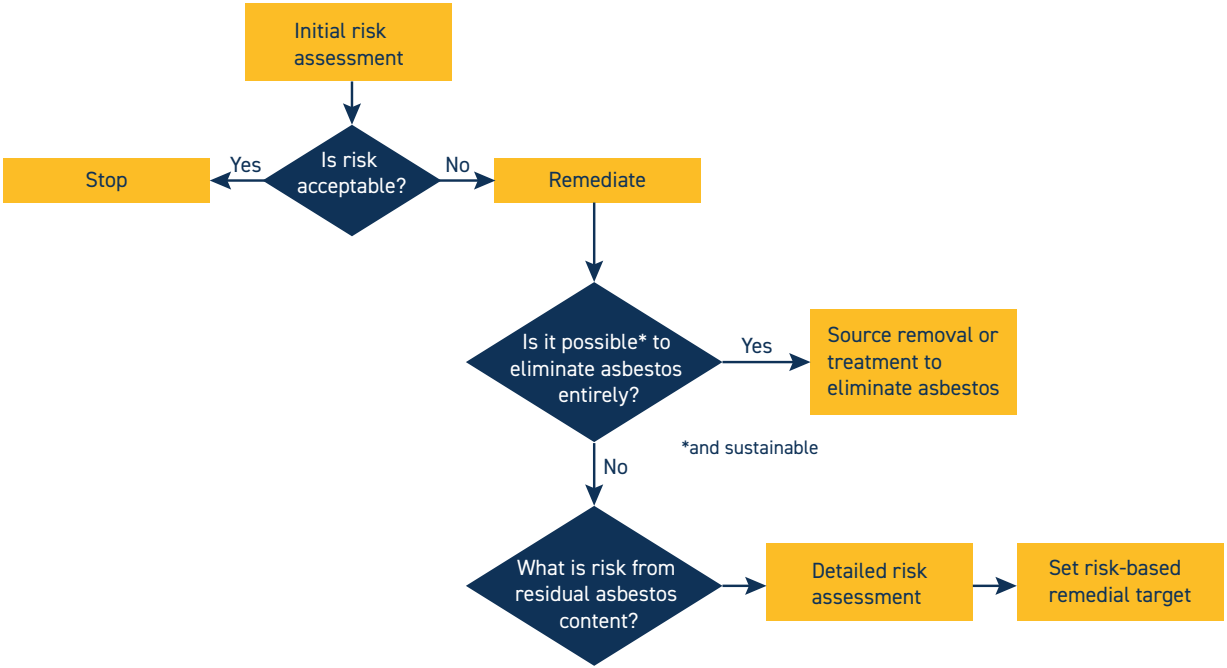


Figure 11.1 Approaches to Risk Management

12 Research and Innovation

Little innovation was specifically identified by the respondents to the questionnaire. A literature review of the most recent developments (within a 5 year time window) in the fields of analytical methodologies, remediation technologies and survey studies has been carried out for NICOLE through the analysis of scientific publications hosted at all the Web of Science databases [Link].

Asbestos investigations have historically focused on commercial asbestos fibers, which were commonly defined in regulations as chrysotile, crocidolite, amosite, tremolite, actinolite, and anthophyllite. Investigations now include other types of elongate mineral particles such as winchite and richterite (van Orden, 2018).

The most common analytical methods for asbestos analysis are polarised light microscopy (PLM), phase contract optical microscopy (PCOM) and electron microscopy (either scanning (SEM) or transmission (TEM).

Cossio et al (2018) improved the sensitivity and precision and enhanced the productivity of a Scanning Electron Microscopy with Energy Dispersive Spectrometry (SEMEDS) methodology for the analysis of asbestos in a natural confining matrix and also with a very low asbestos content.

Wroble et al (2017) compared different soil sampling and analytical methods for asbestos quantification in order develop a toolbox for better assessment in order to overcome the difficulties that exist in the detection of asbestos at low concentrations and its correspondent extrapolation from soil concentrations to air concentra-

tions. Sampling was performed using two distinct methods: traditional discrete ("grab") and incremental sampling methodology (ISM). Analysis was carried out using PLM, TEM and a combination of these two methods were used. Using a Fluidized Bed Asbestos Segregator (FBAS) followed by TEM analysis resulted in the detection of asbestos at locations that were not detected using other analytical methods.

Fibre counting by automated image analysis using fluorescence microscopy has been evaluated by Alexandrov et al (2015). There is the potential from this for faster analysis and less human error, but whilst good validation for medium to high fibre concentrations was achieved, for lower fibre concentrations it was less accurate.

In the last 5 years just a few articles mentioned innovative or upgraded technologies for the asbestos treatment in contaminated sites, mostly considering biological treatment.

Mohanty et al. (2018) examined whether environmentally relevant concentrations of siderophores (exudates from bacteria and fungi that facilitate iron mobilisation and uptake) could alter chrysotile toxicity. Iron removal by siderophores decreased the carcinogenicity of the fibres, the fungal exudates being more effective than those from the bacteria. However, the authors stated that this approach should be more deeply explored in order to develop a viable strategy to manage asbestos-contaminated sites. Native bacteria and fungi from asbestos mines in India (Aspergillus tubingenesis and Coemansia reverse) have

also reportedly been used to detoxify asbestos (Bhattacharya et al. 2015 & 2016).

Gonneau et al. (2017) evaluated the capacity of crop cultivar and grasses for the phytoremediation of soils containing asbestos from natural and anthropogenic causes. The presence of asbestos caused less or no impact on the plant growth when compared to other factors such as the presence of heavy metals or lack of nutrients.

Valouma et al. (2016) used a combined treatment of oxalic acid dihydrate with silicates (tetraethoxysilane and pure water glass (potassium silicate)) to achieve total destruction of chrysotile. Oxalic acid leaching followed by the tetraethoxysilane addition was more appropriate for cases of glushinskite recovery; while an Oxalic acid leaching followed by water glass managed to encapsulate the asbestos fibers, which might be a valid option for onsite asbestos detoxification.

A small number of commercial companies have developed innovative solutions to asbestos remediation:

- An Italian company offers an innovative remediation technology that uses microwave energy to convert asbestos waste to an inert material. The technology involves a movable reactor that can heat the asbestos and produce a reusable inert material [Link].
- A Japanese company Sagasiki offers 'ND Lock', a solidification solution based on calcium polysulphide (CaSx) formulation. The treatment involves a crystallization and decomposition process. Numerous applications relating to asbestos treatment are given on their website.

13 Remediation Options

The most common remediation approach in many countries is still to “dig and dump” (i.e. excavate and dispose to an off-site landfill). A question is whether this is a sustainable approach? The risk is removed by removing the hazard (i.e. the source) but does the context of site use permit a lower impact solution?

The trigger for remediation is also different between countries. For example, mandatory testing for microscopic fibres in soil whenever a construction activity takes place versus action only if visible asbestos waste is encountered. In France, all road asphalt has to be tested for the presence of asbestos as part of any road improvement scheme.

From the questionnaire responses it is clear that there is substantial variation in remediation

Typical remediation earthworks activities in UK | AECOM

Damping down of stockpiled material with water spray | AECOM

triggers, in what restrictions and requirements the identified presence of asbestos introduces, and in the remediation standards enforced. Even if the value of the remediation standard appears at face value to be the same (for example for The Netherlands and Belgium), the detailed definition of that value is different.

What is generally recognised in the questionnaire responses is that the presence of asbestos in the ground can have a significant effect on land use and costs for remediation (either in the cost for remediating the asbestos itself as a risk and remediation driver, or in the additional cost for remediating a different risk driving contaminant because of the co-presence of asbestos).

There are a number of remediation options to consider, some more established than others. From a risk management perspective these options can be grouped as follows:

Monitor
- Risk assessment
- Monitoring strategy

Institutional Controls
- Land-use management
- Signs
- Fencing
- Permit control
- Land-use restrictions

Traditional Remediation Methods
- Excavation and disposal offsite
- In-situ containment (cover system)
- Hand-picking (ground or belt)
- Tilling
- Mechanical screening

Emerging/Innovative/ Alternative Methods
- Mechanical screening (advanced)
- Soil washing
- Vitrification
- ABCOV (acid destruction)
- Microwave destruction
- Modified low temperature thermal desorption
- Soil fungi
- Fine grinding
- Physical stabilisation
- Phytoremediation

The following scheme (next page) presents the risk management based considerations for the remedial options.

What is the context for the decision?	What is the risk characterisation?	Remediation options	Considerations for remediation options
Management of current situation (land condition and use)	Negligible risk and no regulatory driver for further action/intervention	Monitor	Monitoring locations and monitoring frequency Type of monitoring (realtime/continuous or spot monitoring, time duration, dust and/or fibres) Limit of detection and sensitivity of method (e.g. differentiation of fibre types and fibre sizes)
Regulatory intervention	Low risk - potential to manage risk without extensive remedial action	Institutional control	Is control of use/access of area practicable and achievable? Does it require reassurance boundary monitoring? Fencing, signage, specific PPE/RPE requirements
Preparation for site divestment/acquisition	Higher risk - requires more detailed consideration of remediation options	Remove	Can it be treated and re-used on-site? Can it be treated to reduce volume requiring disposal? Can it be treated to reduce handling/ transportation risk?
Preparation for site for new use		Cover	What level/degree of soil disturbance does this need to protect against? Durability. What ground access constraints are present which may restrict/constrain installation of cover (type, extent)?
Construction activity requiring asbestos containing soil to be excavated and/or constructed on		Ex-situ treatment	Treatment type - physical separation, chemical destruction, stabilisation. What is the required post-treatment specification for the material? What is the treatment capable of achieving?
		In-situ treatment	Treatment type - physical separation, chemical destruction, stabilisation. What is the required post-treatment specification for the material? What is the treatment capable of achieving?

Figure 14.2 Example of a Risk Management Decision Flowchart

Case study | Innovative Screening and Reuse on site

John F Hunt demolished and remediated this former 44-acre foundry / iron works site in Ipswich. The mixed-use site also held two historic landfills containing inert and 'difficult' waste.

Part of the works involved the management of 35,000 m^3 of previously unidentified fibrous asbestos in soil. This unforeseen event had not been budgeted for and could have potentially rendered the project unviable. John F Hunt worked quickly and pragmatically with the client's consultants and regulators to agree a solution to enable the re-use of materials on site, making the necessary adjustments to the remedial design and Materials Management Plan.

An innovative process engineered approach of complex sorting and cement stabilisation of the

Futura Business Park – Ipswich, UK | John F Hunt

All forms of asbestos were discovered including crocidolite lagging.

Pockets of asbestos covered much of the site at depths up to 5m.

Asbestos finds | John F Hunt

soil was agreed with the regulators to derive site won engineered fill that was suitable for use.

Due to the nature of the asbestos, the remediation works were undertaken as Licensed Asbestos Works managed by John F Hunt.

Contaminated soil was fed into a three-way screener. The oversize material off the screener was proven to be suitable for re-use. The mid-size component was passed to an 'asbestos picking station' where six operatives hand removed visible asbestos products; in some instance the material was passed though the picking station twice to ensure the re-use criteria of <0.1% asbestos (w/w) was achieved. Fine material coming off the screener was passed to a mill unit where

2% cement was added. The stabilised fines were fed onto a stacking conveyor with misting sprays that deposited the material directly into the excavation.

Throughout the works the air was monitored by an independent Asbestos Analyst to demonstrate that the control measures were suitable.

The processed soil was tested to show compliance with the Remediation Strategy, following which it was placed and compacted to form a development platform 1.5m below the finished site level.

John F Hunt were able to successfully treat 65,000 tonnes of asbestos contaminated soil using innovative techniques that ultimately saved the client over £10,000,000 in disposal costs.

Processing plant | John F Hunt

A number of innovations in remediation have either been proposed and/or implemented by remediation specialists, as exemplified in some of the case studies included in this document and the listing of potential options on page 37. Innovation does not have to be a completely new technology, and can include the innovative use of an existing technology.

Examples of this include the use of:

- Cement impregnated geotextiles for cover systems (see photographs to the right)
- Low temperature driers or thermal desorption units to extract loose fibres by drying + extraction of airborne fibres
- Mechanical screening (dry and/or wet)

Installation of surface barrier geotextile | Curtis Barrier Intl

A comprehensive review of remediation technologies is provided in a report by Bureau KLB for the Dutch Ministry for Infrastructure and Water Management published in 2018. This was driven by the need to reduce the unsustainable volume of asbestos contaminated soils being disposed to landfill in the Netherlands.

Mechanical screening of excavated soil | AECOM

Remedial objectives can shape option choices. For example:

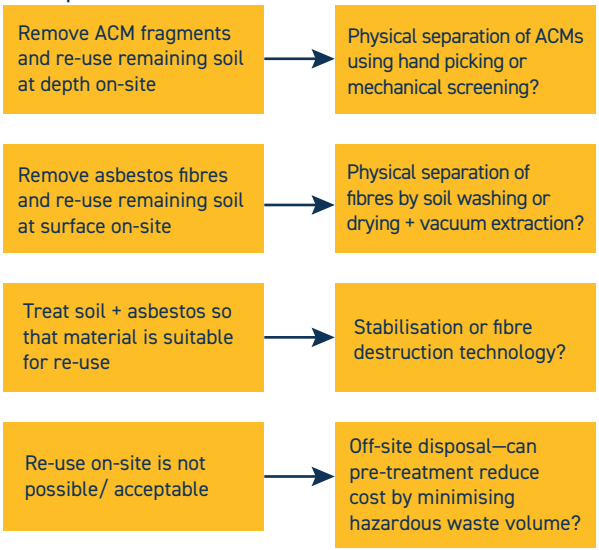


Figure 13.1 Examples of choices for different Remedial objectives

Factors to consider in remedial selection can include:

- Types of asbestos present
- Levels of asbestos present
- Area / volume of impacted soil
- Timescales
- Client risk perception / avoid land blight
- Sustainability
- Presence of other contamination
- Current and/or proposed land-use
- Site location (and proximity to receptors)
- Occupational health constraints
- Remediation standard required
- Other requirements for soil (e.g. geotechnical)

Removing asbestos contaminated soil | NTP

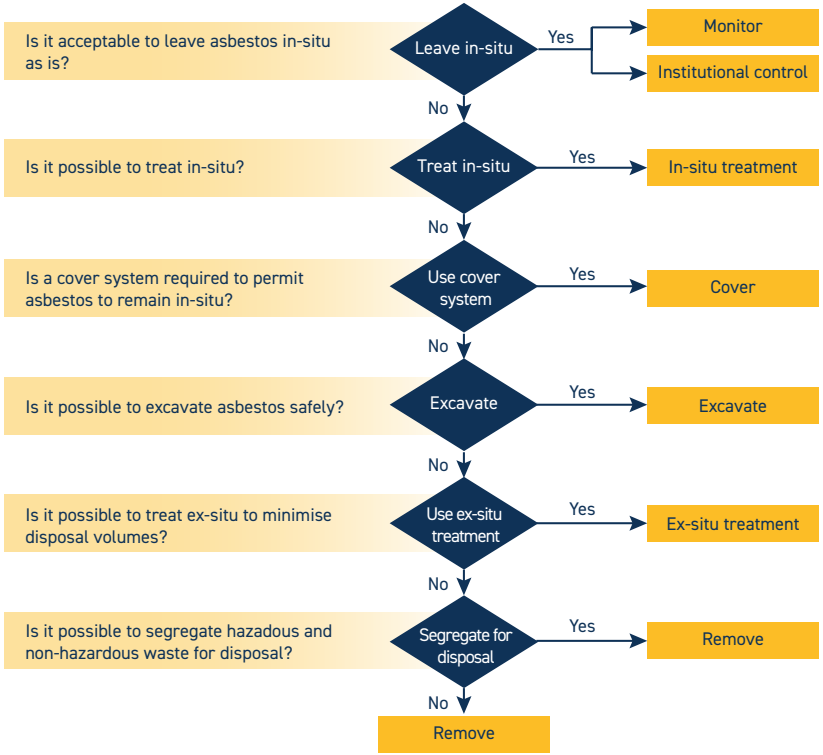


Figure 13.2 Example of a Remediation Decision Flowchart

14 Sustainable Remediation

Trommel screening of excavated soil | McAuliffe

Asbestos in soil remediation options should be considered in accordance with sustainable remediation frameworks (e.g. SuRF). Does the remediation approach represent the best solution when considering environmental, economic and social factors as agreed with stakeholders? How can successful remediation best be achieved with minimal environmental impact? What remedial solution delivers the greatest cost-benefit? Does the selected approach transfer impacts to future generations?

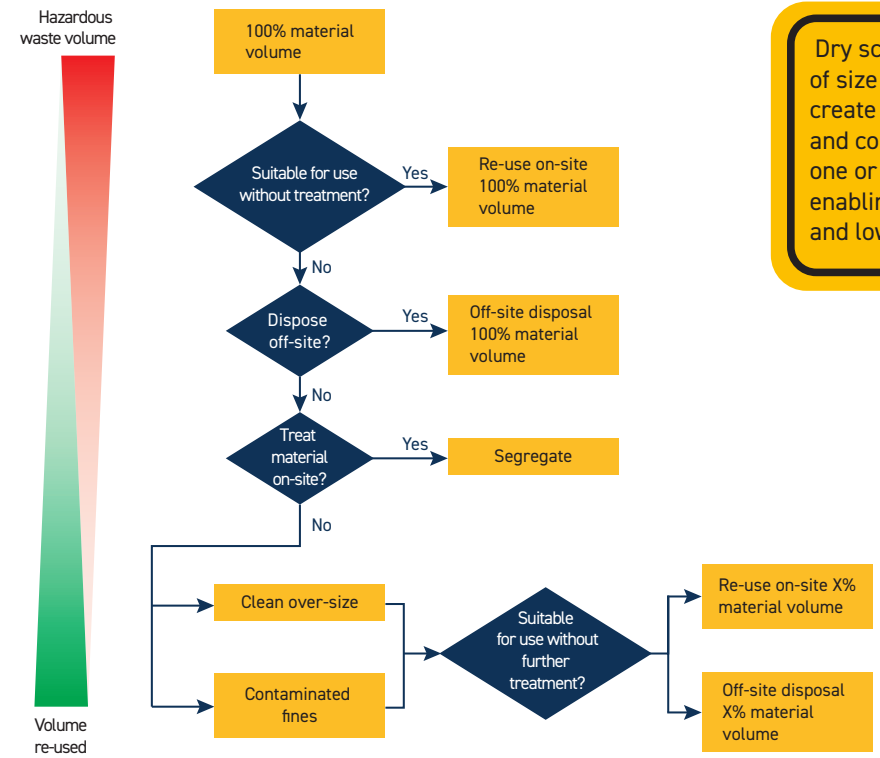
A simple example is the consideration of on-site physical separation to maximise the re-use of

Belt-picking station | McAuliffe


Hand picking of asbestos fragments on a belt | McAuliffe

material on-site and minimise off-site waste disposal. One way of viewing this is via a decision flowchart such as the examples on the following pages which illustrate the decision process and disposal volume reduction created by the adoption of mechanical separation treatment techniques. The use and sequencing of the material screening techniques will be influenced by a number of factors including:

- Cost of treatment versus cost of disposal
- Particle size distribution of material
- Remediation standard



Dry screening and separation of size fractions could create clean size-fractions and concentrate asbestos in one or more size fractions, enabling re-use of some material and lowering disposal volumes

Figure 14.1 An example of a treatment decision process for dry screening as a sustainable option

AECOM developed a remediation and excavated materials management strategy for the redevelopment of a former car part manufacturing facility located in the UK.

The presence of soil contaminants necessitated a remediation and earthworks strategy that had sustainability at its core: maximising reuse of site-won material, and minimising off-site disposal whist at the same time providing a safe development platform. The remediation strategy sought to first treat organic-based contamination through ex-situ bioremediation. Alongside the remediation works, an excavated materials management plan (MMP) was developed under the CL:AIRE Definition of Waste: Development Industry Code of Practice (Code of Practice) to support the earthworks design. Demolition of the former buildings and hard standing occurred alongside the soil remediation under separate contract by a third party. Four stockpiles of screened demolition materials (approx. 26,500 m^3) were prepared for re-use. However, these materials were subsequently found to contain a proportion of asbestos containing materials (ACM) which had in places also contaminated the ground as the stockpiles had been moved around by the contractor.

Asbestos finds | AECOM

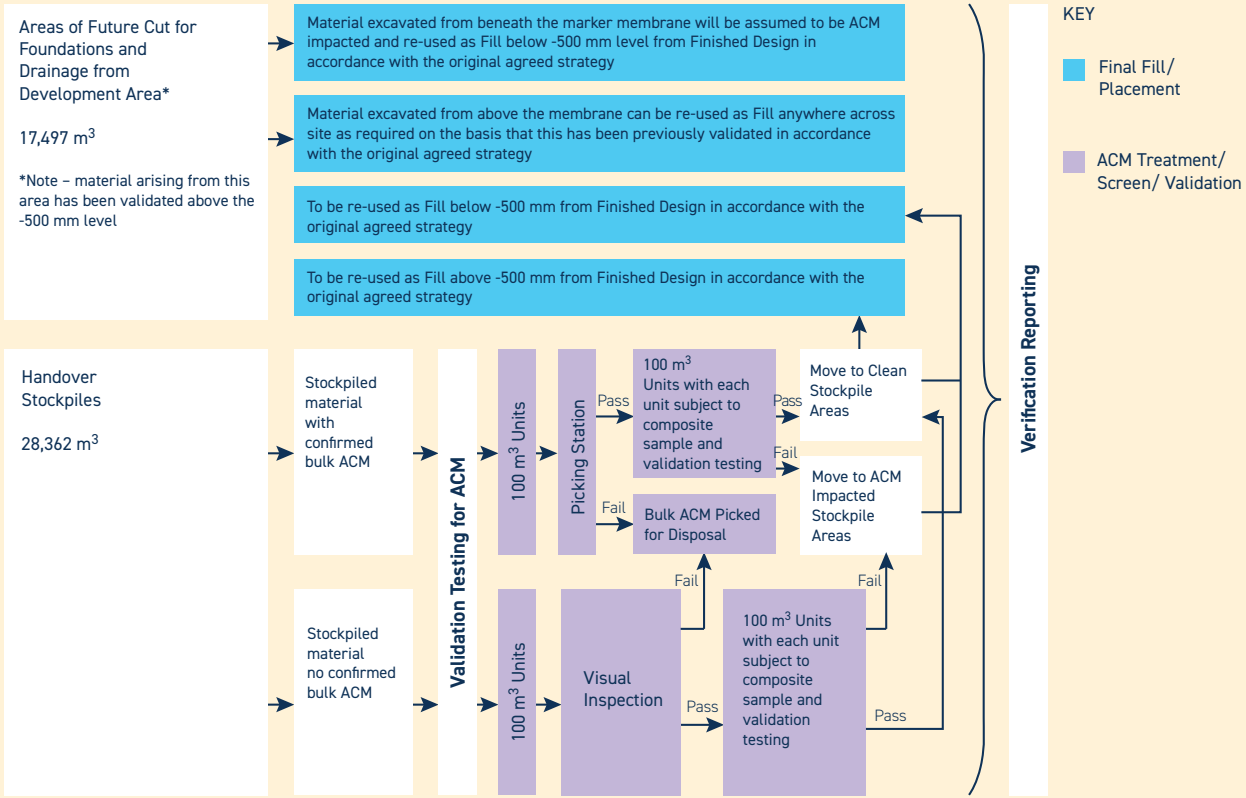


Figure C2.1 Material Management Flowchart

In order for the stockpiled materials to be re-used as part of the consented design a revised strategy was required to ensure the appropriate and safe re-use of these materials. AECOM prepared a detailed assessment on the levels of ACM and asbestos free fibres recorded in the materials and also quantified the level of risk posed by the materials. The soil re-use strategy was developed in accordance with the Control of Asbestos Regulations (2012) and the HSE Approved Code of Practice for managing and working with asbestos (ACoP L143) and gained regulatory agreement.

The strategy developed for the areas of impacted ground centred on a minimum of 500mm validated clean cover being placed below finished design level with the installation of a geotextile marker membrane at the interface of the clean cover and existing ground level. The strategy also made provision for selected 6F2 (UK highway's grade of aggregate) stockpiles impacted with asbestos to be

Installation of the cover system | AECOM

treated through mechanical screening, sorting and hand picking to generate screened material that met agreed validation criteria (<0.001% asbestos). The mechanical screening successfully separating the larger size fractions that were free of asbestos from the smaller size fractions where the asbestos tended to be. The treated larger size fractions could then be recrushed to produce graded material suitable for use in the development without restriction. Stockpiles that were not treated were tracked and used in dedicated areas of the development under 500mm of clean cover with geotextile marker membrane. In areas where soils containing ACM were placed beneath cover, the strategy set out the principles and expectations for a future site management strategy that would need to be adopted upon completion.

The approach taken at this site ensured that the excavated and site-won materials were managed sustainably on site, minimising potential off-site disposal and material import consistent with the original design aspirations and expectations attached to the planning consent.

15 Opportunities for Harmonisation

There are opportunities for and benefits of harmonisation:

- The advocacy of sustainable approaches to risk management
- Greater recognition of the cost-benefit of waste minimisation using ex-situ or in-situ techniques
- A common understanding of risk and a risk-based, proportionate, response to asbestos in soil

There are also barriers to harmonisation that ultimately will limit the degree of harmonisation that is possible. For example:

- Different national legislation and regulatory guidance
- Differing risk perception and/or prioritisation
- Differing scale of issue
- Differing scientific opinion

Figure 15.1 Harmonised approach

16 Concluding Remarks

The problem of asbestos contaminated soil is a common one across Europe, albeit to varying degrees and largely linked to the historic use and management of asbestos in construction and demolition of buildings. It is a recognised challenge for the risk management of existing land use and the re-purposing of brownfield land in some but not all European countries. As result there are well established guidance and procedures in place in some countries and an absence in others. The variability in approaches is marked, with highly detailed and prescriptive regulator-driven guidance in countries such as The Netherlands and Belgium, and less prescriptive industry-led guidance in the UK.

The opportunities for harmonisation across countries are few—certainly in the short-term, and this is driven by the different legislature and regulatory guidance in each country and the large differences in investigation approaches across European countries that have guidance in place. It is also evident that the approaches in countries are not all entirely risk-based. For example, the requirement to remove all visible fragments of asbestos in soil in Italy irrespective of the soil standard in Italy of 1000 mg/kg (which is the EU hazardous waste limit for asbestos). For many countries it is still the case that no risk-based guidance exists for asbestos in soil, and in those countries (unless gross asbestos contamination is identified) the consideration of low or trace levels of asbestos in soil is not a default consideration in site investigation design and land management.

There is therefore a place for advocating good practice in investigation, in risk assessment, and in

remediation, employing the best science and utilising the most sustainable remediation options. This is relevant both for European countries where regulation and guidance is currently absent, and for European countries where guidance is in place.

The pace of change in asbestos regulation and guidance is slow and there are opportunities to learn from countries outside of Europe, for example the work of the US EPA in the USA and the work of the Australasian Land and Groundwater Association (ALGA) and BRANZ Ltd in Australia and New Zealand.

CONTENT DISCLAIMER:
This publication does not necessarily represent the opinions of all NICOLE members.

Acknowledgements

NICOLE gratefully acknowledges the co-authors of this publication—Simon Cole (AECOM), Phil Studds (Ramboll) and Tomas Albergaria (Instituto Superior de Engenharia do Porto) - and the other members of the Asbestos in Soil Working Group - Jean-Louis Seveque (AquaTerraSana) and Caroline Dionisi (EDF)

The co-authors gratefully acknowledge the review and constructive feedback on the early drafts of this publication by their colleagues at AECOM and Ramboll, and the patience of the NICOLE Steering Group.

Acronyms and Abbreviations

ACM Asbestos containing material

AIB Asbestos insulation board

AISS UK Health and Safety Laboratory (HSL) Proficiency Testing for Asbestos in https://www.hsl.gov.uk/proficiency-testing-schemes/aiss

DRX X-ray diffraction

f/ml a unit of measurement for air (asbestos fibres per millilitre of air sampled)

f/m^3 a unit of measurement for air (asbestos fibres per cubic metre of air sampled)

FTIR Fourier transform infrared spectrometry

HSE UK Health and Safety Executive https://www.hse.gov.uk/

OVAM Public waste agency of Flanders https://www.ovam.be/

PCOM Phase-contrast optical microscopy (alternative acronym used is PCM)

PLM Polarised light microscopy

RIVM Netherlands National Institute for Public Health and the Environment https://www.rivm.nl/en

SCA UK Standing Committee of Analysts
http://standingcommitteeofanalysts.co.uk/

SEM Scanning electron microscopy

SoBRA UK Society of Brownfield Risk Assessment https://sobra.org.uk/

SuRF Sustainable Remediation Forum https://www.sustainableremediation.org/
and https://www.claire.co.uk/projects-and-initiatives/surf-uk

TEM Transmission electron microscopy

TNO Netherlands Organisation for Applied Scientific Research
https://www.tno.nl/en/

VROM Former Netherlands Ministry of Housing, Spatial Planning and the Environment (since 2010 with the Ministry of Infrastructure and the Environment)

US EPA United States Environmental Protection Agency https://www.epa.gov/

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Colofon

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Issued:	June 2021
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NICOLE is a leading forum on industrially co-ordinated sustainable land management in Europe, promoting co-operation between industry, academia and service providers on the development and application of sustainable technologies. The overall objective of NICOLE is to pro-actively enable European industry to identify, assess and manage industrially contaminated land efficiently, cost-effectively, and within a framework of sustainability.
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APPENDIX C. ASBESTOS MONITORING DATA: COVERED SCREENER AND HEPA FILTER DATA: ROWLEY REGIS

working for a healthy and sustainable world

CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
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CONTRACT NO: S26545a

DATE OF ISSUE: 11.07.22

DATE ANALYSIS REQUESTED: 05.07.22

DATE ANALYSIS COMPLETED: 08.07.22

SAMPLES: Ten airborne dust samples each supplied as two half gridded MCE membrane filters.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each pair of half membrane filters is ashed in a low temperature plasma asher. The combined residue from each pair is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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CONTRACT NO: S26545a
DATE OF ISSUE: 11.07.22

RESULTS:

Client Ref: PO – RR151

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
*ERQ ASB 1 (27/06/22)	1440	12	300	0.0020	1 / <0.0005*	4.5 / 0.0007	4 / 0.0007	2.5/ <0.0005*
ERQ outside (27/06/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
*ERQ ASB 1 (28/06/22)	1440	11	300	0.0018	3 / 0.0005	0 / <0.0005*	5 / 0.0008	3 / 0.0005
ERQ outside (28/06/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
*ERQ ASB 1 (29/06/22)	1440	6.5	300	0.0011	4 / 0.0007	2.5/ <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ outside (29/06/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
*ERQ ASB 1 (30/06/22)	1440	6	300	0.0010	1 / <0.0005*	0 / <0.0005*	3 / 0.0005	2 / <0.0005*
ERQ outside (30/06/22)	1440	1	150	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
*ERQ ASB 1 (01/07/22)	1440	3	300	0.0005	1 / <0.0005*	0 / <0.0005*	2 / <0.0005*	0 / <0.0005*
ERQ outside (01/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

CONTRACT NO: S26545a
DATE OF ISSUE: 11.07.22

COMMENTS:

Asbestos fibres were detected during the analysis of all of the ERQ ASB 1 samples and sample ERQ Outside 30/06/22. No asbestos fibres were detected on any of the other samples.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

Each sample supplied for analysis comprised two half membrane filters. These were combined during plasma ashing to form single samples with combined sample volumes of 1440 litres.

The ERQ ASB 1 samples (marked with *) were too dusty to be analysed as received. Following plasma ashing, the residue from each of the dusty samples was made up in solution using a measured amount of filtered distilled water and an aliquot of the resultant suspension was used to prepare a filter suitable for analysis. This dilution factor was taken into account when calculating the results therefore the fibre concentrations reported above reflect the level of fibres on the entire original sample. This aspect of the work was outside the scope of our UKAS accreditation.

At the client's request, a greater number of screen areas than that used for our standard analysis were analysed in order to achieve a lower limit of detection for the samples that required dilution.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

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CONTRACT NO: S26732a

DATE OF ISSUE: 19.07.22

DATE ANALYSIS REQUESTED: 13.07.22

DATE ANALYSIS COMPLETED: 18.07.22

SAMPLES: Fourteen airborne dust samples each supplied as two half gridded MCE membrane filters.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each pair of half membrane filters is ashed in a low temperature plasma asher. The combined residue from each pair is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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CONTRACT NO: S26732a
DATE OF ISSUE: 19.07.22

RESULTS:

Client Ref: PO – RR151

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
ERQ ASB 1 (04/07/22)	1440	1.5	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1.5 /<0.0005*
ERQ outside (04/07/22)	1440	1.5	150	<0.0005*	1.5 /<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 1 (05/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ outside (05/07/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ERQ ASB 1 (06/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ outside (06/07/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
*ERQ ASB 1 (07/07/22)	1440	4	300	0.0007	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*	3 / 0.0005
ERQ ASB 2 (07/07/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ERQ ASB 3 (07/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 4 (07/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 1 (08/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 2 (08/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 3 (08/07/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ERQ ASB 4 (08/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

CONTRACT NO: S26732a
DATE OF ISSUE: 19.07.22

COMMENTS:

Small numbers of asbestos fibres were detected during the analysis of sample numbers ERQ Outside 04.07.22 and ERQ ASB 1 07.07.22. No asbestos fibres were detected on any of the other samples.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

Each sample supplied for analysis comprised two half membrane filters. These were combined during plasma ashing to form single samples with combined sample volumes of 1440 litres.

The ERQ ASB 1 sample (marked with *) was too dusty to be analysed as received. Following plasma ashing, the residue from the dusty sample was made up in solution using a measured amount of filtered distilled water and an aliquot of the resultant suspension was used to prepare a filter suitable for analysis. This dilution factor was taken into account when calculating the results therefore the fibre concentrations reported above reflect the level of fibres on the entire original sample. This aspect of the work was outside the scope of our UKAS accreditation.

At the client's request, a greater number of screen areas than that used for our standard analysis were analysed in order to achieve a lower limit of detection for the samples that required dilution.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

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IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

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DATE OF ISSUE: 28.07.22

DATE ANALYSIS REQUESTED: 21.07.22

DATE ANALYSIS COMPLETED: 27.07.22

SAMPLES: Twenty airborne dust samples each supplied as two half gridded MCE membrane filters.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each pair of half membrane filters is ashed in a low temperature plasma asher. The combined residue from each pair is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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CONTRACT NO: S26905
DATE OF ISSUE: 28.07.22

RESULTS:
Client Ref: PO – RR151

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
*ERQ ASB 1 (11/07/22)	1440	9	600	0.0015	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*	8 / 0.0013
ERQ ASB 2 (11/07/22)	1440	2	150	<0.0005*	1 / <0.0005*	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*
ERQ ASB 3 (11/07/22)	1440	2	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*	1 / <0.0005*
ERQ ASB 4 (11/07/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
*ERQ ASB 1 (12/07/22)	1440	5	600	0.0008	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*	4 / 0.0007
ERQ ASB 2 (12/07/22)	1440	2	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*
ERQ ASB 3 (12/07/22)	1440	2	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*
ERQ ASB 4 (12/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
*ERQ ASB 1 (13/07/22)	1440	2	600	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*
ERQ ASB 2 (13/07/22)	1440	2	150	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ERQ ASB 3 (13/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 4 (13/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
*ERQ ASB 1 (14/07/22)	1440	1	600	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ERQ ASB 2 (14/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 3 (14/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 4 (14/07/22)	1440	2	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*	1 / <0.0005*
*ERQ ASB 1 (15/07/22)	1440	4	600	0.0007	2 / <0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*
ERQ ASB 2 (15/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 3 (15/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 4 (15/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

CONTRACT NO: S26905
DATE OF ISSUE: 28.07.22

COMMENTS:

Small numbers of asbestos fibres were detected during the analysis of four of the twenty samples supplied for this analysis. No asbestos fibres were detected on any of the other samples.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

Each sample supplied for analysis comprised two half membrane filters. These were combined during plasma ashing to form single samples with combined sample volumes of 1440 litres.

The samples (marked with *) were too dusty to be analysed as received. Following plasma ashing, the residue from each of the dusty samples was made up in solution using a measured amount of filtered distilled water and an aliquot of the resultant suspension was used to prepare a filter suitable for analysis. This dilution factor was taken into account when calculating the results therefore the fibre concentrations reported above reflect the level of fibres on the entire original sample. This aspect of the work was outside the scope of our UKAS accreditation.

At the client's request, a greater number of screen areas than that used for our standard analysis were analysed in order to achieve a lower limit of detection for the samples that required dilution.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

AUTHORISED BY: .....
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CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
Regent House
Bath Avenue
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WV1 4EG

CONTRACT NO: S27044

DATE OF ISSUE: 03.08.22

DATE ANALYSIS REQUESTED: 29.07.22

DATE ANALYSIS COMPLETED: 02.08.22

SAMPLES: Twenty airborne dust samples each supplied as two half gridded MCE membrane filters.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each pair of half membrane filters is ashed in a low temperature plasma asher. The combined residue from each pair is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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CONTRACT NO: S27044
DATE OF ISSUE: 03.08.22

RESULTS:
Client Ref: PO – RR151

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
*ERQ ASB 1 (18/07/22)	1440	2	600	<0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*	0 / <0.0005*
ERQ ASB 2 (18/07/22)	1440	1.5	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*	0.5 /<0.0005*
ERQ ASB 3 (18/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 4 (18/07/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*
*ERQ ASB 1 (19/07/22)	1440	4	600	0.0007	0 / <0.0005*	0 / <0.0005*	4 / 0.0007	0 / <0.0005*
ERQ ASB 2 (19/07/22)	1440	1	150	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 3 (19/07/22)	1440	2	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*
ERQ ASB 4 (19/07/22)	1440	2	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*
*ERQ ASB 1 (20/07/22)	1440	3	300	0.0005	0 / <0.0005*	1 / <0.0005*	1 / <0.0005*	1 / <0.0005*
ERQ ASB 2 (20/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 3 (20/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 4 (20/07/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
*ERQ ASB 1 (21/07/22)	1440	2	300	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ERQ ASB 2 (21/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 3 (21/07/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ERQ ASB 4 (21/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 1 (22/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 2 (22/07/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ERQ ASB 3 (22/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 4 (22/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

CONTRACT NO: S27044
DATE OF ISSUE: 03.08.22

COMMENTS:

Small numbers of asbestos fibres were detected during the analysis of three of the twenty samples supplied for this analysis. No asbestos fibres were detected on any of the other samples.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

Each sample supplied for analysis comprised two half membrane filters. These were combined during plasma ashing to form single samples with combined sample volumes of 1440 litres.

The samples (marked with *) were too dusty to be analysed as received. Following plasma ashing, the residue from each of the dusty samples was made up in solution using a measured amount of filtered distilled water and an aliquot of the resultant suspension was used to prepare a filter suitable for analysis. This dilution factor was taken into account when calculating the results therefore the fibre concentrations reported above reflect the level of fibres on the entire original sample. This aspect of the work was outside the scope of our UKAS accreditation.

At the client's request, a greater number of screen areas than that used for our standard analysis were analysed in order to achieve a lower limit of detection for the samples that required dilution.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

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CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
Regent House
Bath Avenue
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WV1 4EG

CONTRACT NO: S27272

DATE OF ISSUE: 17.08.22

DATE ANALYSIS REQUESTED: 11.08.22

DATE ANALYSIS COMPLETED: 16.08.22

SAMPLES: Twenty airborne dust samples each supplied as two half gridded MCE membrane filters.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each pair of half membrane filters is ashed in a low temperature plasma asher. The combined residue from each pair is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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CONTRACT NO: S27272
DATE OF ISSUE: 17.08.22

RESULTS:
Client Ref: PO – RR151

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
ERQ ASB 1 (25/07/22)	1440	1	150	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 2 (25/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 /<0.0005*
ERQ ASB 3 (25/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 4 (25/07/22)	1440	2	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*	0 / <0.0005*
ERQ ASB 1 (26/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / 0.0007	0 / <0.0005*
ERQ ASB 2 (26/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 3 (26/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 4 (26/07/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ERQ ASB 1 (27/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 2 (27/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 3 (27/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 4 (27/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 1 (28/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 2 (28/07/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ERQ ASB 3 (28/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 4 (28/07/22)	1440	1.5	150	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0.5 /<0.0005*
ERQ ASB 1 (29/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 2 (29/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 3 (29/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 4 (29/07/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

CONTRACT NO: S27272
DATE OF ISSUE: 17.08.22

COMMENTS:

Single asbestos fibres were detected during the analysis of two of the twenty samples supplied for this analysis. No asbestos fibres were detected on any of the other samples.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

Each sample supplied for analysis comprised two half membrane filters. These were combined during plasma ashing to form single samples with combined sample volumes of 1440 litres.

At the client's request, a greater number of screen areas than that used for our standard analysis were analysed in order to achieve a lower limit of detection for the samples that required dilution.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

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working for a healthy and sustainable world

CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
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WV1 4EG

CONTRACT NO: S27326

DATE OF ISSUE: 23.08.22

DATE ANALYSIS REQUESTED: 15.08.22

DATE ANALYSIS COMPLETED: 23.08.22

SAMPLES: Twenty airborne dust samples each supplied as two half gridded MCE membrane filters.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each pair of half membrane filters is ashed in a low temperature plasma asher. The combined residue from each pair is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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IOM CONSULTING LIMITED, registered in Scotland No. SC205670

CONTRACT NO: S27326
DATE OF ISSUE: 23.08.22

RESULTS:
Client Ref: PO – RR151

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
ERQ ASB 1 (01/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 2 (01/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 3 (01/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 4 (01/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 1 (02/08/22)	1440	3	150	0.0005	0 / <0.0005*	0 / <0.0005*	0 / 0.0007	3 / 0.0005
ERQ ASB 2 (02/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 3 (02/08/22)	1440	1.5	150	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0.5 /<0.0005*
ERQ ASB 4 (02/08/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ERQ ASB 1 (03/08/22)	1440	2	150	<0.0005*	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ERQ ASB 2 (03/08/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ERQ ASB 3 (03/08/22)	1440	1	150	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 4 (03/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 1 (04/08/22)	1440	1	150	<0.0005*	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 2 (04/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 3 (04/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 4 (04/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
*ERQ ASB 1 (05/08/22)	1440	13.5	600	0.0022	0 / <0.0005*	4 / 0.0007	1 / <0.0005*	8.5 / 0.0014
ERQ ASB 2 (05/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 3 (05/08/22)	1440	2	150	<0.0005*	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ERQ ASB 4 (05/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

CONTRACT NO: S27326
DATE OF ISSUE: 23.08.22

COMMENTS:

Small numbers of asbestos fibres were detected during the analysis of six of the twenty samples supplied for this analysis. No asbestos fibres were detected in any of the other samples.

*Sample number ERQ ASB 1 (05/08/22) was too dusty to be analysed as received. Following plasma ashing, the residue from this sample was made up in solution using a measured amount of filtered distilled water and an aliquot of the resultant suspension was used to prepare a filter suitable for analysis. This dilution factor was taken into account when calculating the results therefore the fibre concentrations reported above reflect the level of fibres on the entire original sample. This aspect of the work was outside the scope of our UKAS accreditation.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

Each sample supplied for analysis comprised two half membrane filters. These were combined during plasma ashing to form single samples with combined sample volumes of 1440 litres.

At the client's request, a greater number of screen areas than that used for our standard analysis were analysed in order to achieve a lower limit of detection for the samples that required dilution.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

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CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
Regent House
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WV1 4EG

CONTRACT NO: S27368

DATE OF ISSUE: 25.08.22

DATE ANALYSIS REQUESTED: 17.08.22

DATE ANALYSIS COMPLETED: 24.08.22

SAMPLES: Twenty airborne dust samples each supplied as two half gridded MCE membrane filters.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each pair of half membrane filters is ashed in a low temperature plasma asher. The combined residue from each pair is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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IOM CONSULTING LIMITED, registered in Scotland No. SC205670

CONTRACT NO: S27368
DATE OF ISSUE: 25.08.22

RESULTS:
Client Ref: PO – RR151

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
*ERQ ASB 1 (08/08/22)	1440	3.5	600	0.0005	0.5 /<0.0005*	0 / <0.0005*	1 / <0.0005*	2 / <0.0005*
*ERQ ASB 2 (08/08/22)	1440	1	300	<0.0005*	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 3 (08/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 4 (08/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
*ERQ ASB 1 (09/08/22)	1440	10	600	0.0016	1 / <0.0005*	1 / <0.0005*	0 / <0.0005*	8 / 0.0013
*ERQ ASB 2 (09/08/22)	1440	3	300	0.0005	2 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
*ERQ ASB 3 (09/08/22)	1440	2	300	<0.0005*	1 / <0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 4 (09/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
*ERQ ASB 1 (10/08/22)	1440	5	1200	0.0008	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	4 / 0.0007
ERQ ASB 2 (10/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 3 (10/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 4 (10/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
*ERQ ASB 1 (11/08/22)	1440	1.5	300	<0.0005*	0 / <0.0005*	1.5 /<0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 2 (11/08/22)	1440	1	150	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 3 (11/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 4 (11/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
*ERQ ASB 1 (12/08/22)	1440	5	1200	0.0005	1 / <0.0005*	1 / <0.0005*	1 / <0.0005*	2 / <0.0005*
ERQ ASB 2 (12/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 3 (12/08/22)	1440	2	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*
ERQ ASB 4 (12/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

CONTRACT NO: S27368
DATE OF ISSUE: 25.08.22

COMMENTS:

Small numbers of asbestos fibres were detected during the analysis of nine of the twenty samples supplied for this analysis.

*These samples were too dusty to be analysed as received. Following plasma ashing, the residue from each sample was made up in solution using a measured amount of filtered distilled water and an aliquot of the resultant suspension was used to prepare a filter suitable for analysis. This dilution factor was taken into account when calculating the results therefore the fibre concentrations reported above reflect the level of fibres on each entire original sample. This aspect of the work was outside the scope of our UKAS accreditation.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

Each sample supplied for analysis comprised two half membrane filters. These were combined during plasma ashing to form single samples with combined sample volumes of 1440 litres.

At the client's request, a greater number of screen areas than that used for our standard analysis were analysed in order to achieve a lower limit of detection for the samples that required dilution.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

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CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
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CONTRACT NO: S27684

DATE OF ISSUE: 12.09.22

DATE ANALYSIS REQUESTED: 05.09.22

DATE ANALYSIS COMPLETED: 09.09.22

SAMPLES: Twenty airborne dust samples each supplied as two half gridded MCE membrane filters.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each pair of half membrane filters is ashed in a low temperature plasma asher. The combined residue from each pair is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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CONTRACT NO: S27684
DATE OF ISSUE: 12.09.22

RESULTS:

Client Ref: PO – RR151

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
*ERQ ASB 1 (15/08/22)	1440	7	600	0.0011	1 / <0.0005*	0 / <0.0005*	1 / <0.0005*	5 / 0.0008
ERQ ASB 2 (15/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 3 (15/08/22)	1440	1	150	<0.0005*	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 4 (15/08/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
*ERQ ASB 1 (16/08/22)	1440	5.5	600	0.0009	0.5 /<0.0005*	0 / <0.0005*	0 / <0.0005*	5 / 0.0008
ERQ ASB 2 (16/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 3 (16/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 4 (16/08/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
*ERQ ASB 1 (17/08/22)	1440	9.5	600	0.0016	1 / <0.0005*	1 / <0.0005*	0 / <0.0005*	7.5 / 0.0012
ERQ ASB 2 (17/08/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ERQ ASB 3 (17/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 4 (17/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
*ERQ ASB 1 (18/08/22)	1440	2	600	<0.0005*	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ERQ ASB 2 (18/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 3 (18/08/22)	1440	1	150	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 4 (18/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
*ERQ ASB 1 (19/08/22)	1440	1	600	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 2 (19/08/22)	1440	2	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*
ERQ ASB 3 (19/08/22)	1440	2	150	<0.0005*	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ERQ ASB 4 (19/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

CONTRACT NO: S27684
DATE OF ISSUE: 12.09.22

COMMENTS:

Small numbers of asbestos fibres were detected during the analysis of eight of the twenty samples supplied for this analysis.

*These samples were too dusty to be analysed as received. Following plasma ashing, the residue from each sample was made up in solution using a measured amount of filtered distilled water and an aliquot of the resultant suspension was used to prepare a filter suitable for analysis. This dilution factor was taken into account when calculating the results therefore the fibre concentrations reported above reflect the level of fibres on each entire original sample. This aspect of the work was outside the scope of our UKAS accreditation.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

Some of the samples supplied for analysis comprised two half membrane filters. These were combined during plasma ashing to form single samples with combined sample volumes of 1440 litres.

At the client's request, a greater number of screen areas than that used for our standard analysis were analysed in order to achieve a lower limit of detection for any samples that required dilution.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

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CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
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CONTRACT NO: S26545b

DATE OF ISSUE: 11.07.22

DATE ANALYSIS REQUESTED: 05.07.22

DATE ANALYSIS COMPLETED: 08.07.22

SAMPLES: Five airborne dust samples each supplied as two half gridded MCE membrane filters.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each pair of half membrane filters is ashed in a low temperature plasma asher. The combined residue from each pair is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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CONTRACT NO: S26545b
DATE OF ISSUE: 11.07.22

RESULTS:

Client Ref: PO – RR151

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
ERQ Screener (27/06/22)	1440	5.5	300	0.0009	1 / <0.0005*	0 / <0.0005*	2.5 /<0.0005*	2 / <0.0005*
ERQ Screener (28/06/22)	1440	11	300	0.0018	2 / <0.0005*	0 / <0.0005*	8 / 0.0013	1 / <0.0005*
ERQ Screener (29/06/22)	1440	7.5	300	0.0012	3 / 0.0005	0 / <0.0005*	4.5 / 0.0007	0 / <0.0005*
ERQ Screener (30/06/22)	1440	2	300	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ERQ Screener (01/07/22)	1440	4.5	300	0.0007	3.5 / 0.0006	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

COMMENTS:

Small numbers of amphibole asbestos fibres were detected during the analysis of all five samples.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

Each sample supplied for analysis comprised two half membrane filters. These were combined during plasma ashing to form single samples with combined sample volumes of 1440 litres.

These samples were too dusty to be analysed as received. Following plasma ashing, the residue from each of the dusty samples was made up in solution using a measured amount of filtered distilled water and an aliquot of the resultant suspension was used to prepare a filter suitable for analysis. This dilution factor was taken into account when calculating the results therefore the fibre concentrations reported above reflect the level of fibres on the entire original sample. This aspect of the work was outside the scope of our UKAS accreditation.

At the client's request, a greater number of screen areas than that used for our standard analysis were analysed in order to achieve a lower limit of detection for the samples that required dilution.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

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CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
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CONTRACT NO: S26732b

DATE OF ISSUE: 19.07.22

DATE ANALYSIS REQUESTED: 13.07.22

DATE ANALYSIS COMPLETED: 18.07.22

SAMPLES: Three airborne dust samples each supplied as two half gridded MCE membrane filters.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each pair of half membrane filters is ashed in a low temperature plasma asher. The combined residue from each pair is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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CONTRACT NO: S26732b
DATE OF ISSUE: 19.07.22

RESULTS:

Client Ref: PO – RR151

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
ERQ Screener (04/07/22)	1440	0	300	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ Screener (05/07/22)	1440	1.5	300	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1.5 /<0.0005*
ERQ Screener (06/07/22)	1440	1	300	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

CONTRACT NO: S26732b
DATE OF ISSUE: 19.07.22

COMMENTS:

No asbestos fibres were detected during the analysis of any of these samples.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

Each sample supplied for analysis comprised two half membrane filters. These were combined during plasma ashing to form single samples with combined sample volumes of 1440 litres.

These samples were too dusty to be analysed as received. Following plasma ashing, the residue from each of the dusty samples was made up in solution using a measured amount of filtered distilled water and an aliquot of the resultant suspension was used to prepare a filter suitable for analysis. This dilution factor was taken into account when calculating the results therefore the fibre concentrations reported above reflect the level of fibres on the entire original sample. This aspect of the work was outside the scope of our UKAS accreditation.

At the client's request, a greater number of screen areas than that used for our standard analysis were analysed in order to achieve a lower limit of detection for the samples that required dilution.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

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APPENDIX D. ASBESTOS MONITORING DATA: UNCOVERED SCREENER: ROWLEY REGUS

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CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
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Wolverhampton
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CONTRACT NO: S27685

DATE OF ISSUE: 12.09.22

DATE ANALYSIS REQUESTED: 05.09.22

DATE ANALYSIS COMPLETED: 12.09.22

SAMPLES: Twenty airborne dust samples each supplied on gridded MCE membrane filters.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each membrane filter is ashed in a low temperature plasma asher. The residue is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

www.iom-world.org

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IOM CONSULTING LIMITED, registered in Scotland No. SC205670

CONTRACT NO: S27685
DATE OF ISSUE: 12.09.22

RESULTS:

Client Ref: PO – RR151

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
*ERQ SCREENER (22/08/22)	1440	2.5	1200	<0.0010*	1 / <0.0010*	0 / <0.0010*	0 / <0.0010*	1.5 /<0.0010*
*ERQ SCREENER (23/08/22)	1440	1	1200	<0.0010*	0 / <0.0010*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
*ERQ SCREENER (24/08/22)	1440	4.5	1200	0.0059	0 / <0.0040*	0.5 /<0.0040*	0 / <0.0040*	4 / 0.0052
*ERQ SCREENER (25/08/22)	1440	4	1200	0.0013	0 / <0.0010*	1 / <0.0010*	0 / <0.0010*	3 / 0.0010
*ERQ ASB 1 (22/08/22)	1440	1	1200	<0.0010*	0/ <0.0010*	0 / <0.0010*	0 / <0.0010*	1 / <0.0010*
*ERQ ASB 2 (22/08/22)	1440	8	600	0.0013	1 / <0.0005*	1 / <0.0005*	0 / <0.0005*	6 / 0.0010
*ERQ ASB 3 (22/08/22)	1440	6	300	0.0010	1 / <0.0005*	2 / <0.0005*	0 / <0.0005*	3 / 0.0005
*ERQ ASB 4 (22/08/22)	1440	3	300	0.0005	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	3 / 0.0005
*ERQ ASB 1 (23/08/22)	1440	23	1200	0.0038	3 / 0.0005	2.5 /<0.0005*	0 / <0.0005*	17.5 /0.0029
*ERQ ASB 2 (23/08/22)	1440	17.5	600	0.0029	0 / <0.0005*	5.5 / 0.0009	3 / 0.0005	9 / 0.0015
*ERQ ASB 3 (23/08/22)	1440	13	600	0.0021	1 / <0.0005*	2 / <0.0005*	1 / <0.0005*	9 / 0.0015
*ERQ ASB 4 (23/08/22)	1440	3.5	300	0.0006	2.5 /<0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
*ERQ ASB 1 (24/08/22)	1440	2	600	<0.0005*	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*	1 / <0.0005*
*ERQ ASB 2 (24/08/22)	1440	5	600	0.0008	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	4 / 0.0007
*ERQ ASB 3 (24/08/22)	1440	3.5	300	0.0006	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*	2.5 /<0.0005*
ERQ ASB 4 (24/08/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
*ERQ ASB 1 (25/08/22)	1440	5	600	0.0008	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	5 / 0.0008
*ERQ ASB 2 (25/08/22)	1440	7	600	0.0011	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	7 / 0.0011
ERQ ASB 3 (25/08/22)	1440	2	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*
ERQ ASB 4 (25/08/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

CONTRACT NO: S27685
DATE OF ISSUE: 12.09.22

COMMENTS:

Small numbers of asbestos fibres were detected during the analysis of twelve of the twenty samples supplied for this analysis.

*These samples were too dusty to be analysed as received. Following plasma ashing, the residue from each sample was made up in solution using a measured amount of filtered distilled water and an aliquot of the resultant suspension was used to prepare a filter suitable for analysis. This dilution factor was taken into account when calculating the results therefore the fibre concentrations reported above reflect the level of fibres on each entire original sample. This aspect of the work was outside the scope of our UKAS accreditation.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

At the client's request, a greater number of screen areas than that used for our standard analysis were analysed in order to achieve a lower limit of detection for any samples that required dilution.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

AUTHORISED BY: .....
S Clark
Head of Mineralogy

working for a healthy and sustainable world

CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
Regent House
Bath Avenue
Wolverhampton
WV1 4EG

CONTRACT NO: S27805

DATE OF ISSUE: 16.09.22

DATE ANALYSIS REQUESTED: 12.09.22

DATE ANALYSIS COMPLETED: 16.09.22

SAMPLES: Twenty airborne dust samples each supplied on gridded MCE membrane filters.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each membrane filter is ashed in a low temperature plasma asher. The residue is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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IOM CONSULTING LIMITED, registered in Scotland No. SC205670

CONTRACT NO: S27805
DATE OF ISSUE: 16.09.22

RESULTS:

Client Ref: PO – RR151

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
ERQ ASB 1 (30/08/22)	1440	1	600	<0.0005*	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 2 (30/08/22)	1440	2	600	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ERQ ASB 3 (30/08/22)	1440	3	1200	0.0020	0 / <0.0020*	0 / <0.0020*	0 / <0.0020*	3 / 0.0020
ERQ ASB 4 (30/08/22)	1440	3	1200	0.0020	1 / <0.0020*	0 / <0.0020*	0 / <0.0020*	2 / <0.0020*
ERQ ASB 1 (31/08/22)	1440	6.5	1200	0.0021	1 / <0.0010*	2 / <0.0010*	0.5 /<0.0010*	3 / 0.0010
ERQ ASB 2 (31/08/22)	1440	4.5	1200	0.0007	0 / <0.0005*	1.5 /<0.0005*	0 / <0.0005*	3 / <0.0005*
ERQ ASB 3 (31/08/22)	1440	5	1200	0.0008	1 / <0.0005*	1 / <0.0005*	0 / <0.0005*	3 / 0.0005
ERQ ASB 4 (31/08/22)	1440	11	1200	0.0018	2 / <0.0005*	0 / <0.0005*	1 / <0.0005*	8 / 0.0013*
ERQ ASB 1 (01/09/22)	1440	4	1200	0.0007	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	4 / 0.0007
ERQ ASB 2 (01/09/22)	1440	6	600	0.0010	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	5 / 0.0008
ERQ ASB 3 (01/09/22)	1440	9	1200	0.0015	1 / <0.0005*	1 / <0.0005*	0 / <0.0005*	7 / 0.0011
ERQ ASB 4 (01/09/22)	1440	6	1200	0.0010	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	5 / 0.0008
ERQ ASB 1 (02/09/22)	1440	1	600	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ERQ ASB 2 (02/09/22)	1440	4	1200	0.0007	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	3 / 0.0005
ERQ ASB 3 (02/09/22)	1440	2	1200	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*
ERQ ASB 4 (02/09/22)	1440	3	1200	0.0005	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	3 / 0.0005
ERQ SCREENER (30/08/22)	1440	2	1200	<0.0039*	1 / <0.0039*	0 / <0.0039*	0 / <0.0039*	1 / <0.0039*
ERQ SCREENER (31/08/22)	1440	2	1200	<0.0061*	0 / <0.0061*	0 / <0.0061*	0 / <0.0061*	2 / <0.0061*
ERQ SCREENER (01/09/22)	1440	5	1200	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	5 / <0.0005*
ERQ SCREENER (02/09/22)	1440	1.5	300	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

CONTRACT NO: S27805
DATE OF ISSUE: 16.09.22

COMMENTS:

Small numbers of asbestos fibres were detected during the analysis of twelve of the twenty samples supplied for this analysis.

All of these samples were too dusty to be analysed as received. Following plasma ashing, the residue from each sample was made up in solution using a measured amount of filtered distilled water and an aliquot of the resultant suspension was used to prepare a filter suitable for analysis. This dilution factor was taken into account when calculating the results therefore the fibre concentrations reported above reflect the level of fibres on each entire original sample. This aspect of the work was outside the scope of our UKAS accreditation.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

At the client's request, a greater number of screen areas than that used for our standard analysis were analysed in order to achieve a lower limit of detection for any samples that required dilution.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

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AUTHORISED BY: Steve Clark
S Clark
Head of Mineralogy

working for a healthy and sustainable world

CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
Regent House
Bath Avenue
Wolverhampton
WV1 4EG

CONTRACT NO: S27956

DATE OF ISSUE: 23.09.22

DATE ANALYSIS REQUESTED: 20.09.22

DATE ANALYSIS COMPLETED: 23.09.22

SAMPLES: Twenty airborne dust samples each supplied on gridded MCE membrane filters.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each membrane filter is ashed in a low temperature plasma asher. The residue is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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IOM CONSULTING LIMITED, registered in Scotland No. SC205670

CONTRACT NO: S27956
DATE OF ISSUE: 23.09.22

RESULTS:

Client Ref: PO – RR151

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
^ERQ SCREENER (05/09/22)	1440	3	300	0.0005	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	3 / 0.0005
^ERQ SCREENER (06/09/22)	1440	1	300	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
^ERQ SCREENER (07/09/22)	1440	2	300	<0.0005*	1 / <0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*
^ERQ SCREENER (08/09/22)	1440	3.5	300	0.0006	1.5 <0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*
^ERQ ASB 1 (05/09/22)	1440	1	300	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
^ERQ ASB 2 (05/09/22)	1440	1	600	<0.0005*	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*
^ERQ ASB 3 (05/09/22)	1440	2	600	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*
^ERQ ASB 4 (05/09/22)	1440	6	1200	0.0010	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*	5 / 0.0008
^ERQ ASB 1 (06/09/22)	1440	7	1200	0.0011	0 / <0.0005*	3 / 0.0005	0 / <0.0005*	4 / 0.0007
^ERQ ASB 2 (06/09/22)	1440	2.5	600	<0.0005*	1.5 /<0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
^ERQ ASB 3 (06/09/22)	1440	3	600	0.0005	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	3 / 0.0005
ERQ ASB 4 (06/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
^ERQ ASB 1 (07/09/22)	1440	3	300	0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*
^ERQ ASB 2 (07/09/22)	1440	1	300	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
^ERQ ASB 3 (07/09/22)	1440	0	600	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
^ERQ ASB 4 (07/09/22)	1440	0	300	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
^ERQ ASB 1 (08/09/22)	1440	2	300	<0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*	1 / <0.0005*
^ERQ ASB 2 (08/09/22)	1440	0	600	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
^ERQ ASB 3 (08/09/22)	1440	0	600	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
^ERQ ASB 4 (08/09/22)	1440	1	600	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

CONTRACT NO: S27956
DATE OF ISSUE: 23.09.22

COMMENTS:

Small numbers of asbestos fibres were detected during the analysis of eight of the twenty samples supplied for this analysis.

^ Samples were too dusty to be analysed as received. Following plasma ashing, the residue from each sample was made up in solution using a measured amount of filtered distilled water and an aliquot of the resultant suspension was used to prepare a filter suitable for analysis. This dilution factor was taken into account when calculating the results therefore the fibre concentrations reported above reflect the level of fibres on each entire original sample. This aspect of the work was outside the scope of our UKAS accreditation.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

At the client's request, a greater number of screen areas than that used for our standard analysis were analysed in order to achieve a lower limit of detection for any samples that required dilution.

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AUTHORISED BY: .....
S Clark
Head of Mineralogy

working for a healthy and sustainable world

CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
Regent House
Bath Avenue
Wolverhampton
WV1 4EG

CONTRACT NO: S27685

DATE OF ISSUE: 12.09.22

DATE ANALYSIS REQUESTED: 05.09.22

DATE ANALYSIS COMPLETED: 12.09.22

SAMPLES: Twenty airborne dust samples each supplied on gridded MCE membrane filters.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each membrane filter is ashed in a low temperature plasma asher. The residue is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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RESULTS:

Client Ref: PO – RR151

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
*ERQ SCREENER (22/08/22)	1440	2.5	1200	<0.0010*	1 / <0.0010*	0 / <0.0010*	0 / <0.0010*	1.5 /<0.0010*
*ERQ SCREENER (23/08/22)	1440	1	1200	<0.0010*	0 / <0.0010*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
*ERQ SCREENER (24/08/22)	1440	4.5	1200	0.0059	0 / <0.0040*	0.5 /<0.0040*	0 / <0.0040*	4 / 0.0052
*ERQ SCREENER (25/08/22)	1440	4	1200	0.0013	0 / <0.0010*	1 / <0.0010*	0 / <0.0010*	3 / 0.0010
*ERQ ASB 1 (22/08/22)	1440	1	1200	<0.0010*	0/ <0.0010*	0 / <0.0010*	0 / <0.0010*	1 / <0.0010*
*ERQ ASB 2 (22/08/22)	1440	8	600	0.0013	1 / <0.0005*	1 / <0.0005*	0 / <0.0005*	6 / 0.0010
*ERQ ASB 3 (22/08/22)	1440	6	300	0.0010	1 / <0.0005*	2 / <0.0005*	0 / <0.0005*	3 / 0.0005
*ERQ ASB 4 (22/08/22)	1440	3	300	0.0005	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	3 / 0.0005
*ERQ ASB 1 (23/08/22)	1440	23	1200	0.0038	3 / 0.0005	2.5 /<0.0005*	0 / <0.0005*	17.5 /0.0029
*ERQ ASB 2 (23/08/22)	1440	17.5	600	0.0029	0 / <0.0005*	5.5 / 0.0009	3 / 0.0005	9 / 0.0015
*ERQ ASB 3 (23/08/22)	1440	13	600	0.0021	1 / <0.0005*	2 / <0.0005*	1 / <0.0005*	9 / 0.0015
*ERQ ASB 4 (23/08/22)	1440	3.5	300	0.0006	2.5 /<0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
*ERQ ASB 1 (24/08/22)	1440	2	600	<0.0005*	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*	1 / <0.0005*
*ERQ ASB 2 (24/08/22)	1440	5	600	0.0008	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	4 / 0.0007
*ERQ ASB 3 (24/08/22)	1440	3.5	300	0.0006	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*	2.5 /<0.0005*
ERQ ASB 4 (24/08/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
*ERQ ASB 1 (25/08/22)	1440	5	600	0.0008	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	5 / 0.0008
*ERQ ASB 2 (25/08/22)	1440	7	600	0.0011	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	7 / 0.0011
ERQ ASB 3 (25/08/22)	1440	2	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*
ERQ ASB 4 (25/08/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

CONTRACT NO: S27685
DATE OF ISSUE: 12.09.22

COMMENTS:

Small numbers of asbestos fibres were detected during the analysis of twelve of the twenty samples supplied for this analysis.

*These samples were too dusty to be analysed as received. Following plasma ashing, the residue from each sample was made up in solution using a measured amount of filtered distilled water and an aliquot of the resultant suspension was used to prepare a filter suitable for analysis. This dilution factor was taken into account when calculating the results therefore the fibre concentrations reported above reflect the level of fibres on each entire original sample. This aspect of the work was outside the scope of our UKAS accreditation.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

At the client's request, a greater number of screen areas than that used for our standard analysis were analysed in order to achieve a lower limit of detection for any samples that required dilution.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

AUTHORISED BY: .....
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CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
Regent House
Bath Avenue
Wolverhampton
WV1 4EG

CONTRACT NO: S27805

DATE OF ISSUE: 16.09.22

DATE ANALYSIS REQUESTED: 12.09.22

DATE ANALYSIS COMPLETED: 16.09.22

SAMPLES: Twenty airborne dust samples each supplied on gridded MCE membrane filters.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each membrane filter is ashed in a low temperature plasma asher. The residue is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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IOM CONSULTING LIMITED, registered in Scotland No. SC205670

CONTRACT NO: S27805
DATE OF ISSUE: 16.09.22

RESULTS:

Client Ref: PO – RR151

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
ERQ ASB 1 (30/08/22)	1440	1	600	<0.0005*	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ ASB 2 (30/08/22)	1440	2	600	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ERQ ASB 3 (30/08/22)	1440	3	1200	0.0020	0 / <0.0020*	0 / <0.0020*	0 / <0.0020*	3 / 0.0020
ERQ ASB 4 (30/08/22)	1440	3	1200	0.0020	1 / <0.0020*	0 / <0.0020*	0 / <0.0020*	2 / <0.0020*
ERQ ASB 1 (31/08/22)	1440	6.5	1200	0.0021	1 / <0.0010*	2 / <0.0010*	0.5 /<0.0010*	3 / 0.0010
ERQ ASB 2 (31/08/22)	1440	4.5	1200	0.0007	0 / <0.0005*	1.5 /<0.0005*	0 / <0.0005*	3 / <0.0005*
ERQ ASB 3 (31/08/22)	1440	5	1200	0.0008	1 / <0.0005*	1 / <0.0005*	0 / <0.0005*	3 / 0.0005
ERQ ASB 4 (31/08/22)	1440	11	1200	0.0018	2 / <0.0005*	0 / <0.0005*	1 / <0.0005*	8 / 0.0013*
ERQ ASB 1 (01/09/22)	1440	4	1200	0.0007	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	4 / 0.0007
ERQ ASB 2 (01/09/22)	1440	6	600	0.0010	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	5 / 0.0008
ERQ ASB 3 (01/09/22)	1440	9	1200	0.0015	1 / <0.0005*	1 / <0.0005*	0 / <0.0005*	7 / 0.0011
ERQ ASB 4 (01/09/22)	1440	6	1200	0.0010	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	5 / 0.0008
ERQ ASB 1 (02/09/22)	1440	1	600	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ERQ ASB 2 (02/09/22)	1440	4	1200	0.0007	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	3 / 0.0005
ERQ ASB 3 (02/09/22)	1440	2	1200	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*
ERQ ASB 4 (02/09/22)	1440	3	1200	0.0005	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	3 / 0.0005
ERQ SCREENER (30/08/22)	1440	2	1200	<0.0039*	1 / <0.0039*	0 / <0.0039*	0 / <0.0039*	1 / <0.0039*
ERQ SCREENER (31/08/22)	1440	2	1200	<0.0061*	0 / <0.0061*	0 / <0.0061*	0 / <0.0061*	2 / <0.0061*
ERQ SCREENER (01/09/22)	1440	5	1200	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	5 / <0.0005*
ERQ SCREENER (02/09/22)	1440	1.5	300	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

CONTRACT NO: S27805
DATE OF ISSUE: 16.09.22

COMMENTS:

Small numbers of asbestos fibres were detected during the analysis of twelve of the twenty samples supplied for this analysis.

All of these samples were too dusty to be analysed as received. Following plasma ashing, the residue from each sample was made up in solution using a measured amount of filtered distilled water and an aliquot of the resultant suspension was used to prepare a filter suitable for analysis. This dilution factor was taken into account when calculating the results therefore the fibre concentrations reported above reflect the level of fibres on each entire original sample. This aspect of the work was outside the scope of our UKAS accreditation.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

At the client's request, a greater number of screen areas than that used for our standard analysis were analysed in order to achieve a lower limit of detection for any samples that required dilution.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

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CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
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Bath Avenue
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WV1 4EG

CONTRACT NO: S27956

DATE OF ISSUE: 23.09.22

DATE ANALYSIS REQUESTED: 20.09.22

DATE ANALYSIS COMPLETED: 23.09.22

SAMPLES: Twenty airborne dust samples each supplied on gridded MCE membrane filters.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each membrane filter is ashed in a low temperature plasma asher. The residue is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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CONTRACT NO: S27956
DATE OF ISSUE: 23.09.22

RESULTS:

Client Ref: PO – RR151

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
^ERQ SCREENER (05/09/22)	1440	3	300	0.0005	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	3 / 0.0005
^ERQ SCREENER (06/09/22)	1440	1	300	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
^ERQ SCREENER (07/09/22)	1440	2	300	<0.0005*	1 / <0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*
^ERQ SCREENER (08/09/22)	1440	3.5	300	0.0006	1.5 <0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*
^ERQ ASB 1 (05/09/22)	1440	1	300	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
^ERQ ASB 2 (05/09/22)	1440	1	600	<0.0005*	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*
^ERQ ASB 3 (05/09/22)	1440	2	600	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*
^ERQ ASB 4 (05/09/22)	1440	6	1200	0.0010	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*	5 / 0.0008
^ERQ ASB 1 (06/09/22)	1440	7	1200	0.0011	0 / <0.0005*	3 / 0.0005	0 / <0.0005*	4 / 0.0007
^ERQ ASB 2 (06/09/22)	1440	2.5	600	<0.0005*	1.5 /<0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
^ERQ ASB 3 (06/09/22)	1440	3	600	0.0005	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	3 / 0.0005
ERQ ASB 4 (06/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
^ERQ ASB 1 (07/09/22)	1440	3	300	0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*
^ERQ ASB 2 (07/09/22)	1440	1	300	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
^ERQ ASB 3 (07/09/22)	1440	0	600	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
^ERQ ASB 4 (07/09/22)	1440	0	300	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
^ERQ ASB 1 (08/09/22)	1440	2	300	<0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*	1 / <0.0005*
^ERQ ASB 2 (08/09/22)	1440	0	600	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
^ERQ ASB 3 (08/09/22)	1440	0	600	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
^ERQ ASB 4 (08/09/22)	1440	1	600	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

CONTRACT NO: S27956
DATE OF ISSUE: 23.09.22

COMMENTS:

Small numbers of asbestos fibres were detected during the analysis of eight of the twenty samples supplied for this analysis.

^ Samples were too dusty to be analysed as received. Following plasma ashing, the residue from each sample was made up in solution using a measured amount of filtered distilled water and an aliquot of the resultant suspension was used to prepare a filter suitable for analysis. This dilution factor was taken into account when calculating the results therefore the fibre concentrations reported above reflect the level of fibres on each entire original sample. This aspect of the work was outside the scope of our UKAS accreditation.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

At the client's request, a greater number of screen areas than that used for our standard analysis were analysed in order to achieve a lower limit of detection for any samples that required dilution.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

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IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

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CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
Regent House
Bath Avenue
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WV1 4EG

CONTRACT NO: S28156

DATE OF ISSUE: 04.10.22

DATE ANALYSIS REQUESTED: 28.09.22

DATE ANALYSIS COMPLETED: 03.10.22

SAMPLES: Twenty airborne dust samples each supplied on gridded MCE membrane filters.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each membrane filter is ashed in a low temperature plasma asher. The residue is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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CONTRACT NO: S28156
DATE OF ISSUE: 04.10.22

RESULTS:

Client Ref: PO – RR151

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
ERQ Inside 1 (12/09/22)	1440	0	150	0.0005	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ Outside 2 (12/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ Outside 3 (12/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ Outside 4 (12/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ Inside 1 (13/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ Outside 2 (13/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ Outside 3 (13/09/22)	1440	1	150	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ Outside 4 (13/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ INT 1 (14/09/22)	1440	2	150	<0.0005*	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ERQ EXT 2 (14/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ERQ EXT 3 (14/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ EXT 4 (14/09/22)	1440	2	150	<0.0005*	1 / <0.0005*	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*
ERQ INT 1 (15/09/22)	1440	4	150	0.0007	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	4 / 0.0007
ERQ EXT 2 (15/09/22)	1440	2	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*
ERQ EXT 3 (15/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ EXT 4 (15/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
^ERQ INT 1 (16/09/22)	1440	4	300	0.0007	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*	3 / 0.0005
ERQ EXT 2 (16/09/22)	1440	4.5	150	0.0007	1 / <0.0005*	1 / <0.0005*	0.5/ <0.0005*	2 / <0.0005*
ERQ EXT 3 (16/09/22)	1440	1	150	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 /<0.0005*	0 / <0.0005*
ERQ EXT 4 (16/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

CONTRACT NO: S28156
DATE OF ISSUE: 04.10.22

COMMENTS:

Small numbers of asbestos fibres were detected during the analysis of five of the twenty samples supplied for this analysis.

^ This sample was too dusty to be analysed as received. Following plasma ashing, the residue from each sample is made up in solution using a measured amount of filtered distilled water and an aliquot of the resultant suspension used to prepare a filter suitable for analysis. This dilution factor is taken into account when calculating the results therefore the fibre concentrations reported above reflect the level of fibres on each entire original sample. This aspect of the work is outside the scope of our UKAS accreditation.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

At the client's request, a greater number of screen areas than that used for our standard analysis were analysed in order to achieve a lower limit of detection for any samples that required dilution.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

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IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

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CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
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WV1 4EG

CONTRACT NO: S28231

DATE OF ISSUE: 06.10.22

DATE ANALYSIS REQUESTED: 03.10.22

DATE ANALYSIS COMPLETED: 05.10.22

SAMPLES: Sixteen airborne dust samples each supplied on a gridded MCE membrane filter.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each membrane filter is ashed in a low temperature plasma asher. The residue is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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IOM CONSULTING LIMITED, registered in Scotland No. SC205670

RESULTS:

Client Ref: PO – RR151

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
^ERQ SHED 1 (20/09/22)	1440	3	300	0.0005	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*
ERQ SHED 2 (20/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ SHED 3 (20/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ SHED 4 (20/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ SHED 1 (21/09/22)	1440	3.5	150	0.0006	2 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1.5 /<0.0005*
ERQ SHED 2 (21/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ERQ SHED 3 (21/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ERQ SHED 4 (21/09/22)	1440	0.5	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0.5 /<0.0005*
ERQ SHED 1 (22/09/22)	1440	2	150	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ERQ SHED 2 (22/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*
ERQ SHED 3 (22/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ERQ SHED 4 (22/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ SHED 1 (23/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ SHED 2 (23/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ SHED 3 (23/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ERQ SHED 4 (23/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

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COMMENTS:

Small numbers of amphibole asbestos fibres were detected during the analysis of three of the sixteen samples supplied for this analysis.

^ This sample was too dusty to be analysed as received. Following plasma ashing, the residue from each sample is made up in solution using a measured amount of filtered distilled water and an aliquot of the resultant suspension used to prepare a filter suitable for analysis. This dilution factor is taken into account when calculating the results therefore the fibre concentrations reported above reflect the level of fibres on each entire original sample. This aspect of the work is outside the scope of our UKAS accreditation. Any organic fibres present on the original samples would be destroyed during plasma ashing.

At the client's request, a greater number of screen areas than that used for our standard analysis were analysed in order to achieve a lower limit of detection for any samples that required dilution.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

AUTHORISED BY: .....
S Clark
Head of Mineralogy

APPENDIX E. ASBESTOS MONITORING DATA: UNCOVERED SCREENER: MAW GREEN

Maw Green

Asbestos Monitoring Results

Date	Sample Name	Sample Location/Activity	Asbestos Analyst	Volume (l)	Number of Pumps Used	Maximum Concentration of Asbestos Fibres - Amphibole (f/ml)	Maximum Concentration of Asbestos Fibres - Chrysotile (f/r	Detection Limit (f/ml)
15/08/2022	ASB MG	Reception tipping	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
16/08/2022	ASB MG	Reception tipping	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
17/08/2022	ASB MG	Reception tipping	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
18/08/2022	ASB MG	Backgorund Monitoring - no activity on site	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
19/08/2022	ASB MG	Reception tipping	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
22/08/2022	ASB MG	Reception tipping	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
23/08/2022	ASB MG	Reception tipping	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
24/08/2022	ASB MG	Reception tipping	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
25/08/2022	ASB MG	Backgorund Monitoring - no activity on site	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
26/08/2022	ASB MG	Backgorund Monitoring - no activity on site	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
30/08/2022	ASB MG	Backgorund Monitoring - no activity on site	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
31/08/2022	ASB MG	Reception tipping	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
01/09/2022	ASB MG	Reception tipping	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
02/09/2022	ASB MG	Reception tipping	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
05/09/2022	ASB MG	Reception tipping	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
06/09/2022	ASB MG	Reception tipping	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
07/09/2022	MGSCR-1	Screening	IOM	1440	2	1 / <0.0005	0 / <0.0005	0.0005
07/09/2022	MGSCR-2	Screening	IOM	1440	2	1 / <0.0005	0 / <0.0005	0.0005
07/09/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
08/09/2022	MGSCR-1	Screening	IOM	1440	2	3.5 / 0.0006	0 / <0.0005	0.0005
08/09/2022	MGSCR-2	Screening	IOM	1440	2	2 / <0.0005	0 / <0.0005	0.0005
08/09/2022	MGSCR-3	Screening	IOM	1440	2	1 / <0.0005	0 / <0.0005	0.0005
09/09/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
09/09/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
09/09/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
12/09/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
12/09/2022	MGSCR-2	Screening	IOM	1440	2	1 / <0.0005	0 / <0.0005	0.0005
12/09/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
13/09/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
13/09/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
13/09/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
13/09/2022	MG PS-1	Picking Station	IOM	1440	2	0 / <0.0005	1 / <0.0005	0.0005
14/09/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
14/09/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
14/09/2022	MGSCR-3	Screening	IOM	1440	2	1 / <0.0005	0 / <0.0005	0.0005
15/09/2022	MGSCR-1	Screening	IOM	1440	2	1 / <0.0005	0 / <0.0005	0.0005
15/09/2022	MGSCR-2	Screening	IOM	1440	2	1 / <0.0005	0 / <0.0005	0.0005
15/09/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
16/09/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
16/09/2022	MGSCR-2	Screening	IOM	1440	2	1 / <0.0005	0 / <0.0005	0.0005
16/09/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
20/09/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
20/09/2022	MGSCR-2	Screening	IOM	1440	2	1 / <0.0005	0 / <0.0005	0.0005
20/09/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
21/09/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
21/09/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
21/09/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
22/09/2022	MGSCR-1	Screening	IOM	1440	2	1 / <0.0005	0 / <0.0005	0.0005
22/09/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
22/09/2022	MGSCR-3	Screening	IOM	1440	2	1 / <0.0005	0 / <0.0005	0.0005
23/09/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
23/09/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
23/09/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
26/09/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
26/09/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
26/09/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
27/09/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
27/09/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
27/09/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
28/09/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
28/09/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
28/09/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
29/09/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
29/09/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
29/09/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
30/09/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
30/09/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
30/09/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
03/10/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
03/10/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
03/10/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
04/10/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
04/10/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
04/10/2022	MGSCR-3	Screening	IOM	1440	2	3 / 0.0005	0 / <0.0005	0.0005
06/10/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005

Asbestos Monitoring Results

Date	Sample Name	Sample Location/Activity	Asbestos Analyst	Volume (l)	Number of Pumps Used	Maximum Concentration of Asbestos Fibres - Amphibole (f/ml)	Maximum Concentration of Asbestos Fibres - Chrysotile (f/r	Detection Limit (f/ml)
06/10/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
06/10/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
06/10/2022	MG PS -1	Picking Station	IOM	1440	2	2 / <0.0005	0 / <0.0005	0.0005
07/10/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
07/10/2022	MGSCR-2	Screening	IOM	1440	2	2 / <0.0005	0 / <0.0005	0.0005
07/10/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
11/10/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
11/10/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
11/10/2022	MGSCR-3	Screening	IOM	1440	2	1 / <0.0005	0 / <0.0005	0.0005
12/10/2022	MGSCR-1	Screening	IOM	1440	2	1 / <0.0005	0 / <0.0005	0.0005
12/10/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
12/10/2022	MGSCR-3	Screening	IOM	1440	2	2 / <0.0005	1 / <0.0005	0.0005
13/10/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
13/10/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
13/10/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
13/10/2022	MG PS-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
14/10/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
14/10/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	1 / <0.0005	0.0005
14/10/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
17/10/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
17/10/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
17/10/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
18/10/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
18/10/2022	MGSCR-2	Screening	IOM	1440	2	1 / <0.0005	0 / <0.0005	0.0005
18/10/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
19/10/2022	MGSCR-1	Screening	IOM	1440	2	1 / <0.0005	0 / <0.0005	0.0005
19/10/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
19/10/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
20/10/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
20/10/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
20/10/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
21/10/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
21/10/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
21/10/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
24/10/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
24/10/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
24/10/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
25/10/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
25/10/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
25/10/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
26/10/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
26/10/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
26/10/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
27/10/2022	MG Cont	Control Test	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
28/10/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
28/10/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
28/10/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
31/10/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
31/10/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
31/10/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
01/11/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
01/11/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
01/11/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
02/11/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
02/11/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
02/11/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
03/11/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
03/11/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
03/11/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	1 / <0.0005	0.0005
04/11/2022	MGSCR-1	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
04/11/2022	MGSCR-2	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005
04/11/2022	MGSCR-3	Screening	IOM	1440	2	0 / <0.0005	0 / <0.0005	0.0005

working for a healthy and sustainable world

CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
Regent House
Bath Avenue
Wolverhampton
WV1 4EG

CONTRACT NO: S27510

DATE OF ISSUE: 31.08.22

DATE ANALYSIS REQUESTED: 24.08.22

DATE ANALYSIS COMPLETED: 30.08.22

SAMPLES: Five airborne dust samples each supplied as two half gridded MCE membrane filters.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each pair of half membrane filters is ashed in a low temperature plasma asher. The combined residue from each pair is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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IOM CONSULTING LIMITED, registered in Scotland No. SC205670

CONTRACT NO: S27510
DATE OF ISSUE: 31.08.22

RESULTS:

Client Ref: PO – MG184

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
ASB MG (15/08/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ASB MG (16/08/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ASB MG (17/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ASB MG (18/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ASB MG (19/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

CONTRACT NO: S27510
DATE OF ISSUE: 31.08.22

COMMENTS:

No asbestos fibres were detected during the analysis of any of these samples.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

Each sample supplied for analysis comprised two half membrane filters. These were combined during plasma ashing to form single samples with combined sample volumes of 1440 litres.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

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CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
Regent House
Bath Avenue
Wolverhampton
WV1 4EG

CONTRACT NO: S27631

DATE OF ISSUE: 05.09.22

DATE ANALYSIS REQUESTED: 01.09.22

DATE ANALYSIS COMPLETED: 05.09.22

SAMPLES: Five airborne dust samples each supplied as two half gridded MCE membrane filters.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each pair of half membrane filters is ashed in a low temperature plasma asher. The combined residue from each pair is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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CONTRACT NO: S27631
DATE OF ISSUE: 05.09.22

RESULTS:

Client Ref: PO – MG184

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
ASB MG (22/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ASB MG (23/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ASB MG (24/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ASB MG (25/08/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ASB MG (26/08/22)	1440	2.5	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	2.5 /<0.0005*	0 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

CONTRACT NO: S27631
DATE OF ISSUE: 05.09.22

COMMENTS:

No asbestos fibres were detected during the analysis of any of these samples.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

Each sample supplied for analysis comprised two half membrane filters. These were combined during plasma ashing to form single samples with combined sample volumes of 1440 litres.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

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CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
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CONTRACT NO: S27729

DATE OF ISSUE: 13.09.22

DATE ANALYSIS REQUESTED: 07.09.22

DATE ANALYSIS COMPLETED: 13.09.22

SAMPLES: Four airborne dust samples each supplied as two half gridded MCE membrane filters.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each pair of half membrane filters is ashed in a low temperature plasma asher. The residue is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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IOM CONSULTING LIMITED, registered in Scotland No. SC205670

RESULTS:

Client Ref: PO – MG184

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
ASB MG (30/08/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
ASB MG (31/08/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ASB MG (01/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*
ASB MG (02/09/22)	1440	2	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

CONTRACT NO: S27729
DATE OF ISSUE: 13.09.22

COMMENTS:

No asbestos fibres were detected during the analysis of any of these samples.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

Each sample supplied for analysis comprised two half membrane filters. These were combined during plasma ashing to form single samples with combined sample volumes of 1440 litres.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

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CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
Regent House
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WV1 4EG

CONTRACT NO: S27808

DATE OF ISSUE: 19.09.22

DATE ANALYSIS REQUESTED: 12.09.22

DATE ANALYSIS COMPLETED: 16.09.22

SAMPLES: Eleven airborne dust samples each supplied on whole gridded or as two half gridded MCE membrane filters.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each membrane filter is ashed in a low temperature plasma asher. The residue is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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UKAS TESTING 0374

CONTRACT NO: S27805
DATE OF ISSUE: 19.09.22

RESULTS:

Client Ref: PO – MG184

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
ASB MG (05/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
ASB MG (06/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
(1)MG SCR-01 (07/09/22)	1440	1	300	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-02 (07/09/22)	1440	1	150	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
(1)MG SCR-03 (07/09/22)	1440	1	300	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
(1)MG SCR-01 (08/09/22)	1440	6.5	300	0.0011	3.5 / 0.0006	0 / <0.0005*	3 / <0.0005	0 / <0.0005*
MG SCR-02 (08/09/22)	1440	3	150	0.0005	2 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
(1)MG SCR-03 (08/09/22)	1440	2	150	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
MG SCR-01 (09/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-02 (09/09/22)	1440	2	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*
MG SCR-03 (09/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

CONTRACT NO: S27808
DATE OF ISSUE: 19.09.22

COMMENTS:

Small numbers of asbestos fibres were detected during the analysis of five of the eleven samples supplied for this analysis.

(1)These samples were too dusty to be analysed as received. Following plasma ashing, the residue from each sample was made up in solution using a measured amount of filtered distilled water and an aliquot of the resultant suspension was used to prepare a filter suitable for analysis. This dilution factor was taken into account when calculating the results therefore the fibre concentrations reported above reflect the level of fibres on each entire original sample. This aspect of the work was outside the scope of our UKAS accreditation.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

At the client's request, a greater number of screen areas than that used for our standard analysis were analysed in order to achieve a lower limit of detection for any samples that required dilution.

Sample numbers ASB MG 05&06/09/22 supplied for analysis comprised two half membrane filters. These were combined during plasma ashing to form single samples with combined sample volumes of 1440 litres.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

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CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
Regent House
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CONTRACT NO: S27958

DATE OF ISSUE: 27.09.22

DATE ANALYSIS REQUESTED: 20.09.22

DATE ANALYSIS COMPLETED: 26.09.22

SAMPLES: Sixteen airborne dust samples each supplied on a gridded MCE membrane filter.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each membrane filter is ashed in a low temperature plasma asher. The residue is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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CONTRACT NO: S27958
DATE OF ISSUE: 27.09.22

RESULTS:

Client Ref: PO – MG184

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
MG SCR-01(12/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-02(12/09/22)	1440	1	150	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-03(12/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-01(13/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-02(13/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-03(13/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
MG PS-01(13/09/22)	1440	3	150	0.0005	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*	2 / <0.0005*
MG SCR-01(14/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-02(14/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
MG SCR-03(14/09/22)	1440	1	150	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-01(15/09/22)	1440	1	150	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-02(15/09/22)	1440	2	150	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
MG SCR-03(15/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-01(16/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-02(16/09/22)	1440	3	150	0.0005	1 / <0.0005*	0 / <0.0005*	1 / <0.0005*	1 / <0.0005*
MG SCR-03(16/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

CONTRACT NO: S27958
DATE OF ISSUE: 27.09.22

COMMENTS:

Single asbestos fibres were detected during the analysis of six of the sixteen samples supplied for this analysis.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

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CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
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CONTRACT NO: S28093

DATE OF ISSUE: 28.09.22

DATE ANALYSIS REQUESTED: 26.09.22

DATE ANALYSIS COMPLETED: 28.09.22

SAMPLES: Twelve airborne dust samples each supplied on a gridded MCE membrane filter.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each membrane filter is ashed in a low temperature plasma asher. The residue is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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CONTRACT NO: S28093
DATE OF ISSUE: 28.09.22

RESULTS:

Client Ref: PO – MG184

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
MG SCR-01(20/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-02(20/09/22)	1440	2	150	<0.0005*	1 / <0.0005*	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*
MG SCR-03(20/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
MG SCR-01(21/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-02(21/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
MG SCR-03(21/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-01(22/09/22)	1440	1	150	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-02(22/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-03(22/09/22)	1440	2	150	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
MG SCR-01(23/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
MG SCR-02(23/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-03(23/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

CONTRACT NO: S28093
DATE OF ISSUE: 28.09.22

COMMENTS:

Single asbestos fibres were detected during the analysis of three of the twelve samples supplied for this analysis.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

AUTHORISED BY: .....
S Clark
Head of Mineralogy

working for a healthy and sustainable world

CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
Regent House
Bath Avenue
Wolverhampton
WV1 4EG

CONTRACT NO: S28297

DATE OF ISSUE: 11.10.22

DATE ANALYSIS REQUESTED: 05.10.22

DATE ANALYSIS COMPLETED: 10.10.22

SAMPLES: Fifteen airborne dust samples each supplied on a gridded MCE membrane filter.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each membrane filter is ashed in a low temperature plasma asher. The residue is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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IOM CONSULTING LIMITED, registered in Scotland No. SC205670

CONTRACT NO: S28297
DATE OF ISSUE: 11.10.22

RESULTS:

Client Ref: PO – MG184

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
MG SCR-01(26/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-02(26/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-03(26/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
MG SCR-01(27/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
MG SCR-02(27/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-03(27/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-01(28/09/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
MG SCR-02(28/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-03(28/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-01(29/09/22)	1440	2	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*
MG SCR-02(29/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-03(29/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-01(30/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-02(30/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-03(30/09/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

CONTRACT NO: S28297
DATE OF ISSUE: 11.10.22

COMMENTS:

No asbestos fibres were detected during the analysis of any of the samples supplied for this analysis.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

AUTHORISED BY: .....
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CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
Regent House
Bath Avenue
Wolverhampton
WV1 4EG

CONTRACT NO: S28333

DATE OF ISSUE: 18.10.22

DATE ANALYSIS REQUESTED: 10.10.22

DATE ANALYSIS COMPLETED: 17.10.22

SAMPLES: Thirteen airborne dust samples each supplied on a gridded MCE membrane filter.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each membrane filter is ashed in a low temperature plasma asher. The residue is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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IOM CONSULTING LIMITED, registered in Scotland No. SC205670

RESULTS:

Client Ref: PO – MG184

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
MG SCR-01(03/10/22)	1440	2	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*
MG SCR-02(03/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-03(03/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-01(04/10/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
MG SCR-02(04/10/22)	1440	2	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*
MG SCR-03(04/10/22)	1440	3	150	0.0005	3 / 0.0005	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-01(06/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-02(06/10/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*
MG SCR-03(06/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG PS-01(06/10/22)	1440	2	150	<0.0005*	2 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
^MG SCR-01(07/10/22)	1440	0	300	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
^MG SCR-02(07/10/22)	1440	3	300	0.0005	2 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
MG SCR-03(07/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

CONTRACT NO: S28333
DATE OF ISSUE: 18.10.22

COMMENTS:

Small numbers of amphibole asbestos fibres were detected during the analysis of three of the thirteen samples supplied for this analysis.

^ These samples were too dusty to be analysed as received. Following plasma ashing, the residue from each sample is made up in solution using a measured amount of filtered distilled water and an aliquot of the resultant suspension used to prepare a filter suitable for analysis. This dilution factor is taken into account when calculating the results therefore the fibre concentrations reported above reflect the level of fibres on each entire original sample. This aspect of the work is outside the scope of our UKAS accreditation. Any organic fibres present on the original samples would be destroyed during plasma ashing.

At the client's request, a greater number of screen areas than that used for our standard analysis were analysed in order to achieve a lower limit of detection for any samples that required dilution.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

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CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
Regent House
Bath Avenue
Wolverhampton
WV1 4EG

CONTRACT NO: S28532

DATE OF ISSUE: 24.10.22

DATE ANALYSIS REQUESTED: 18.10.22

DATE ANALYSIS COMPLETED: 24.10.22

SAMPLES: Thirteen airborne dust samples each supplied on a gridded MCE membrane filter.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each membrane filter is ashed in a low temperature plasma asher. The residue is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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CONTRACT NO: S28532
DATE OF ISSUE: 24.10.22

RESULTS:

Client Ref: PO – MG184

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
MG SCR-01(11/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-02(11/10/22)	1440	2	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*
MG SCR-03(11/10/22)	1440	2	150	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
^MG SCR-01(12/10/22)	1440	3	300	0.0005	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*
^MG SCR-02(12/10/22)	1440	1	300	<0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*
^MG SCR-03(12/10/22)	1440	5	300	0.0008	2 / <0.0005*	1 / <0.0005*	0 / <0.0005*	2 / <0.0005*
MG SCR-01(13/10/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*
MG SCR-02(13/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-03(13/10/22)	1440	2.5	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	2.5 /<0.0005*	0 / <0.0005*
MG PS-01(13/10/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*
MG SCR-01(14/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-02(14/10/22)	1440	1	150	<0.0005*	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-03(14/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

CONTRACT NO: S28532
DATE OF ISSUE: 24.10.22

COMMENTS:

Small numbers of asbestos fibres were detected during the analysis of four of the thirteen samples supplied for this analysis.

^ These samples were too dusty to be analysed as received. Following plasma ashing, the residue from each sample is made up in solution using a measured amount of filtered distilled water and an aliquot of the resultant suspension used to prepare a filter suitable for analysis. This dilution factor is taken into account when calculating the results therefore the fibre concentrations reported above reflect the level of fibres on each entire original sample. This aspect of the work is outside the scope of our UKAS accreditation. Any organic fibres present on the original samples would be destroyed during plasma ashing.

At the client's request, a greater number of screen areas than that used for our standard analysis were analysed in order to achieve a lower limit of detection for any samples that required dilution.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

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CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
Regent House
Bath Avenue
Wolverhampton
WV1 4EG

CONTRACT NO: S28722

DATE OF ISSUE: 29.10.22

DATE ANALYSIS REQUESTED: 26.10.22

DATE ANALYSIS COMPLETED: 29.10.22

SAMPLES: Fifteen airborne dust samples each supplied on a gridded MCE membrane filter.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each membrane filter is ashed in a low temperature plasma asher. The residue is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

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IOM CONSULTING LIMITED, registered in Scotland No. SC205670

RESULTS:

Client Ref: PO – MG184

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
MG SCR-01(17/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-02(17/10/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*
MG SCR-03(17/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
^MG SCR-01(18/10/22)	1440	1	300	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
MG SCR-02(18/10/22)	1440	1	150	<0.0005*	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
^MG SCR-03(18/10/22)	1440	0	300	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
^MG SCR-01(19/10/22)	1440	4	600	0.0007	1 / <0.0005*	0 / <0.0005*	0 / <0.0005*	3 / 0.0005
^MG SCR-02(19/10/22)	1440	0	300	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-03(19/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-01(20/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-02(20/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-03(20/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-01(21/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-02(21/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-03(21/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

CONTRACT NO: S28722
DATE OF ISSUE: 29.10.22

COMMENTS:

Small numbers of asbestos fibres were detected during the analysis of two of the fifteen samples supplied for this analysis.

^ These samples were too dusty to be analysed as received. Following plasma ashing, the residue from each sample is made up in solution using a measured amount of filtered distilled water and an aliquot of the resultant suspension used to prepare a filter suitable for analysis. This dilution factor is taken into account when calculating the results therefore the fibre concentrations reported above reflect the level of fibres on each entire original sample. This aspect of the work is outside the scope of our UKAS accreditation. Any organic fibres present on the original samples would be destroyed during plasma ashing.

At the client's request, a greater number of screen areas than that used for our standard analysis were analysed in order to achieve a lower limit of detection for any samples that required dilution.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

AUTHORISED BY: .....
S Clark
Head of Mineralogy

working for a healthy and sustainable world

CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
Regent House
Bath Avenue
Wolverhampton
WV1 4EG

CONTRACT NO: S28877

DATE OF ISSUE: 08.11.22

DATE ANALYSIS REQUESTED: 02.11.22

DATE ANALYSIS COMPLETED: 07.11.22

SAMPLES: Thirteen airborne dust samples each supplied on a gridded MCE membrane filter.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each membrane filter is ashed in a low temperature plasma asher. The residue is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

www.iom-world.org

Registered Address: Research Avenue North, Riccarton, Edinburgh, EH14 4AP, United Kingdom
Tel: 0131 449 8000 Fax: 0131 449 8084 Email: iom@iom-world.org

IOM CONSULTING LIMITED, registered in Scotland No. SC205670

RESULTS:

Client Ref: PO – MG184

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
MG SCR-01(24/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-02(24/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-03(24/10/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
MG SCR-01(25/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-02(25/10/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
MG SCR-03(25/10/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
MG SCR-01(26/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-02(26/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-03(26/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG Cont(27/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-01(28/10/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
MG SCR-02(28/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-03(28/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

CONTRACT NO: S28877
DATE OF ISSUE: 08.11.22

COMMENTS:

No asbestos fibres were detected during the analysis of any of the samples supplied for this analysis.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

K. Parsons-Hewes

AUTHORISED BY: ……

K Parsons-Hewes
Senior Laboratory Analyst

working for a healthy and sustainable world

CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: Provectus Soils Management
Regent House
Bath Avenue
Wolverhampton
WV1 4EG

CONTRACT NO: S29003

DATE OF ISSUE: 15.11.22

DATE ANALYSIS REQUESTED: 08.11.22

DATE ANALYSIS COMPLETED: 15.11.22

SAMPLES: Fifteen airborne dust samples each supplied on a gridded MCE membrane filter.

ANALYSIS REQUESTED: Fibre Counting using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS)

METHOD:

Each membrane filter is ashed in a low temperature plasma asher. The residue is recovered using filtered, distilled water and filtered through a 25mm, 0.4µm pore size polycarbonate filter. A portion of each polycarbonate filter is excised and mounted on a 13mm aluminium stub, coated with gold and examined by SEM. Each filter is searched systematically at 2000X magnification until an area of 1mm^2 has been examined or 50 whole fibres found. All respirable fibres (aspect ratio >3:1, length >5µm and diameter <3µm and including fibres in contact with particles >3µm diameter) detected are analysed by EDXS and identified as closely as possible, by comparing morphology and composition with standard reference materials. Fibre counting rules based on those of ISO14966:2019 were used.

The method used for analysis is documented in IOM instruction manual No.1 and is based on **International Standards Organisation (2019), International Standard 14966, Ambient Air: Determination of numerical concentration of inorganic fibrous particles - Scanning electron microscopy method.**

www.iom-world.org

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IOM CONSULTING LIMITED, registered in Scotland No. SC205670

CONTRACT NO: S29003
DATE OF ISSUE: 15.11.22

RESULTS:

Client Ref: PO – MG184

Sample No.	Volume (l)	(1) No. of Resp. Fibres Found	(1) No. of Fields Searched	Total Fibres *Fibre Conc^{n} (fml^{-1})*	AMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	CMX Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	MMMF *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*	NAM Fibre *No. of Resp. Fibres/ Fibre Conc^{n} (fml^{-1})*
MG SCR-01(31/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-02(31/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-03(31/10/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-01(01/11/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-02(01/11/22)	1440	2	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	2 / <0.0005*
MG SCR-03(01/11/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-01(02/11/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-02(02/11/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
MG SCR-03(02/11/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-01(03/11/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-02(03/11/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-03(03/11/22)	1440	2	150	<0.0005*	0 / <0.0005*	1 / <0.0005*	0 / <0.0005*	1 / <0.0005*
MG SCR-01(04/11/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*
MG SCR-02(04/11/22)	1440	1	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	1 / <0.0005*
MG SCR-03(04/11/22)	1440	0	150	<0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*	0 / <0.0005*

AMX-Amphibole Asbestos **CMX-**Chrysotile Asbestos **MMMF-**Machine Made Mineral Fibres **NAM-**Non Asbestos Mineral

*** DETECTION LIMIT**

When no fibres of a given type are detected, the fibre concentration can be reported as less than the concentration equivalent to three fibres (the one sided upper 95% confidence limit of the Poisson distribution). Therefore, when 0, 1 or 2 fibres are detected, 2.99 is used in the calculation of fibre concentrations. It expresses the 95% confidence detection limit for airborne fibre concentrations. When a volume of 1440 litres is used the 95% confidence limit is 0.0005 fml^{-1} for the number of fields searched.

CONTRACT NO: S29003
DATE OF ISSUE: 15.11.22

COMMENTS:

A single chrysotile asbestos fibre was detected on sample MG SCR-03(03/11/22). No asbestos fibres were detected during the analysis of any of the other samples.

Any organic fibres present on the original samples would be destroyed during plasma ashing.

(1) UKAS accreditation for this work is limited to results obtained directly from the analysis. Calculated results based on sampling information provided by the client are out with the scope of this accreditation.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

IOM Consulting cannot accept responsibility for samples sent for analysis that have been incorrectly collected or despatched.

AUTHORISED BY:

S Clark
Head of Mineralogy

APPENDIX 5

Edwin Richards Quarry in Rowley Regis – Water Monitoring Data 2021

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	21-30077-1		
Initial Date of Issue:	06-Sep-2021		
Client	Provectus Soils Management Ltd		
Client Address:	Regents House Bath Road Wolverhampton WV1 4EG		
Contact(s):	Andy Clee Charlie Gould Jon Owens Sam Gould		
Project	100993 Rowley Regis STC		
Quotation No.:	Q21-25188	**Date Received:**	31-Aug-2021
Order No.:	9/RR	**Date Instructed:**	31-Aug-2021
No. of Samples:	1		
Turnaround (Wkdays):	5	**Results Due:**	06-Sep-2021
Date Approved:	06-Sep-2021		
Approved By:			
Details:	Glynn Harvey, Technical Manager		

Results - Water

Project: 100993 Rowley Regis STC

Client: Provectus Soils Management Ltd			**Chemtest Job No.:**		21-30077
Quotation No.: Q21-25188			**Chemtest Sample ID.:**		1269261
Order No.: 9/RR			Client Sample Ref.:		Asb 1
			Sample Location:		Asb Water
			Sample Type:		WATER
			Date Sampled:		27-Aug-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
Asbestos Fibres In Water	N	1185	in 100ml	N/A	Not Detected

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	21-31891-1
Initial Date of Issue:	18-Sep-2021
Client	Provectus Soils Management Ltd
Client Address:	Regents House Bath Road Wolverhampton WV1 4EG
Contact(s):	Andy Clee Charlie Gould Paige Lorrain Sam Gould
Project	100993 Rowley Regis STC

Quotation No.:	Q21-25188	**Date Received:**	15-Sep-2021
Order No.:	9/RR	**Date Instructed:**	15-Sep-2021
No. of Samples:	1		
Turnaround (Wkdays):	5	**Results Due:**	21-Sep-2021
Date Approved:	18-Sep-2021		

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Water

Project: 100993 Rowley Regis STC

Client: Provectus Soils Management Ltd			**Chemtest Job No.:**		21-31891
Quotation No.: Q21-25188			**Chemtest Sample ID.:**		1278758
Order No.: 9/RR			Client Sample Ref.:		Asb 3
			Sample Location:		Asbestos Water
			Sample Type:		WATER
			Date Sampled:		10-Sep-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
Asbestos Fibres In Water	N	1185	in 100ml	N/A	Not Detected

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	21-32698-1
Initial Date of Issue:	24-Sep-2021
Client	Provectus Soils Management Ltd
Client Address:	Regents House Bath Road Wolverhampton WV1 4EG
Contact(s):	Andy Clee Charlie Gould Paige Lorrain Sam Gould
Project	100993 Rowley Regis STC

Quotation No.:	Q21-25188	**Date Received:**	21-Sep-2021
Order No.:	9/RR	**Date Instructed:**	21-Sep-2021
No. of Samples:	1		
Turnaround (Wkdays):	5	**Results Due:**	27-Sep-2021
Date Approved:	24-Sep-2021		

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Water

Project: 100993 Rowley Regis STC

Client: Provectus Soils Management Ltd			**Chemtest Job No.:**		21-32698
Quotation No.: Q21-25188			**Chemtest Sample ID.:**		1283034
Order No.: 9/RR			Client Sample Ref.:		Asb 4
			Sample Location:		Asbestos Water
			Sample Type:		WATER
			Date Sampled:		17-Sep-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
Asbestos Fibres In Water	N	1185	in 100ml	N/A	Not Detected

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

APPENDIX 6

CRS Picking Station Specification

Specification
Ref: CRS-045-SITE MASTER

COMPLETE RECYCLING SYSTEMS

T: +44 (0) 28 8076 0496
E: Marketing@crsni.com
W: www.crsni.com

Office Address: 136 Termon Road, Carrickmore, County Tyrone, BT79 9HW, N.Ireland

CRS NI LTD

COMPLETE RECYCLING SYSTEMS

SALE OR HIRE

UNPARALLELED PERFORMANCE

NEW SITE MASTER

Designed For Building & Construction Sites To Retrieve Valuable Products From Waste Reducing What Goes Into Your Skip.

Features & Benefits

- Mobile 2 - 4 Man pick
- Designed for Building & Construction Sites
- Retrieve Valuable Products from waste
- Cut Down on what goes into your skip
- Adjustable Height
- Canopy for Weather Protection
- Economical Simple Design
- Electric Drive
- Robust & Heavy Duty Build

CRS NI LTD
COMPLETE RECYCLING SYSTEMS

SALE OR HIRE

UNPARALLELED PERFORMANCE

- Fully Mobile
- Easily Transported Around And Between Sites
- 2 to 4 Man Picking
- Low Cost To Run

- Low Maintenance
- Reduce Skip hire cost

OPTIONS

- Hydraulic Drive
- Air Brakes
- Hard Cover
- Chevron Belt
- Radial Stockpiler

CRS NI LTD
COMPLETE RECYCLING SYSTEMS

Sales: +44 (0) 28 8676 0496
E: sales@crsni.com
www.crsni.com

1.0 Conveyor

Feature

- Heavy duty profile steel construction
- Specially designed 8mm and 5mm steel profile to produce high strength section
- Typically 3 times stronger than traditional 6mm channel designs

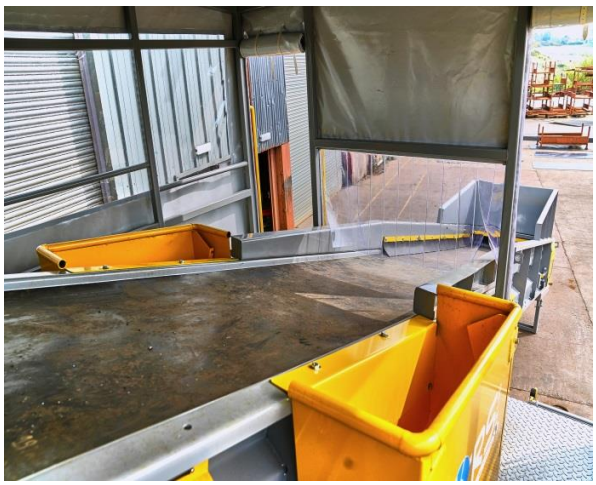
Technical Specification

- 1000mm wide heavy duty rubber belt
- EP500/3ply – 5mm top cover 1.5mm bottom cover
- 8.5m drum centres
- 3.0kW Hi Torque Motovario slip on gear motor drive
- 100mm dia carry rollers placed at 875mm centres
- 100mm dia disc return rollers placed at 2115mm centres
- Head and Tail are fully enclosed to reduce spillage
- High sides incorporated into conveyor with skirting rubber
- Impact bars at infeed boot
- Plough scraper at Tail to reduce material build up
- SKF 50mm bearings (Tail)
- SKF 60mm bearings (Head)
- 288mm dia crowned and lagged drum
- 220mm dia crowned tail drum
- Rosta belt scraper tensioner with polyurethane rubber
- Perspex window at each maintenance point along conveyor
- Dirt chute at tail under plough scraper
- Support legs
- Full guards with emergency stops

2.0 Picking Station

Feature

- 2-4 Man Picking
- 3.5mm Chequered Walkway
- 2 Dropboxes:
  - Width: 900mm
  - Depth: 452mm
  - Height: 989mm
- Access Step Ladders to Picking Station
- Canopy for Weather Protection
- Optional Hard Cover



3.0 Wheel Assembly

Feature

- Adjustable Ram
- Handbrake Lever
- 300x80mm Stud Axle
- Super Single Tyres - 385/65 R22.5

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DOCUMENT 2.12
ENVIRONMENTAL PERMIT VARIATION APPLICATION, DUST & EMISSIONS MANAGEMENT PLAN

Caulmert Limited

Engineering, Environmental & Planning Consultancy Services

Maw Green Landfill Soil Treatment Facility

3C Waste Limited

Environmental Permit Variation Application

Dust & Emissions Management Plan

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January 2023

APPROVAL RECORD

Site: Maw Green Landfill Soil Treatment Facility

Client: 3C Waste Limited

Project Title: Environmental Permit Variation Application

Document Title: Dust & Emissions Management Plan

Document Ref: 5193-CAU-XX-XX-RP-V-0313.A0.C1

Report Status: **Final**

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Author	Samantha Hayden Environmental Consultant	**Date**	12/12/2022
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Approved	Andy Stocks Director of Environment	**Date**	12/12/2022

Revision Log			
Revision	**Description of Change**	**Approved**	**Effective Date**
C1	Initial Release	AS	10/01/2023

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Dust & Emissions Management Plan

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1.0 INTRODUCTION

1.1 Report Context

1.1.1 3C Waste Ltd, a wholly owned subsidiary of FCC Environment (UK) Ltd (hereafter referred to as 'the operator') operate Maw Green Landfill Site and the Soil Treatment Facility (STF) under permit ref. EPR/BS7722ID. Maw Green Landfill Site is located approximately 2.5km northeast of Crewe, in Cheshire.

1.1.2 This Dust & Emissions Management Plan (DEMP) has been updated to reflect the addition of a new area to the Maw Green STF for the storage and treatment of asbestos contaminated wastes (soils) as part of a permit variation application. As a result of this update, the report reference number has been changed from 5193-CAU-XX-XX-RP-V-0303 to 5193-CAU-XX-XX-RP-V-0313. The dust control measures in place in this DEMP remain unchanged from the original plan for the existing bioremediation process of soils at the existing STF, however additional control measures have been added to this plan to cover the risks associated with airborne asbestos fibres released from the proposed operations in the new area to the west.

1.1.3 This Dust & Emissions Management Plan (DEMP) provides details of appropriate measures that are required for effective dust & emissions management and control at the facility during operation.

1.2 Objectives

1.2.1 This DEMP has the aim of ensuring that potential dust and emission (asbestos fibres) sources are identified and controlled at source where possible. The DEMP aims to minimise the risk of dust and airborne asbestos fibre emissions impact at locations outside of the facility boundary.

1.2.2 As a minimum this DEMP will consider the following elements:

- An assessment of the risks of dust and airborne asbestos problems at the facility;
- Identify the appropriate controls to manage the identified risks;
- Monitoring of emissions;
- Identify actions, contingencies and responsibilities when dust or emissions problems arise;
- Complaints procedures; and,
- Regular review of the effectiveness of the dust and emissions control measures.

1.2.3 The DEMP is supported by the procedures and controls established within the following site documents:

- The site's Environmental Management System;
- Activities and Operating Techniques report ref. 5193-CAU-XX-XX-RP-V-0311;
- Best Available Techniques in report ref. 5193-CAU-XX-XX-RP-V-0312; and,
- Environmental Risk Assessment ref. 5193-CAU-XX-XX-RP-V-0310.

2.0 SITE BACKGROUND

2.1 Site Setting

2.1.1 The Maw Green Soil Treatment Facility ('the site') is located approximately 2km north of the centre of Crewe (i.e. on the outskirts of Crewe), in the county of Cheshire. The site is centred on National Grid Reference SJ 71859 57401. The site is in a low-lying area, with general ground elevations around 45mAOD indicated.

2.1.2 The approximate location of the STF is shown below in Figure 1:

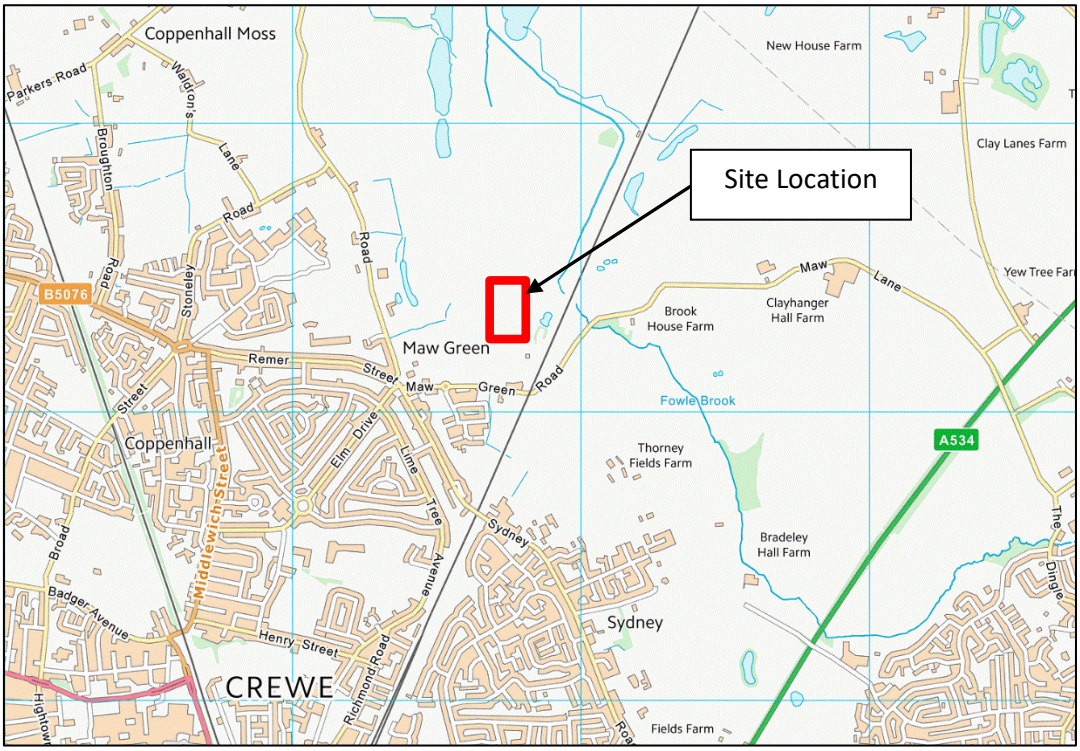


Figure 1 – Site Location

2.1.3 The ground rises very gently to both the west and east, indicating that the site lies in a wide-open valley. The Fowle Brook flows through this valley in a northerly direction. This brook has been diverted around the installation.

2.1.4 The site is in a predominantly agricultural setting on the north-eastern outskirts of the town of Crewe. Potential environmental receptors include domestic dwellings both within the town and farms surrounding the site. In addition, surface water receptors are present within the Sandbach Flashes Site of Special Scientific Interest (SSSI) to the north and the diverted Fowle Brook to the east being the closest surface water to the site. Also found 5km to the southeast is another SSSI – Oakhanger Moss.

2.1.5 A number of residential receptors on the outskirts of Crewe have been identified as sensitive receptors. Houses in Maw Green are located approximately 170m southwest of the site, Meadow Cottage is 210m southeast of the site and houses on Maw Green Road

are 240m southwest. Brook House Farm is also located 315m east. The closest school is Monks Coppenhall Primary School located 560m to the west-southwest of the site. As the prevailing wind direction is from the southwest, none of these developments are considered to be at a high risk from odour or dust nuisance from the site.

2.2 Proposed Development

2.2.1 It is proposed to add an additional listed activity to permit ref. EPR/BS7722ID, for the treatment and storage of soils contaminated with asbestos at the Soils Treatment Facility (STF) at Maw Green Landfill Site, as follows:

- Section 5.3 Part A(1)(a)(ii) Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving physico-chemical treatment.

2.2.2 The new treatment and storage activity is to be in a separate area to the west of the existing STF, partly constructed on top of the permanently capped landfill mass, but within the existing permit boundary. The treatment of the asbestos in soils will be by 3-way screening and handpicking of bound asbestos and the storage will be solely for asbestos contaminated wastes in a separate area.

2.2.3 A flow diagram showing the proposed treatment activities for asbestos-impacted soils at Maw Green STF is shown in Figure 2 below:

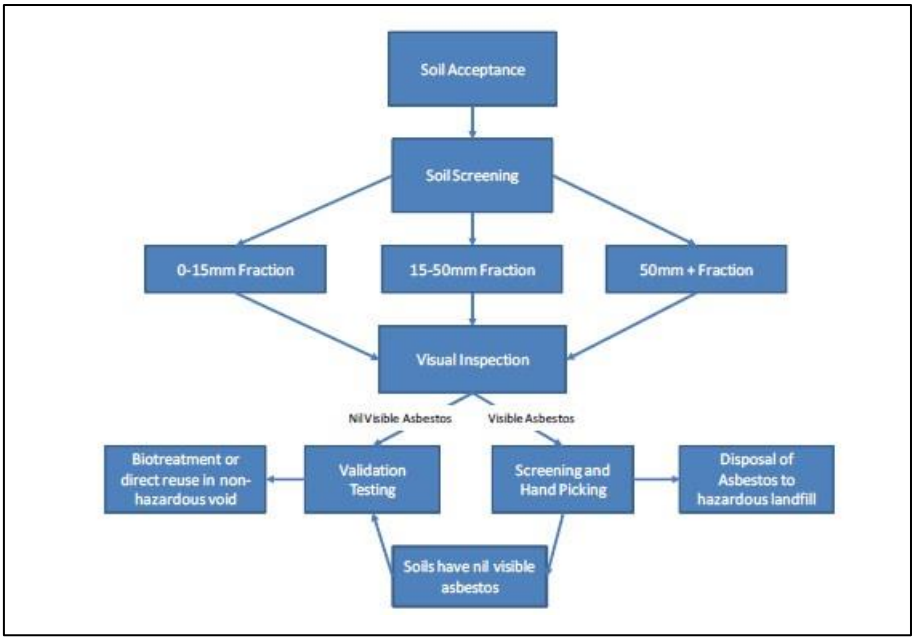


Figure 2 – Soil Treatment Overview

2.2.4 This activity is currently being undertaken under a mobile plant deployment by Provectus at Maw Green STF for the treatment of bound asbestos in soils, and asbestos monitoring is undertaken of airborne asbestos fibres at the site. The monitoring data demonstrates that airborne emissions are always below the detection limit of 0.0005 f/ml. (see Treatment Process Description & BAT Review document ref. 5193-CAU-XX-XX-RP-0V-0312 for

monitoring results and discussion). Therefore, this permit variation for Maw Green is to formalise the asbestos-soils treatment activity to be included as a permitted activity at the STF within the permit.

2.2.5 The proposed soils bioremediation process will remain the same at the existing STF, utilising industry standard biopile technology. Hazardous soils containing bonded asbestos debris will undergo pre-acceptance checks, a pre-screening process and hand-picking of bonded asbestos fragments in the new proposed area for treatment and storage, before being sent across to the existing STF area for bioremediation (if hydrocarbon impacted) or direct to the landfill for use in restoration.

2.2.6 The facility will be limited to accepting wastes that can be treated to a point where they can be used for restoration soils on the landfill area in accordance with the approved restoration plan. Non-hazardous soils (including hazardous soils which have been treated) may be screened to remove oversize inclusions, prior to use in the restoration of the site, after validation testing is complete to ensure they are physically suitable. Following screening, the soils will be stockpiled for use in recovery at Maw Green Landfill Site, this may also include soils that have undergone the bioremediation process to remove oversized materials.

2.2.7 The new hazardous soils storage and treatment pad will be constructed from crushed concrete with underlying geo-composite clay liner (GCL). This will have sealed drainage where all surface waters will fall and be collected in a pumping chamber before being pumped across site to the existing water treatment plant on the eastern side of the existing STF and then discharged to sewer via existing discharge consent. Asbestos and other restricted substances will continue to be tested for prior to discharging any waste waters to sewer, as per limits within the discharge consent.

Waste Storage

2.2.8 Segregation of the accepted waste types will be required on-site to ensure waste soils intended to be sent directly into the bioremediation process are not mixed with those containing asbestos. The separation of wastes in the bioremediation process is not necessary as they are not considered to be reactive. In the event of any non-conforming wastes accepted at the site, a waste rejection notification will be issued informing the waste carrier that the waste is not suitable for treatment.

2.2.9 After placement on the storage area, the soils will be sheeted to reduce the potential for air borne emissions. The pre-assessment testing is carried out to confirm the soil matrix and not containing any asbestos fibres above 0.1% for chrysotile asbestos and 0.01% for all other forms of asbestos. Until the testing has been completed, the soils will remain sheeted.

2.2.10 Following satisfactory results from pre-assessment confirming that the soils are compliant with the acceptance criteria, the soil can be stored externally, un-sheeted and will undergo pre-screening and handpicking for bonded asbestos fragments. Asbestos containing soils

with fibre concentrations that have the potential to become airborne at concentrations above the air monitoring detection limit will be rejected from site. Soils that meet all waste acceptance checks will be formally accepted for treatment.

2.2.11 Rejected wastes will be stored within a designated quarantine area pending removal from site and a note will be made of the waste type, quantity, hazardous properties and storage requirements. The quarantine area is segregated from the storage areas for other permitted wastes to reduce the risk of cross contamination.

Pre-screening and hand-picking of asbestos containing soils

Screening Operations

2.2.12 A mechanical screener will be used to remove oversize material from asbestos containing soils. Soils will be screened using a three-way screener. The screened material is then passed through the picking station to allow the removal of any bound asbestos debris. This is to remove larger items (e.g. lumps of concrete) to reduce the potential of damage to the picking station and make hand picking of asbestos debris more effective.

The screener currently being used under the mobile plant deployment at Maw Green is unmodified. Trials on enclosed screeners with a HEPA filter and uncovered screeners with general dust suppression have shown no difference in emissions as they all meet the method detection limit of <0.0005f/ml. However, the use of enclosed screeners is far slower, prone to significant downtime and uses significantly more energy due to reduced throughput for no environmental benefit. The use of standard dust suppression with a propriety surfactant has been shown to be entirely effective as secondary mitigation to the waste acceptance criteria. Where SEM testing is undertaken this will ensure that the asbestos concentrations in air are below 0.0005f/ml. This approach and reduced detection limit for the asbestos monitoring meets the well-established principle of reducing emissions to be as low as reasonably practicable.

2.2.13 Daily monitoring will be undertaken to ensure that emissions meet <0.01f/ml or <0.0005f/ml as required. As secondary mitigation measures, continuous dust suppression in the form of misting systems is also provided around the screening operations to reduce the potential for any fugitive emission release. Materials moved from the screener to the picking station will be a continuous process where soils are directly fed from the screener to the picking station via a conveyor.

Asbestos Picking Station

2.2.14 The asbestos picking station will be a mobile enclosed unit and will be identical to the type approved for use under an environmental permit at the operator's other sites.

2.2.15 Airborne asbestos concentrations have been monitored both within, and directly adjacent to the picking station at the operator's other sites. There is no increase in asbestos concentrations above the method detection limit of either <0.01f/ml or <0.0005f/ml within the internal atmosphere of the soil screeners/picking stations monitored, nor ambient air

immediately outside of the screener/picking station. This monitoring has been undertaken since the operator commenced the treatment of bound asbestos contaminated soils. All air monitoring data has been submitted to the Environment Agency and approved as being compliant with the site's permit for each site (see monitoring data within document ref. 5193-CAU-XX-XX-RP-V-0312).

2.2.16 Notwithstanding the evidence that there are no elevated airborne asbestos emissions within the screening plant/picking stations of the above sites, as an additional control measure there will be a series of spray rails on the incoming and outgoing conveyor to effectively capture and contain particulate emissions. This would act as secondary mitigation for any particulate emissions.

2.2.17 The out-going conveyor will drop the hand-picked picked processed soils, and the drop height will be minimised to reduce any agitation of the soils. A dust suppression system (using a water and proprietary asbestos surfactant solution) will be in place at the site that will consist of continuous misting sprays with overlapping spray arcs, identical to the approved suppression system on the operator's other sites that can be used to continually dampen stockpiles during loading and unloading activities.

2.2.18 The process in the picking station will involve a manual sorting process by trained operatives who will remove visible fragments of asbestos from the materials from the conveyor. Asbestos picked from the conveyor will be placed by hand in individual polythene bags located inside the picking station beside the trained operatives. When the bags are either full, or the end of the working day is achieved, the polythene bag will be placed into a second bag and sealed using a taped swan neck. The double bagged asbestos will be taken outside and placed by hand into the on-site enclosed lockable asbestos skip. Used PPE from the picking station and direct working areas will be double bagged using the same approach as asbestos containing material (ACM) debris and placed into the enclosed lockable asbestos skip.

Asbestos Storage (post-treatment)

2.2.19 The out-going conveyor from the asbestos picking station will deposit the hand processed soils into a separate stockpile labelled as treated soils. The stockpile within this designated area will then undergo further visual inspection by the suitably trained/qualified member of staff for any residual bonded asbestos containing fragments. If any bonded asbestos fragments are encountered, the materials will be re-loaded into the asbestos picking station and processed until no visible bonded asbestos fragments are observed through visual inspection.

2.2.20 The materials will then undergo 'Post Treatment Verification Sampling' (See Section 2.9) testing and sampling will confirm that treated soils meet the restoration soil quality targets to enable their use in the restoration area of Maw Green Landfill Site. If, after the receipt of laboratory analysis results, the soils do not meet the acceptance criteria, the soils will either be treated further or removed from site to an alternative disposal facility.

2.2.21 Following screening, the soils will be stockpiled for use in recovery at the landfill site, this may also include soils that have undergone bioremediation.

2.3 Bioremediation Process Description

2.3.1 There will be no change to the bioremediation process at the STF as part of this permit variation.

3.0 POTENTIAL SENSITIVE RECEPTORS

3.1 Overview

3.1.1 The site is located within a predominantly agricultural area but is situated northeast of the residential outskirts of Crewe, Cheshire. The site is in a low-lying area, with general ground elevations around 45mAOD indicated.

3.1.2 Potential environmental receptors include domestic dwellings both within the town and farmlands surrounding the site. In addition, surface water receptors are present within the Sandbach Flashes Site of Special Scientific Interest (SSSI) to the north and the diverted Fowle Brook to the east being the closest to the site.

3.2 Receptors

3.2.1 A number of residential receptors on the outskirts of Crewe have been identified as sensitive receptors. Houses in Maw Green are located approximately 170m southwest of the site, Meadow Cottage is 210m southeast of the site and houses on Maw Green Road are 240m southwest. Brook House Farm is also located 315m east. The closest school is Monks Coppenhall Primary School located 560m to the west-southwest of the site. As the prevailing wind direction is from the southwest, none of these developments are considered to be at a high risk from odour or dust nuisance from the site.

3.2.2 The closest surface water feature is a stream, Fowle Brook, to the 140m to the east-northeast of the site, which runs parallel to the railway line along the northeast site boundary. Approximately 530m to the northwest is a pond, which is located directly south of the water features which constitute Sandbach Flashes SSSI (which are 615m northwest of the site). Brook House Pools are located approximately 400m to the north, north-east of the site.

3.2.3 The site is situated within a NOx (as NO2) Air quality Management Area (AQMA), as is most of Cheshire. There are no Source Protection Zones (SPZs) within 2km of the site, with the nearest SPZ (Zone III) located over 8km away to the southeast.

3.2.4 The site is not located within a flood risk zone. The site is located on Devensian Glacial Till deposits (silt, clay, sands and gravels) classified by the Environment Agency as a Secondary (undifferentiated) Aquifer. The superficial deposits are underlain by the Wilkesley Halite Member (Halite and Mudstone) of the Mercia Mudstone Group, which has not been given aquifer status by the Environment Agency.

3.3 Ecological Designations

3.3.1 A search was conducted for habitats and environmental receptors within a 2km radius of the site. From a review of the Magic Maps website the site is not within 2km of any of the following designated sites: Areas of Outstanding Natural Beauty (AONBs), Local Nature Reserves (LNRs), National Nature Reserves (NNRs), Ramsar sites, Special Areas of

Conservation (SACs), Special Protection Areas (SPAs), or any Scheduled Monuments and World Heritage Sites.

3.3.2 Sandbach Flashes Site of Special Scientific Interest (SSSI) is located approximately 615m north-northwest of the proposed site. The Sandbach Flashes are made up of 14 live units, which are all found north of the site within a 5km radius. The 3 units within 900m of the site are in favourable condition (closest 615m NNW), with 8 units north of this in an unfavourable (no change) condition, one unit being unfavourable declining, and one more unit 3.4km north being in favourable condition. Sandbach Flashes are defined according to Natural England as:

'Sandbach Flashes is a site of physiographical and biological importance. It consists of a series of pools formed as a result of subsidence due to the solution of underlying salt deposits. The water varies from freshwater, chemically similar to other Cheshire meres, to highly saline. Inland saline habitats are extremely rare and are of considerable interest because of the unusual associations of plants and animals. Most of the flashes are surrounded by semi-improved or improved grassland. Fodens Flash is partly surrounded by an important area of wet woodland.'

3.3.3 Two Local Wildlife Sites (LWSs) have also been identified nearby: Brook House Pools approximately 400m north-northeast, and also Clay Lane Verges approximately 1.5km to the northeast of the site.

3.3.4 The potential receptors within 1000m of the site boundary are provided on drawing ref. 5193-CAU-XX-XX-DR-V-1804 and are summarised in Table 1 below:

Table 1 - Potential Receptors identified within 1000m of the site boundary

Receptor	Receptor Type	Distance & Direction from Site
Maw Green Landfill Site	Industrial	<10m W&N
Fowle Brook	Surface Water	140m ENE
Railway Line	Commercial	140m E
Maw Green Residential Area	Residential	170m SW
Meadow Cottage	Residential	210m SE
Maw Green Road	Public Road	220m S
House on Maw Green Road	Residential	240m SW
Brook House Farm	Residential	315m E
Brookhouse Pools Local Wildlife Site	Habitat/Surface Water	400m NNE
Car Dealership	Industrial/Commercial	420m WNW
Residences on Groby Road	Residential	440m W
Public Footpath	Recreational	450m NW

Receptor	Receptor Type	Distance & Direction from Site
Pond	Surface Water	530m NW
Monks Coppenhall Primary School	Residential	560m WSW
Sandbach Flashes SSSI	Habitat	615m NNW
Stoneley Residential Area	Residential	630m NW
Sydney Residential Area	Residential	740m SE
Foxholme Farm	Residential	750m NE
Sir William Stanier Community School	Residential	930m SW
Clayhanger Hall Farm	Residential	1000m NE

3.4 Meteorological Setting

3.4.1 Fugitive emissions of dust, litter, odour and noise from the site are likely to be affected by local weather conditions, in particular by wind direction. Wind statistics observed from the closest weather station, Leek Thorncliffe, located approximately 28km east from the site are considered to be representative of the typical conditions at the site (Figure 3 below).

3.4.2 A review of the data recorded daily between April 2010 and September 2022 on the Windfinder.com website indicates that the most dominant wind direction is from the south-southwest towards the north-northeast.

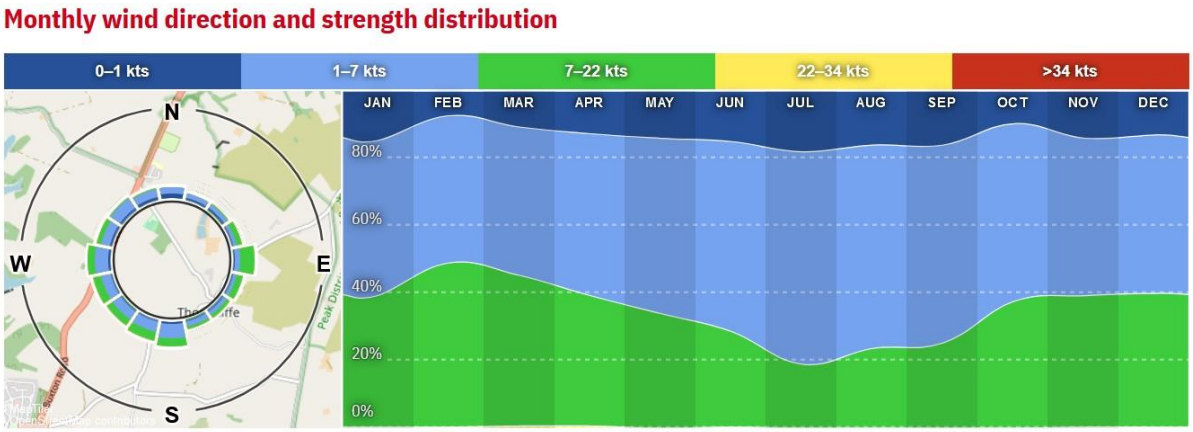


Figure 3 – Leek Thorncliffe – average annual wind direction & strength 2010-2022

4.0 POTENTIAL DUST SOURCES

4.1 Source

4.1.1 Fugitive dust could result in visible dust being observed crossing the site boundary, a human health risk to workers and human receptors beyond the site boundary and nuisance can be caused by dust deposition on surfaces at sensitive receptors.

4.1.2 Potential dust sources have been identified at the site from the operational activities to be carried out, these are detailed below:

- Delivery of wastes to site, either for bioremediation process or asbestos hand-picking;
- Vehicle movements around site;
- Transfer of soils to appropriate storage areas and then to processing areas;
- Bioremediation of hydrocarbon contaminated soils including initial placement, aeration and turning;
- Storage of asbestos contaminated soils during pre-acceptance testing;
- Screening and hand-picking of asbestos contaminated soils; and,
- Storage and transfer of residual material removed from soil screening process.

4.2 Risk Assessment

4.2.1 A risk assessment detailing the source, pathway and receptor has been included in Table 2 below which identifies the mitigation measures to reduce the pathway to receptors from the proposed site activities relating to fugitive emissions. The Amenity and Accidents Risk Assessment, document ref: 5193-CAU-XX-XX-RP-V-0310 provides further detail on possible hazards of odour, noise & vibration, accidents as well as fugitive emissions.

4.2.2 The risk assessment details the control and mitigation measures to minimise fugitive dust emissions from operations at Maw Green Soil Treatment Facility.

4.2.3 It is considered that the majority of dust emissions are prevented from occurring due to the pre-acceptance testing of incoming soils to detect soils with loose asbestos fibres, which are not processed and are rejected from site. Monitoring will provide verification to the effectiveness of the pre-acceptance testing and initiate any mitigation measures to be carried out on site.

4.2.4 It is maintained that the proposed new STF area for the treatment and storage of asbestos contaminated wastes will not result in significant or adverse emissions due to the nature and scale of the operations and historic air monitoring of identical operations on other sites.

4.2.5 Airborne asbestos fibre monitoring is already undertaken for the existing mobile plant deployment at Maw Green for the treatment of asbestos-impacted soils. Airborne dust samples were supplied on gridded MCE membrane filters and were tested in a laboratory

using Scanning Electron Microscopy (SEM) with fibre identification by Energy Dispersive X-ray Spectroscopy (EDXS). The test results are contained within Appendix 6 of the 'Treatment Process Description & BAT Review' report ref. 5193-CAU-XX-XX-RP-V-0312, included within this application. The Maw Green monitoring results provided by the operator from between August and November 2022 shows no discernible asbestos fibre emissions detected, with all results at or below the limit of detection (<0.0005f/ml), with a few anomalous results but still well below the 0.01 f/ml permit threshold limit.

4.2.6 Similarly, the same mobile plant operation has been undertaken as a licenced deployment by Provectus at Edwin Richards Quarry soils treatment facility, for the physico-chemical treatment of hazardous asbestos-impacted soils using a screener plant and hand-picking of bonded asbestos (see Appendix 7 of the 'Treatment Process Description & BAT Review' report ref. 5193-CAU-XX-XX-RP-V-0312, included within this application). This operation was undertaken within a building, and airborne dust and asbestos fibre monitoring undertaken inside the building, with samples tested at the laboratory for the presence of asbestos fibres. The monitoring results obtained from both within the building and at the screener deck, using either covered or uncovered screener, were similar and were significantly below the permit threshold of <0.01 f/ml and predominantly below <0.0005f/ml. It was concluded the absence of measurable asbestos emissions from the soil screening operation meant that a review of abatement measures could not be made other than to conclude that the waste acceptance approach at the site is entirely successful in preventing airborne asbestos emissions exceeding permit thresholds.

4.2.7 With reference to the above monitoring results obtained from the Maw Green current deployment operations and those at Edwin Richards Quarry soil treatment facility, it can be concluded that provided the operator undertakes the same stringent waste acceptance procedures and operational procedures as currently at Maw Green and also as shown at Edwin Richards, then the potential for elevated airborne asbestos emissions being produced at the site is highly unlikely and not observed to date, or by the soil treatment/land remediation industry in general. This will ensure both the environment and human health of workers and nearby sensitive receptors is protected.

Table 2 -Fugitive Emissions Risk Assessment

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Source	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance of probability and consequence**
FUGITIVE EMISSIONS						
Dust from contaminated soil treatment Dust from storage of hazardous waste storage	Workers and visitors to the site. Residential receptors 170m SW, 210m SE and 240m SW of the site. Users of Maw Green Road 220m SW. Nearby wildlife and plants at Sandbach Flashes 615m NW and Local	By air.	The preventative measures used for the existing STF will be used for the new treatment and storing of asbestos contaminated soils activity, and additional control measures will be used to control the risk of fugitive asbestos fibres. Preventative and mitigation measures include: • Provision on site of a water bowser/dust cannon and adequate year-round water supply and dust suppression by continuous water misting sprays around site with overlapping spray arcs for effective coverage. • Waste acceptance procedures to ensure soils that have the potential for dust emissions are not accepted. • Dust suppression misting system with added asbestos surfactant. • Asbestos monitoring will be carried out quarterly or as required against background reference using detection limits of <0.0005f/ml determined with	**Low** Residential receptors are largely not downwind of the site, with predominant wind direction blowing away from the SW towards the NE. Sandbach Flashes >600 north-west unlikely to be affected due to distance from site and less likely to be downwind most of the time.	Nuisance - dust on cars, clothing etc. Human health hazard from asbestos fibres. Smothering of fauna and flora by dust within SSSI and LWS.	**Low – if control measures are implemented.**

	Wildlife Site 400m NE		on-site monitoring as a pre-commencement condition. • Use of clean water for dust suppression, to avoid re-circulating fine material. • High standards of housekeeping to minimise track-out and windblown dust. • A preventative maintenance programme, including readily available spares, to ensure the efficient operation of plant and equipment. • Minimisation of drop heights during tipping. • Clear delineation of stockpiles to deter vehicles from running over edges. • Effective staff training in respect of the causes and prevention of dust. • Daily dust monitoring carried out to assess levels of emissions from site activities. • Pre-acceptance testing will be undertaken to quantify that asbestos fibres are lower than 0.1% for Chrysotile and 0.01% for any other forms of asbestos detected in soil. If there are exceedances of these limits then that soil will be rejected from site. **Specific measures** in relation to activities within the treatment facility include: • Continuous misting sprays with overlapping arcs to be employed. • Meteorological conditions should be considered before activities such as transfer, and this activity should be minimised during unfavourable wind conditions.	Local Wildlife Site 400m unlikely to be affected due to distance from site. The same dust control and prevention measures will be in place.		

Pre-screening of asbestos soils Handpicking of asbestos soils	Workers and visitors to the site. Residential receptors 170m SW, 210m SE and 240m SW of the site. Users of Maw Green Road 220m SW. Nearby wildlife and plants at Sandbach Flashes 615m NW and Local Wildlife Site 400m NE.	By air.	Preventative and mitigation measures include: • Provision on site of a water bowser/dust cannon and adequate year-round water supply by regular spraying in dry conditions with added asbestos surfactant; • Dust suppression continuous misting system with overlapping spray arcs for effective site coverage of storage and processing areas; • Asbestos monitoring will be carried out quarterly or as required against background reference levels with a detection limit of <0.0005f/ml determined with onsite monitoring as a pre-commencement condition; • For occupational exposure, daily asbestos monitoring will be carried out during soil screening operations; • Use of clean water for suppression, to avoid re-circulating fine material; • Minimisation of drop heights during tipping; • Hand-picking operations are carried out in a fully enclosed picking station to minimise potential for asbestos fibre release to air; • Pre-acceptance testing will be undertaken to quantify that asbestos fibres are lower than 0.1% for Chrysotile and 0.01% for any other forms of asbestos detected in soil. If there are exceedances of these limits then that soil will be rejected from site; • Hand-picking of bound asbestos, unlikely to release fugitive asbestos fibres; • Staff working in hand-picking station will undertake suitable training and wear correct	**Unlikely -** Nearest residential receptors unlikely to be affected due to distance from site boundary and not downwind to the proposed activity at the STF. Asbestos ambient air monitoring from other FCC sites (Edwin Richards Quarry) undertaking asbestos in soils treatment and storage indicates negligible asbestos levels in air when control measures in place.	Human health hazard from asbestos fibres - asbestos linked illness.	**Low – if control measures are implemented.**

			personal protective clothing. Decontamination of workers will be undertaken to prevent fugitive asbestos fibres leaving site.			

5.0 POTENTIAL PATHWAYS

5.1 Airborne Pathways

5.1.1 It is considered the potential pathway for dust, particulates and asbestos fibre emissions to reach sensitive receptors is via airborne transmission. Factors affecting airborne emissions include:

- Type of wastes;
- Quantity of wastes;
- Season i.e. hot, dry, summer conditions generate more dust;
- Wind direction, strength and speed;
- Exposure of wastes to wind;
- Distance of sensitive receptor to site operations.

5.1.2 Meteorological data from Leek Thorncliffe weather station (wind statistics from winderfinder.com website) indicates that the prevailing wind is from the south-southwest towards the north-northeast. These wind conditions are considered to be reflective of those likely to be experienced at Maw Green Soil Treatment Facility.

5.1.3 A review of the sensitive receptors in Table 1 above shows that the receptors likely to be impacted by fugitive emissions of dust or airborne asbestos fibres within 500m of the site boundary are workers on Maw Green Landfill <10m to the north of the site boundary, habitats associated with the Fowle Brook (140m ENE) and Brookhouse Pools Local Wildlife Site (400m NNE). There are no residential receptors downwind of the site within 500m. Foxholme Farm is located 750m NE.

5.1.4 Given the control measures in place, the transient nature of airborne emissions and the distance of these receptors from site, it is unlikely the receptors will be significantly impacted by emissions from site. However strict control measures will be in place to keep airborne asbestos fibres and general dust emissions under control from leaving the site boundary, due to the serious human health risks posed by asbestos fibres.

6.0 CONTROL MEASURES

6.1 Overview

6.1.1 The following control measures will be implemented to minimise the impact of emissions from Maw Green Soil Treatment Facility. A number of aspects of the site infrastructure and procedures on site are designed to mitigate dust and asbestos fibre emissions, including:

Bioremediation Process

- Daily visual dust monitoring at the site.
- Soils are received and sampled and then placed onto the vacuum system which will capture emissions whilst the initial soil testing is completed.
- Screening of contaminated soils is not required prior to biotreatment.
- Soils are formed within their initial reception area into biopiles, and the surfaces sealed using an excavator bucket.
- The use of a static biopile reduces the amount of soil management to a minimum. In a typical treatment period, the soils are turned over twice.
- The mineralization of hydrocarbons results in elevated moisture content in soils reducing the potential for dust emissions.
- The biopiles can be irrigated as a mitigation measure should surface dust be observed, albeit this is rarely required.
- Use of uncontaminated water for dust suppression, to avoid re-circulating fine material.
- High standards of housekeeping to minimise track-out and windblown dust.
- Minimisation of drop heights during tipping.

Asbestos Contaminated Soils Treatment

- Strict waste acceptance criteria and testing: waste acceptance for soils with asbestos inclusions are limited to bound pieces and strict asbestos fibre limits that have been shown to not release airborne asbestos fibres above World Health Organisation (WHO) air quality guidance levels of <0.0005f/ml.
- Covering asbestos contaminated soils undergoing testing prior to acceptance and treatment, with tarpaulins preventing fugitive emissions whilst reception analysis is completed.
- Soils will be screened using a three way screener to remove oversize inclusions and separate soil into mid-range and fines range fractions to facilitate more effective hand picking.
- The asbestos picking station will be a mobile enclosed unit and will be identical to the type approved for use under an environmental permit at the operator's other sites.
- Use of a continuous misting system (asbestos surfactant added) in operational areas (storage and processing) to provide additional reassurance. Airborne

asbestos concentrations are below <0.0005f/ml during monitoring (see material safety data sheet for the surfactant in Appendix 3).

- Minimising drop heights of asbestos contaminated wastes from delivery vehicles, site plant and conveyors.
- Asbestos containing materials (ACM) will be double-bagged by trained site operatives in a polythene bag, sealed using a taped swan neck and placed into an enclosed lockable skip.
- The general stockpile orientation of west to east is generally parallel to prevailing wind direction to reduce wind blow potential of dust.
- Workers will undergo decontamination at the end of each working shift and used PPE from the working areas will be double-bagged and placed in the lockable asbestos skip.
- Daily site inspections will include checking the asbestos skip by a trained supervisor and arranging for the collection of the existing skip and delivery of a new asbestos skip when the existing skip has reached 75% capacity. This is to ensure that there is no risk of the skip becoming over capacity and unable to accept further bagged asbestos.

6.2 Pre-Acceptance, Waste Acceptance and Pre-Assessment

6.2.1 The site will operate in accordance with the Provectus 'Soil Reception Procedures' (Appendix 2) which details specific procedures and measures for the pre-acceptance of hazardous soils, rejection of non-conforming wastes and soil characterisation procedures and measures undertaken for sampling of soils received at the STF.

6.2.2 The weighbridge will conduct assessments of waste inputs and impose controls and restrictions on potentially dusty wastes or asbestos contaminated wastes (e.g. dampening down with water, bagging, rapid cover/sheeting following placement, refusal to tip, rejection from site).

6.2.3 Soil with asbestos will be consigned by contractors and hauliers as 17 05 03* 'soils and stones containing hazardous substances' or 17 06 05* 'other construction materials containing asbestos'. All asbestos containing wastes will undergo visual inspection and chemical analysis to ensure that any soils that are formally accepted are suitable for further soil processing/treatment without the potential for any asbestos fibre emissions above the detection limit. A summary of waste acceptance is shown in Figure 4 below.

6.2.4 Unacceptable forms of asbestos-containing wastes which will be rejected include:

- Asbestos pipe lagging;
- Loose asbestos fill;
- Asbestos insulation board; and,
- Soils with elevated asbestos fibres in any form that could result in airborne emissions above the detection limit (0.01f/ml) or reference background level.

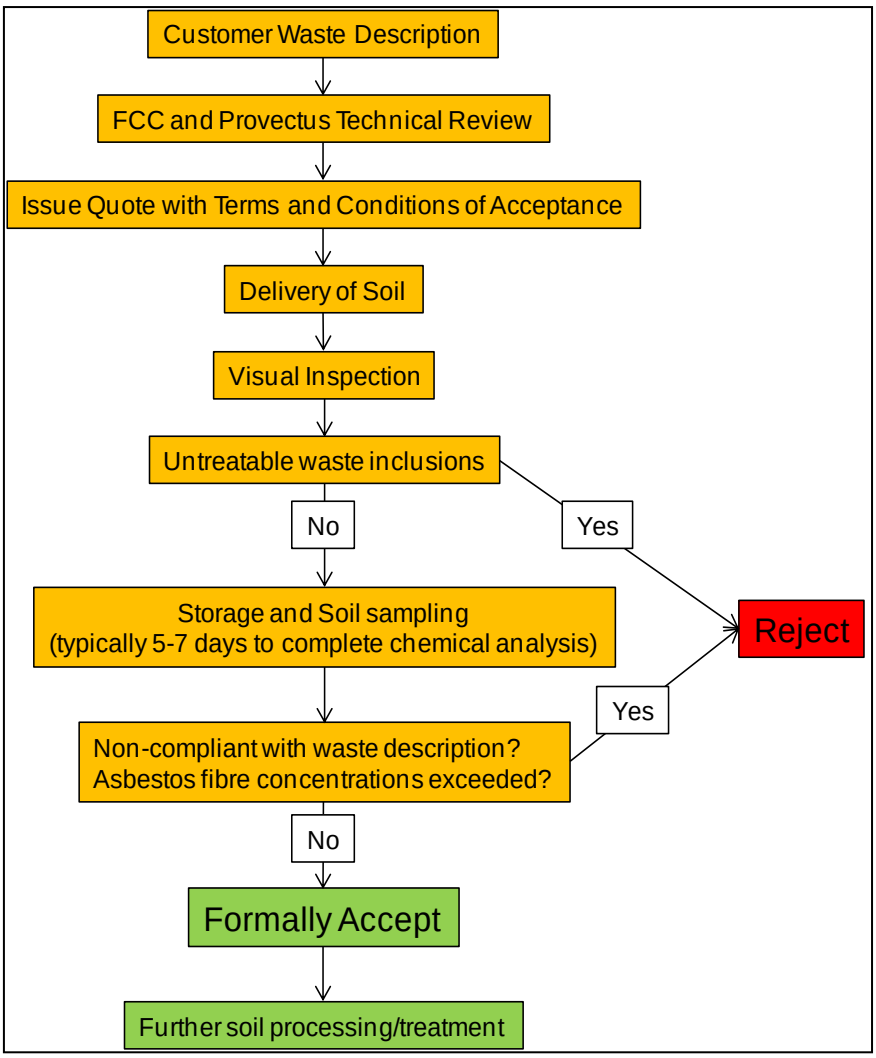


Figure 4 - Summary of Waste Acceptance Procedures – Asbestos containing wastes

6.2.5 Pre-assessment will be carried out to identify the asbestos fibre concentrations in soil, and to ensure that waste soils only containing identifiable pieces of bonded asbestos are subject to further treatment. This approach will eliminate the potential for airborne asbestos fibre emissions above the detection limit. Pre-assessment testing will confirm that asbestos fibre content is less than 0.01% for chrysotile asbestos and 0.01% for all other forms of asbestos. Any results above these levels will be rejected. During the storage time waiting for pre-assessment results, the soil will remain sheeted. Only on satisfactory laboratory results will the waste soils be un-sheeted. Air monitoring will be undertaken during treatment of soils to provide reassurance that there are no airborne asbestos fibres present above the detection limit at all times.

6.3 Site Traffic and Movement of Vehicles

6.3.1 All site traffic will be kept to designated haul routes. The surface of internal haul routes will be inspected daily and swept at regular intervals with any defects made good.

6.3.2 Further standard good practices for haulage on site will include:

- Setting appropriate site speed limits;
- Even loading of vehicles to avoid spillages;
- Ensuring even road surfacing and maintenance of potential potholes;
- Regular removal of spilled material from site haul routes; and,
- Dust suppression by regular spraying in dry conditions where there is the potential to generate dust and release of particulates and asbestos fibres.

6.3.3 All vehicles leaving site will be subject to inspection and where necessary mud and debris stuck to vehicle will be removed on site prior to leaving site (e.g. using on site hoses/jet wash), to prevent drag out onto the public highway. In the event that drag-out is observed, then a road sweeper will be deployed promptly to remove any debris or other deposits on internal roads to prevent drag out onto the public highway, and external roads if required. Water from the washing down of vehicles will be contained within the site's impermeable surfacing and drainage system.

6.4 Waste Operations

- All staff will be trained and made aware of the need to minimise dust and particulate emissions and to ensure asbestos fibres are not released from potentially contaminated soils during delivery, handling and storage.

- Site operatives will carry out activities in a way that will minimise any plumes as a result of handling and developing the crushed treatment pad.

- The site will be provided with a continuous water misting system which will spray a mist into the air with overlapping spray arcs to reduce the potential for airborne dust, particulates and asbestos fibres in the processing and storage areas. An asbestos surfactant will be added to the sprays to ensure asbestos fibres are captured effectively. A copy of the Material Safety Data Sheet (MSDS) is included within Appendix 3.

- During particularly dry weather the storage areas will be dampened down further as necessary. A tractor fitted with a bowser/or dust cannon can be deployed during warm, dry and windy conditions to dampen down haul roads.

- The asbestos contaminated soils will be stored and treated on a dedicated pad constructed from crushed concrete with underlying geo-composite clay liner (GCL). This will have sealed drainage where all surface waters will fall to and be collected, before being pumped to the existing water treatment plant and then discharged to sewer via existing discharge consent.

- The on-site vehicle speed limit will be enforced to ensure that vehicle movements do not generate excessive dust. All vehicles will use wheel wash to prevent mud / dust being trailed onto adjacent roads and creating a hazard / nuisance.

- Drop heights will be minimised during the loading and unloading of materials to reduce the likelihood of dispersion and minimise the potential for dust release as a consequence of agitation.

- A street sweeper will regularly clean site roads of any mud tracked onto road surfaces from site vehicles. Dampening of site roads/surfaces as necessary using a tanker during dry periods will minimise dust kick-up.

6.4.1 There will be no change to the bioremediation process as a result of this permit variation. The moisture content of the biopiles will continue to be maintained at a constant level to allow the bioremediation and subsequently minimise the dust potential. If soil is observed to be generating dust on the biopile it is indicative of a moisture content that is too low. Irrigation of the biopile with treated water will then be implemented to rehydrate the soil to the correct moisture content levels thereby eliminating any potential dust emissions. Operational controls during the bioremediation process are in place to ensure no turning of the biopiles is undertaken during high winds. The soils for the bioremediation process will continue to be stored on a separate impermeable kerbed concrete pad with sealed drainage.

6.5 Pre-Screening and Hand-Picking

6.5.1 Asbestos fibres will not be generated on site above the detection limit due to rigorous testing during the pre-acceptance stage and hand-picking within an enclosed mobile picking station, and also daily ambient air monitoring, so no abatement system is required.

6.5.2 The following control measures will be in place:

- The picking station will be an enclosed unit.

- Asbestos which has been removed from soils will be double bagged and sealed by trained operatives and placed in a sealed, covered and lockable skip for onward disposal off-site.

- Air monitoring will be carried during the pre-screening and hand-picking to confirm that asbestos levels are below the detection limit of 0.01f/ml or 0.0005f/ml as required, for the safety of workers and nearby receptors.

- All externally stored asbestos contaminated soils will be covered prior to transfer for screening and hand picking.

- Reception testing undertaken to ensure soils contain <0.1% chrysotile fibres and <0.01% other forms of asbestos fibres.

- Any waste loads containing forms of unbound asbestos/insulation will be rejected from site.

6.6 Dust Suppression

6.6.1 Continuous misting suppression will spray a continuous mist into the air to reduce the potential for airborne dust and asbestos particulates:

- Misting sprays will be situated so that they concentrate spraying on storage and treatment areas for the pre-screening and hand-picking for asbestos.

- The waters for dust suppression systems will be dosed with an asbestos surfactant additive which is a specially formulated solution which is capable of penetrating and "wetting out" amphibole (hydrophobic) forms of asbestos quickly and thoroughly. A copy of the MSDS sheets for the asbestos surfactant can be found in Appendix 3.

- During particularly dry weather the storage areas and roads of the site will be dampened down as necessary with bowser/dust cannon. Dust generation is largely on haul roads and road sweeping/dust suppression is undertaken at source to prevent or minimise dust emissions occurring.

- Air monitoring will be carried out to identify any elevated airborne asbestos fibres as a result of site activities to ensure compliance with occupational exposure reference standards. On a periodic basis this will be supplemented by background environmental monitoring that is undertaken for a longer period to achieve the lower background reference detection limit. However, it is considered that due to pre-acceptance testing and previous experience on other FCC sites, the risk of asbestos fibres being detected during air monitoring is extremely low.

6.7 Bioremediation Process

6.7.1 There are to be no changes to the bioremediation process or dust generating potential of the operations as a result of this permit variation.

6.8 Off Site Dust Emission

6.8.1 Dust management controls are in place for the adjacent Maw Green Landfill Site, specified in the site-specific Environmental Management System.

7.0 MONITORING

7.1 Baseline Background Monitoring

4.1.1 As part of best practice, pre-operational baseline monitoring for asbestos will be carried out to determine the air quality prior to any treatment activities and the issue of the permit. The operator will obtain baseline background monitoring prior to the commencement of operations where 3 rounds of monitoring using a detection limit of <0.0005f/ml will be taken at locations shown on drawing ref: 5193-CAU-XX-XX-DR-V-1806.

7.1.1 Following issue of the permit, the operator will be able to compare the monitoring results against reference background levels obtained from baseline monitoring. The background reference levels will be used as an action level should there be any soils with elevated asbestos fibres above the detection limit (0.01f/ml) or reference background level.

4.1.2 Detail of the frequency and thresholds of monitoring are included in the updated Dust & Emissions Management Plant (DEMP), document ref: 5193-CAU-XX-XX-RP-V-0313.

7.2 Schedule

7.2.1 Dust and asbestos fibre air monitoring will be undertaken in order to assess the effectiveness of the operational management and mitigating control measures at the STF. Monitoring will identify the potential for dust or asbestos fibres to impact the nearby receptors, informing the implementation of appropriate remediation measures.

7.2.2 Environmental monitoring locations are detailed in the dust and asbestos Monitoring Plan drawing ref. 5193-CAU-XX-XX-DR-V-1806.

7.2.3 Monitoring will be undertaken by designated staff that will be fully trained by site management. All site personnel will be responsible for reporting any problem dust emissions identified during their day to day operations.

7.2.4 Monitoring at the Facility will consist of the following in Table 3 below:

Table 3 - Monitoring Outline

Parameter	Frequency	Thresholds	Comments
Meteorological Monitoring	Manually checked at start of each working day.	Site management to assess weather conditions to determine if likely to generate excessive dust i.e. windy, hot, dry.	Use of a weather station app or website.
Dust Monitoring	Daily on-site checks (or	On-site checks and off-site checks in response to an	Daily on-site checks (or more frequently following dust

	more frequently following dust complaints, or during prolonged dry or windy conditions) Monthly as per landfill permit	issue being identified. Dust monitoring at 4 locations on-site using Frisbee dust gauges or similar (e.g. MCE membrane filters) (locations shown in Monitoring Plan drawing ref. 5193-CAU-XX-XX-DR-V-1806).	complaints, or during prolonged dry or windy conditions). Frisbee dust gauge method as described in M17 guidance.
Complaints Monitoring	Ad-Hoc	Dealt with by site management as soon as practicable.	Logged in accordance with Complaints Procedure
Asbestos (TCM)	Daily during initial soil screening	<0.01f/ml *Asbestos monitoring at locations around the STF during soil screening over 2 hour period. *Pumped sampling >1m above ground level Flow rate = 4 litres/minute, minimum sample volume 480 litres, filter pore size = 1.2 µm asbestos fibre limit of detection = 0.001 fibres/ml.	Method as described in M17 guidance and Table S3.3. This frequency is far in excess of other similarly permitted facilities. Monitoring undertaken around the treatment during soil screening process.
Asbestos (SEM)	Quarterly or as required	Supplementary asbestos monitoring at boundary locations (see drawing ref: 5193-CAU-XX-XX-DR-1806) to ensure compliance with an	Added reassurance to ensure baseline of asbestos emissions is not changing. Method is as described in M17 guidance. Detection limit anticipated to be <0.0005f/ml. This monitoring is far in

		agreed background reference level.	excess of other similarly permitted facilities. Pre-operational background monitoring will be carried out at locations shown on 5193-CAU-XX-XX-DR-V-1806. Three rounds of monitoring will be taken prior to the commencement of activities at site and prior to the issue of the permit.

7.3 Meteorological Monitoring

7.3.1 In the event of dust complaints, the data enables complaints to be assessed against the meteorological conditions for the relevant period. Meteorological information will be recorded on the Complaints Recording Form (Appendix 4).

7.4 Dust Monitoring

7.4.1 Dust monitoring will continue at 4 locations (drawing ref. 5193-CAU-XX-XX-DR-V-1806) onsite using Frisbee dust gauges or similar (e.g. MCE membrane filters) to measure for deposited dust and asbestos fibres. Limits and frequency of monitoring will be as per the existing permit.

7.4.2 As part of the daily inspections, appropriately trained and experienced site personnel will carry out an on-site inspection to monitor visual dust generation, which will be recorded on the daily Site Inspection Form (Appendix 5). The records of the site daily inspections will be made available to the Environment Agency (EA) on request.

7.4.3 Visual dust monitoring will include observing the movement of vehicles, stockpiling and movement of materials, to establish if such operations are giving rise to dust emissions and the size and frequency of these releases.

7.4.4 The frequency of site inspections will be increased when site activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

7.4.5 In the event that visual dust emissions are observed to be crossing the site boundary or surfaces are becoming soiled, the site management will be informed immediately and the approximate location and extent of the dust plume, or deposition, assessed and site operations reviewed and remediated.

7.5 Asbestos Monitoring

7.5.1 As part of the daily inspections, appropriately trained and experienced site personnel will carry out an on-site inspection to monitor visual dust, particulates, and asbestos fibres emission generation, which will be recorded on the daily Site Inspection Form (Appendix 5). The records of the site daily inspections will be made available to the EA on request.

7.5.2 The frequency of site inspections will be increased when site activities with a high potential to produce emissions are being carried out and during prolonged dry or windy conditions.

7.5.3 Asbestos monitoring can be carried out by placing air pumps around the perimeter of the working area whilst soil screening is being undertaken, locations of the pumps will be determined by wind direction on the day of sampling. Asbestos monitoring will only be undertaken during periods when asbestos contaminated wastes are being accepted and treated.

7.5.4 Dust and asbestos monitoring during the operations on site will also be undertaken at environmental monitoring points on-site using Frisbee dust gauges or similar (e.g. MCE membrane filters) to measure for deposited dust and asbestos. The monitoring locations are shown in the dust and asbestos Monitoring Plan drawing ref. 5193-CAU-XX-XX-DR-V-1806.

8.0 ENGAGING WITH THE NEIGHBOURS

8.1 Complaints Procedure

8.1.1 As part of this Dust & Emissions Management Plan (DEMP), engagement with the neighbours will be undertaken.

8.1.2 Typically, any complaints received at the site are likely to be through the Environment Agency or Local Authority although the operator is willing to deal directly with the complainants and where necessary the following can be implemented:

- Information can be provided to the local neighbours (via the Environment Agency) regarding the point and method of contact for the Facility in the event that fugitive dust has been detected or they want to discuss any activities at the Facility.
- Complainants can be advised that any complaints / concerns will be addressed immediately following identification / notification and contingency action implemented.
- Complainants can be advised of any corrective action and a follow up call carried out if required.

8.1.3 The operator will continue to maintain a routine liaison with the Environment Agency regarding nuisance emissions of dust. In the event of a dust complaint being received by the EA the complaint is passed to the operator for investigation. The primary point of contact at the site for complaints and liaison is the Site Manager who will ensure that the recording, investigation and close-out of complaints is undertaken as described below and in accordance with company management procedures. Every complaint will be recorded on 3C Waste Limited's system as below:

- All complaints are recorded by the site manager or site staff on the FCC 'Safeguard' online incident recording system, describing the complaint and severity.
- The complaint can be forwarded to the Regional Environment Manager to undertake further investigation.
- Depending on the severity, the complaint can be escalated to senior management for investigation if necessary.
- The system is a digitalised process and records a wide range of reporting.

8.2 Complaints Monitoring

8.2.1 Any complaints received directly by the Facility or via the Regulatory bodies, including the EA and Local Authority, will be recorded on the FCC 'Safeguard' online incident recording system. This will instigate emissions monitoring at the location of the complaint and on site to determine the source and extent of the reported emissions. If necessary, monitoring will also be carried out at the nearest sensitive receptors to the Facility and the monitoring results recorded.

9.0 REMEDIAL ACTION PLAN

9.1.1 Following receipt of a complaint or identification of visual dust emissions at the STF which may give rise to an offsite impact the following action plan will be undertaken, including:

- Additional monitoring as detailed above to identify the extent of the impact and potential cause and source;
- Examination of the operational activities at the Facility at the time of the complaint or identification of an impact;
- Examination of the meteorological conditions at the time of the complaint or identification of an impact;
- Carry out a review of the operational procedure and process controls as detailed in Section 4 and instigate any control measures immediately following identification of the problem; and,
- Further monitoring will be carried out to ensure the issue has been addressed and to monitor the effectiveness of any control measures undertaken.

9.2 Record Keeping and Reporting

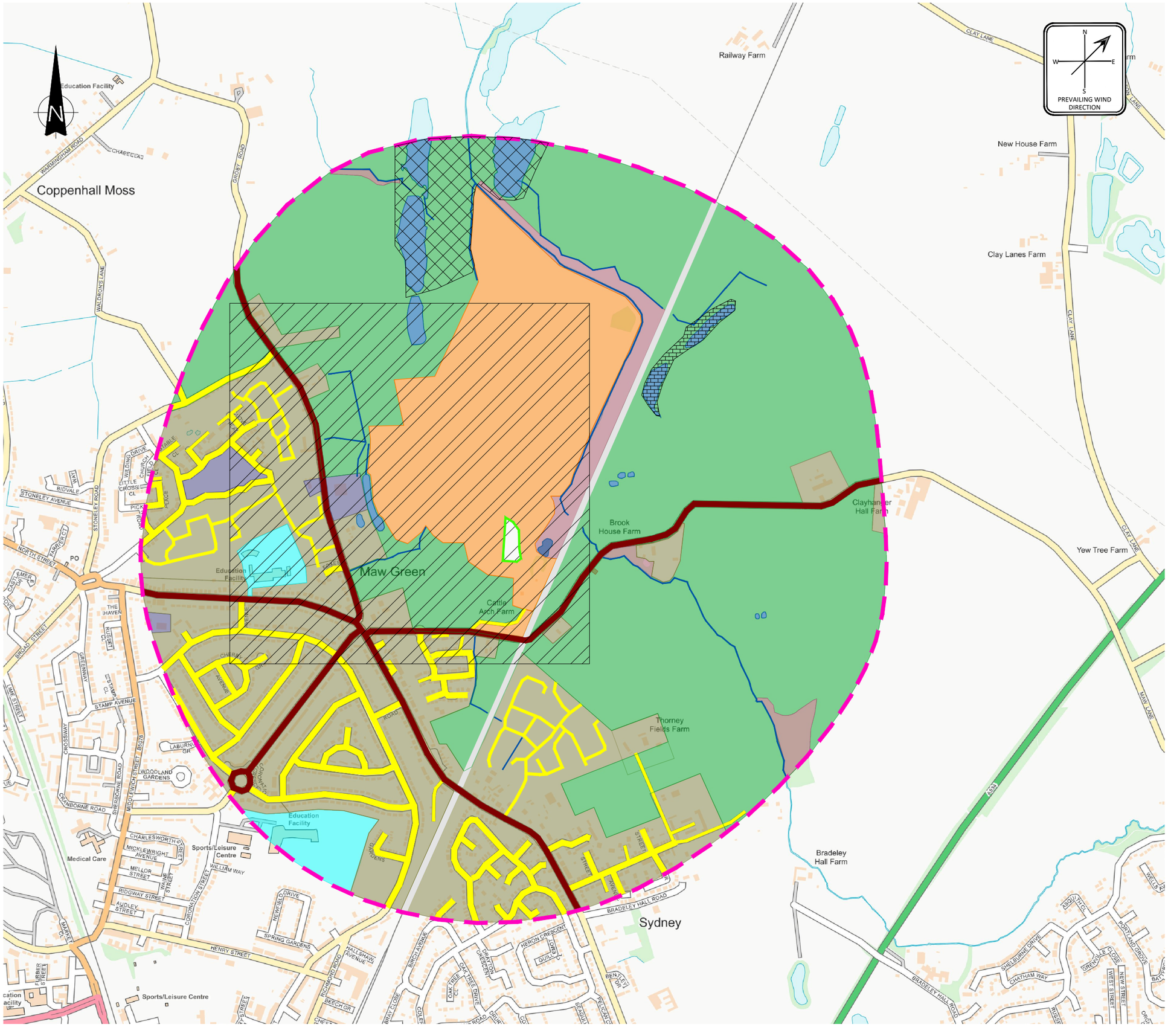
9.2.1 The Complaints Recording Form (Appendix 4) will be completed and the forms will be maintained free from damage and kept within the Site office and will be made available to the regulating authorities on request. The record keeping will form part of the facility's Management System.

9.3 DEMP Review

This Dust & Emissions Management Plan (DEMP) will be reviewed by site management when there is a relevant change in site operations and procedures, a variation to the permit or a number of dust complaints are received at the site.

DRAWINGS

5193-CAU-XX-XX-DR-V-1804	Sensitive Receptor Plan
5193-CAU-XX-XX-DR-V-1806	Proposed Monitoring Plan



LEGEND

- ACTIVITY BOUNDARY
- 1000m OFFSET
- SURFACE WATER
- WOODLAND
- COMMERCIAL
- LANDFILL SITE
- RESIDENTIAL
- MAJOR ROAD
- MINOR ROAD
- RAIL
- AGRICULTURAL
- EDUCATIONAL
- RECREATIONAL
- SSSI
- PROTECTED SPECIES - NON FISH
- LOCAL WILDLIFE SITE

REV	MODIFICATIONS	BY	RE	AP	DATE
P01	ISSUED FOR INFORMATION	EJD	SH	SH	19.10.22

PURPOSE OF ISSUE: FOR INFORMATION

STATUS: S2

CLIENT: 3C WASTE LIMITED

PROJECT: MAW GREEN SOILS TREATMENT FACILITY

TITLE: NEW TREATMENT AREA SENSITIVE RECEPTORS PLAN

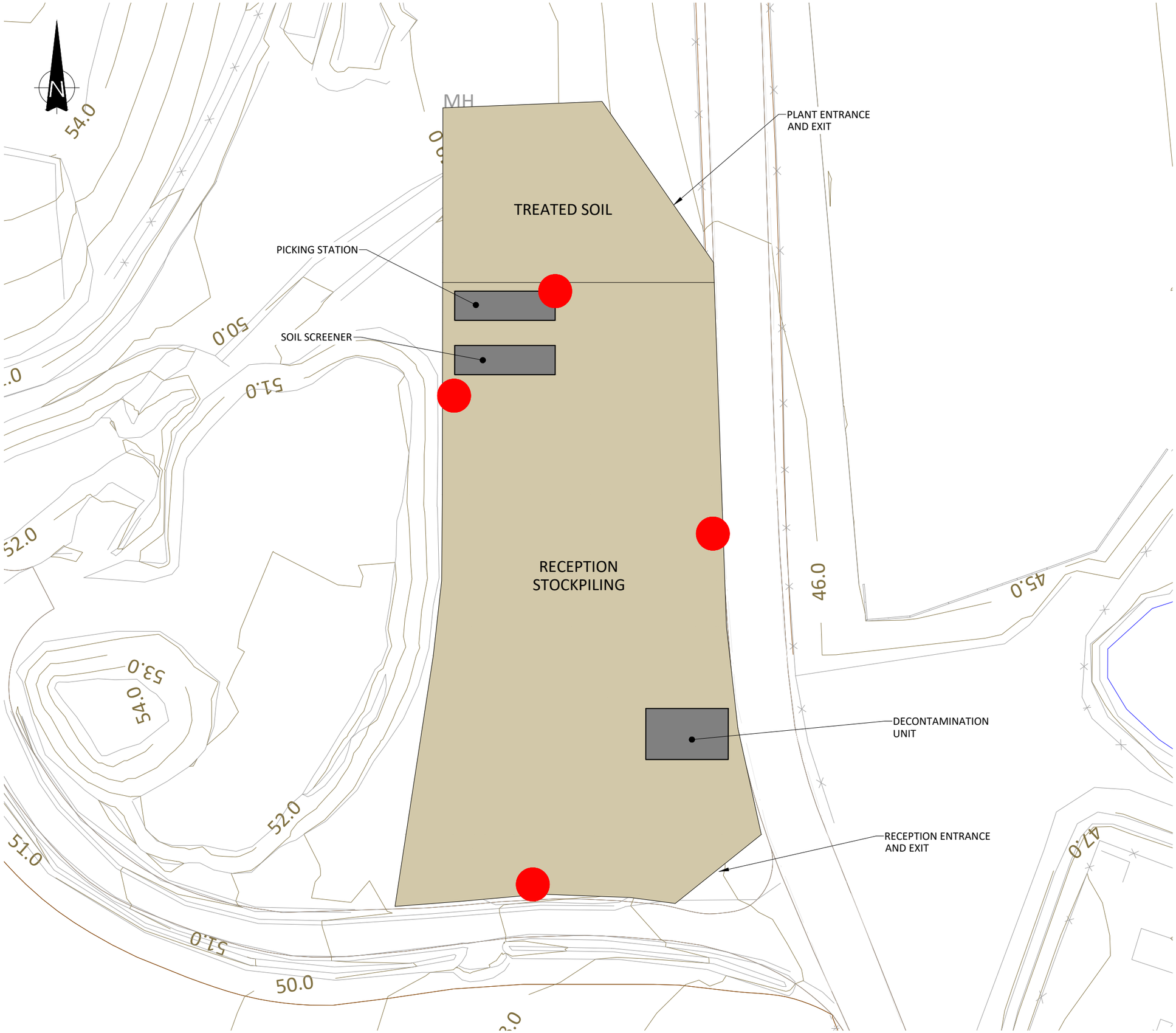
DESIGNED BY	DRAWN BY	REVIEWED BY	AUTHORISED BY
EJD	EJD	SH	SH

DATE	SCALE @ A3	JOB REF:	REVISION
18.10.2022	1:10000	5193	P01

DRAWING NUMBER: 5193-CAU-XX-XX-DR-V-1804

Caulmert engineering environmental planning

Registered Office: InTec, Parc Menai, Bangor, Gwynedd, LL57 4FG Company Registered No: 06716319



LEGEND

- CRUSHED CONCRETE SITE SURFACING WITH GEO-COMPOSITE CLAY LINER (GCL)
- MONITORING POINT

REV	MODIFICATIONS	BY	RE	AP	DATE
P01	ISSUED FOR INFORMATION	EJD	SH	SH	20.10.22

PURPOSE OF ISSUE: FOR INFORMATION
STATUS: S2

CLIENT: 3C WASTE LIMITED

PROJECT: MAW GREEN SOILS TREATMENT FACILITY PERMIT VARIATION

TITLE: PROPOSED MONITORING PLAN

DESIGNED BY	DRAWN BY	REVIEWED BY	AUTHORISED BY
EJD	EJD	SH	SH

DATE	SCALE @ A3	JOB REF:	REVISION
19.10.2022	1:500	5193	P01

DRAWING NUMBER: 5193-CAU-XX-XX-DR-V-1806

Caulmert
engineering environmental planning

Registered Office: InTec, Parc Menai, Bangor, Gwynedd, LL57 4FG Company Registered No: 06716319

APPENDIX 1

CRS Picking Station Specification

Specification
Ref: CRS-045-SITE MASTER

COMPLETE RECYCLING SYSTEMS

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E: Marketing@crsni.com
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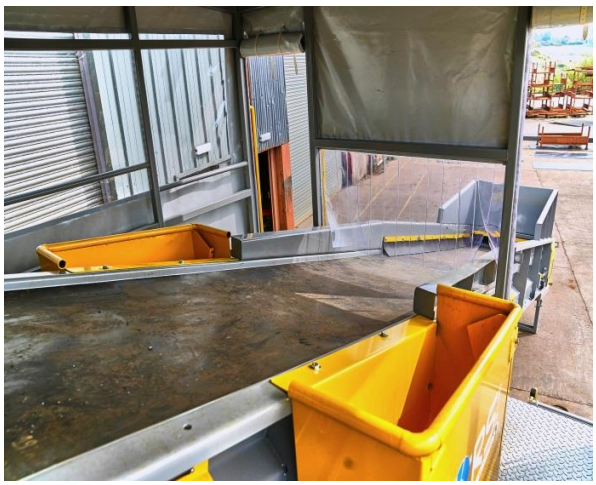
- 1000mm wide heavy duty rubber belt
- EP500/3ply – 5mm top cover 1.5mm bottom cover
- 8.5m drum centres
- 3.0kW Hi Torque Motovario slip on gear motor drive
- 100mm dia carry rollers placed at 875mm centres
- 100mm dia disc return rollers placed at 2115mm centres
- Head and Tail are fully enclosed to reduce spillage
- High sides incorporated into conveyor with skirting rubber
- Impact bars at infeed boot
- Plough scraper at Tail to reduce material build up
- SKF 50mm bearings (Tail)
- SKF 60mm bearings (Head)
- 288mm dia crowned and lagged drum
- 220mm dia crowned tail drum
- Rosta belt scraper tensioner with polyurethane rubber
- Perspex window at each maintenance point along conveyor
- Dirt chute at tail under plough scraper
- Support legs
- Full guards with emergency stops

2.0 Picking Station

Feature

- 2-4 Man Picking
- 3.5mm Chequered Walkway
- 2 Dropboxes:
  - Width: 900mm
  - Depth: 452mm
  - Height: 989mm
- Access Step Ladders to Picking Station
- Canopy for Weather Protection
- Optional Hard Cover



3.0 Wheel Assembly

Feature

- Adjustable Ram
- Handbrake Lever
- 300x80mm Stud Axle
- Super Single Tyres - 385/65 R22.5

APPENDIX 2

Operating Procedures

STC – WI 002 - SOIL RECEPTION PROCEDURE

Author:	Andy Clee – Ops Man	**Approved By:**	Jon Owens – STC Director
Distribution:	Z/QMS/Work Instructions - STC		

Document Changes

Revision No:	Summary of Changes	Date
5	Incorporates asbestos reception procedure	16.12.2022

Introduction

This procedure relates to the measures to be undertaken for the assessment of data and inspection of waste received at the soil treatment facility. It allows rejection of non-conforming waste to ensure no contaminated soils are accepted which cannot be treated by the treatment facility to a standard suitable for reuse, or which breach the list of permitted wastes as shown in the site's Environmental permit.

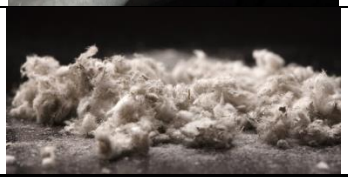
Principle of Operation

The inspection will allow the following to be assessed prior to acceptance:

1. Presence of untreatable and hazardous materials (e.g. tars, clinker, asbestos insulation etc.) in the contaminated soil.
2. Presence of excessive litter/debris in the contaminated soil.
3. Compliance with the previously supplied chemical/physical analysis information (supplied by waste producer).
4. Potential for the waste to behave as a liquid or have free water/oil in the waste

If the waste material is not compliant with the agreed conditions of the Environmental Permit and pre-acceptance assessment, then the waste will be declined/rejected. As a note, if the STC is permitted to accept asbestos the forms of untreatable asbestos described in point 1 are predominantly insulation products as follows in Table 1.

Table 1. Unacceptable Forms of Asbestos Insulation Products

Form of asbestos	Example
Asbestos pipe lagging	
Loose asbestos fill	

Asbestos insulation board (AIB)	

Procedure

Pre-Acceptance Assessment

Pre-acceptance is undertaken by Provectus to confirm treatability to meet the reuse criteria. A set of Terms and Conditions for acceptance are sent to the Waste Producer/client including a clear statement of any waste characterisation samples that are deemed untreatable. These are agreed in writing between the Waste Producer/client and Provectus prior to an authorisation number (contract line) being issued by FCC at the weighbridge for deposit at the Soil Treatment Facility.

Where data gaps exist or queries remain about the suitability of material for treatment, Provectus or FCC will offer to attend the site of origin to undertake pre-acceptance analysis and visually inspect the material and obtain further information about the waste description. Alternatively, the material may be quarantined on arrival at the STF and subject to further testing.

If the moisture content of the material is >30% then the potential for free water or oil will be further reviewed. Where moisture contents are at this level and the material does not behave as a liquid, have the potential for releasing water/oil etc and is suitable for the site infrastructure then it would be accepted on a case by case basis. Material must be able to support its own weight and ideally be able to be formed into a larger batch.

Should either Provectus, or after consultation, FCC determine that there is the high potential for material to contain untreatable inclusions or to behave as a liquid or contain free water or oil then the waste will be rejected for acceptance.

Duty of Care Documentation

No tipping on the STC will be permitted without relevant duty of care documentation from the waste producer. With this information, the job can be set up with FCC and a DW number issued to the client. All loads must be accompanied wit the correct paperwork which must be checked on-site at the STC to ensure that the load is indeed destined for the STC, and that the documents are correctly completed. The consignee section of Consignment notes, for hazardous waste, and waste transfer notes for non-hazardous waste, shall be completed by Provectus at the STC once the load has been deemed acceptable by the STC site manager.

Health and Safety

The STC manager is to provide guidance on where the soil is to be tipped, and any relevant safety information prior to tipping of soil. On STC's where asbestos is permitted, it is crucial that loads are placed in the correct tipping areas.

Technicians and site personnel are to stand well away from the lorry when tipping to avoid any crush injuries/incidents as a result of being in close proximity to the tipping lorry. Any drivers must be informed of the requirement to wear a hard hat and high visibility vest when outside of the lorry cabin.

Lorries shall be informed to check that any waste/debris is removed from their lorry prior to leaving the STF.

If loads are to be tipped into the asbestos area, then additional site-specific driver rules apply and must be adhered too.

Visual Inspection: Waste Input

The following locations will be used for accepting wastes:

- Hydrocarbons only: biopile treatment area
- Asbestos only, or asbestos and hydrocarbons: designated asbestos processing area

The following plant and personnel are required as part of this procedure:

- Provectus STC manager
- Excavator

Each load of soil for inspection (new jobs) will be tipped onto the designated area. The STC manager will inform the tipper lorry driver to remain at the tipping area until the inspection has been completed.

In the event of the material containing free water or oil, the load will be immediately rejected.

In the event of untreatable forms of asbestos being present, the load will be immediately rejected

If the STC is not permitted to accept asbestos, any asbestos found will result in a rejection

The excavator will be used to expose any unsuitable materials and allow a comprehensive visual assessment. The technician will determine the next action when this has been completed, this will comprise of the following:

- Waste is accepted and tipper lorry is permitted to leave the STF with the accompanying paperwork, or;
- Waste is not accepted and the unsuitable element of waste load, either partial or complete load is removed by excavator and placed back into the tipper lorry. A rejection form is filled in on-site and both Landfill Manager (LM) and Sales Manager (SM) are informed. It is the duty of FCC to inform the Environment Agency of any rejected loads.

At the end of the formal waste acceptance procedure the soil will be prepared for processing or biotreatment. Coordination of further treatment/processing events is to be decided by the STC Manager.

Continual visual inspections are to be made by the trained excavator operator who is to inform the STC manager of any material that may be deemed unsuitable.

Chemical Analysis: Waste Input

Based on visual inspection, sampling frequency will be considered; this is in relation to the volume from each hazardous waste production site. Sampling will be undertaken on soils using composite sampling methods described in BS812.

The chemical analysis of soils generally takes 5-7 days to complete, therefore limited storage times are required. Materials will be placed into treatment as soon as practicable from the receipt of chemical analysis and formal acceptance of the waste.

The range of contaminants for analysis will be based upon the original contaminating substances. A copy of the analysis shall be checked by the STC operations manager for

verification against the original client data. In the event of non-conformity, the STC operations manager shall liaise with the STC sales manager, and a decision on the next course of action will be taken.

For avoidance of doubt, the limits for asbestos from laboratory testing will be as follows:

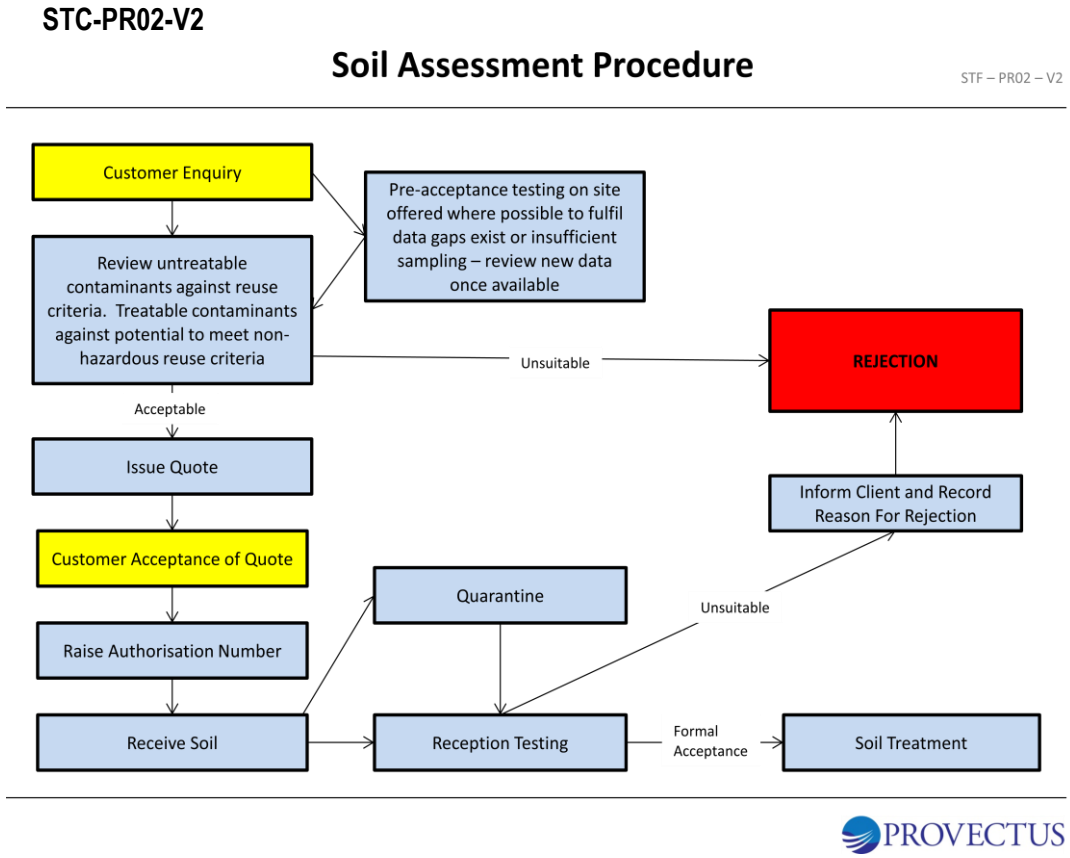
- Chrysotile only: 0.1%
- Other forms of asbestos (or chrysotile and others): 0.01%
- Asbestos debris limited to those which can be removed as Notifiable Non-Licensed Works (NNLW) if the site is permitted to accept asbestos.

The waste will only be formally accepted once reception analyses are received and approved in accordance with Soil Assessment Procedure illustrated in STC-PR02-V2 (Figure 1) below.

Summary of Waste Reception

Figure 1 is a flow diagram for the waste reception procedure. The procedure is implemented to ensure that the waste is only formally accepted once visual inspections and chemical analysis of received wastes have been successfully completed. This ensures that any soils that are formally accepted are suitable for further soil processing/treatment. All non-compliant wastes will be rejected.

Figure 1. Summary of Waste Acceptance Procedure



STC – WI 003 - SOIL CHARACTERISATION PROCEDURE

Author:	Andy Clee – Ops Man	**Approved By:**	Jon Owens – STC Director
Distribution:	Z/QMS/Work Instructions - STC		

Document Changes

Revision No:	Summary of Changes	Date
8	Slight change in wording	14.12.22

Introduction

This procedure relates to the measures to be undertaken for the sampling of soils received at the STC. See procedure STC – WI 002 Soil Reception for background information.

Objectives

The main objective of the operation is to ensure soils received at the Soil Treatment Centre (STC) are visually, structurally, and chemically similar to those described by the waste producer/client during pre-acceptance, and therefore compliant with the Environmental permit and suitable for treatment and reuse. This will allow any non-conforming waste to be rejected.

Procedure

The sampling of soils will be performed by the STC technician or STC site manager. The procedure follows composite sampling methods as described in BS812.

A minimum of at least one composite sample must be taken from each job (unique authorisation code/DW number) and at the frequency highlighted in Table 1 below.
Chemical testing is undertaken to ensure that the material being tipped is consistent with the analysis and description provided by the client at the pre-characterisation stage. It also checks to see if the material remains consistent throughout the project.

Table 1: Requirements for sampling:

Volume of soil (t)	No. of samples needed (before or during acceptance at STC)
< 100	1
100 - 500	2
500 +	2 + 1 for every 500t

The general suite of analysis for soils shall include:

- pH
- CLEA Metals
- Total TPH
- Total PAHs
- Total Cyanide

- Phenols
- SVOCs and VOCs (where required)
- PCBs (where required)
- Asbestos (screen and quantification where asbestos is identified)
- Moisture content

These parameters may be adapted by the STC operations manager or FCC compliance due to prior knowledge of contaminants derived from client waste description, history and data.

Liquid oil phase wastes are not permitted for treatment at the site.

All analysis will be undertaken by a UKAS/MCERTS accredited laboratory using accredited methods.

Once the analysis results are received, they will be assessed by a suitably qualified and experienced STC manager to confirm they meet the requirements for treatment. These results are to be stored electronically onto the STC server.

Where possible, the soils are to be placed into a batch with similar contamination level. The receiving batch has contaminant limits (these are not contaminant limits for soil inputs which can vary and exceed the average batch limits). The hydrocarbons in the batches will be limited to an average as shown in Table 2.

Concentrations for inorganics to be reviewed in accordance with WM3 (Jan 2021).

Asbestos concentrations to be assessed using criteria in Table 3.

Should the results not conform to the requirements for treatment the waste will be rejected following the formal rejection procedure.

Table 2. Maximum Average Contaminant Concentrations for Receiving Batch

Substance	Carbon Range	Lower Elimination Rate	Upper Elimination Rate	Maximum average batch concentration (lower level) - mg/kg	Maximum average batch concentration upper level) - mg/kg	Comments
Petrol range organics	C6-C10	95%	99%	20,000	100,000	Limited by odour potential
Diesel	C10-C25	60%	90%	2,500	10,000	Target of below 1,000mg/kg for reuse even though diesel is only hazardous at 1% (10,000mg/kg)
Lube Oils	C25+	40%	65%	1,667	2,857	Review age of spill and soil type before assessing which elimination rate to use
Unknown Oil	C10+	40%	80%	1,667	5,000	Review age of spill, source and soil type before assessing which elimination rate to use
PAHs	C10+	30%	90%	1,429	10,000	Limited by odour potential
Phenols	C6+	90%	99%	10,000	100,000	Limited by odour potential
Solvents	C2+	95%	99%	20,000	100,000	Limited by odour potential
VOCs	C2+	99%	99%	100,000	100,000	Limited by odour potential

Table 3. Maximum Asbestos Contaminant Concentrations for Treatment

Substance	Maximum concentration (%)	Comments
Chrysotile	<0.1%	Bound forms of ACM only
Amphibole ACM Types	<0.01%	Bound forms of ACM only
Asbestos insulation/unbound asbestos	Absent	No acceptance of any form of asbestos in friable/insulation form

STC – WI 011 – PROCESSING OF SOILS WITH VISIBLE ASBESTOS DEBRIS

Author:	Andy Clee – Ops Man	**Approved By:**	Jon Owens – STC Director
Distribution:	Z/QMS/Work Instructions - STC		

Document Changes

Revision No:	Summary of Changes	Date
8	Change of wording	16.12.2022

Definitions and Abbreviations

ACM – Asbestos Containing Materials
NNLW – Notifiable non-licensed works

Introduction

This procedure relates to the measures to be undertaken for the removal of visible ACM fragments from soil received at the STC if permitted to do so. The purpose of the removal of asbestos debris would be to allow further treatment of soils by biotreatment or to stockpile processed soils for disposal in the non-hazardous void or to be reused as part of the landfill restoration scheme.

Principle of Operation

The general principle of the operation is to receive and treat soils at the site with visible asbestos fragments that would be classified as hazardous waste under Environment Agency guidance WM3.

The aim of the processing works would be to remove visible asbestos fragments from the soil to facilitate direct reuse in the adjacent non-hazardous void, to be reused as part of the restoration scheme on the landfill, or for further biotreatment to reduce hydrocarbons to concentrations suitable for reuse as described above.

Pre-acceptance checks and analysis of the received soil and processed soil will ensure that no unsuitable soil is received at the facility either for treatment or reuse in the non-hazardous void or restoration scheme. Strict RPE and air monitoring during the soil processing works will ensure the protection of site workers and surrounding receptors.

The works would be notified to the HSE as notifiable non-licensed works (NNLW) on the basis that ACMs are potentially broken/degraded and require effective management to ensure the protection of workers and surrounding receptors. No licensed works are proposed for treating soils at the site.

Procedure

Analysis for soils impacted with visible asbestos fragments would be reviewed prior to any offer to accept at the appropriately licensed sites. Waste acceptance limits for asbestos fibres in soils would be **0.1%** for serpentine asbestos (chrysotile) and **0.01%** for amphibole asbestos types. Site visits will be undertaken where required and any supplementary analysis undertaken to comply with STC-WI 002 and STC – WI 003 to ensure that soils are suitable for treatment using the available methodology at the site.

Should any non-compliant wastes be encountered, the standard rejection procedure will be implemented. In the event that the works to reject waste would constitute licensed asbestos works in accordance with HSE guidance, the standard notification would be made and works would cease until the non-compliant waste is removed.

Soils would be received at the site and placed in asbestos storage area. Soils will be visually inspected to ensure non-compliant materials (e.g. insulation products) are not present, sampled and covered with a tarpaulin to ensure control of any potential emissions during the reception analysis phase. The reception analysis will be reviewed and only soils that are deemed to have no potential to generate asbestos fibres above the detection limit of 0.1% (chrysotile) and 0.01% (amphibole) will be formally accepted. Soils that have the potential to generate airborne asbestos fibres, i.e. they exceed the asbestos fibre acceptance criteria or contain non-compliant products (e.g lagging, asbestos insulation board etc) will be rejected and removed from site.

Stockpiled soils will be transferred to the asbestos processing area and loaded onto a three way screen with a fines, mid range and oversize separation system. The mid range fraction will be loaded onto the picking station with asbestos operatives removing visible fragments and double bagging prior to storage in a locked skip. The fines and oversize will be visually inspected prior to storage for validation testing. If visually identifiable asbestos is present in the fines or oversize fraction these will be loaded onto the picking station, or spread out on the ground for picking prior to validation testing.

The locked asbestos skip will be removed from site when full and taken to a licensed hazardous landfill for disposal.

All personnel will enter and leave the asbestos area via the designated decontamination facility.

Plant/Equipment to be Used:

- Tarpaulins
- Asbestos air monitoring equipment
- 360 excavator
- Dumper truck
- 3 way screener
- Picking station
- Hopper feeder
- Decontamination Unit
- Pressure washer/misting unit

Plant/Operator Certification Required:

- CPCS/CSCS Cards
- Asbestos Awareness
- CAT B asbestos training (pickers)

Summary of Known or Suspected Hazards (either construction, physical or contamination hazards identified):

- The stored soil from a variety of sources will contain low levels of ACM debris and asbestos fibre concentrations lower than the waste acceptance limits previously described. The potential for airborne asbestos fibres being generated is considered extremely low.
- The potential routes of asbestos exposure are by inhalation of dust.
- Construction hazards (slips, trips and falls on uneven ground, machinery)
- Physical hazards associated with moving equipment & machinery.

General Description of Work

- Soils received will be covered with tarpaulins whilst awaiting reception analysis
- Reception analysis to be reviewed and approved by the Operations Manager prior to any transfer to the asbestos processing area.
- All screening and hand picking works to be undertaken with background air monitoring to confirm if asbestos fibres are being generated
- Enter clean end of decontamination unit and pick up disposable overalls/overshoes (if used) and disposable RPE if used
- Don PPE and where required RPE (as specified) prior to entering designated area of site via dirty exit of decontamination unit
- Excavate and screen stockpiled soils in a controlled manner with handpicking of debris into waste asbestos sack directly where possible. Where required, use the surfactant spray if any asbestiform materials appear dry/friable. Place double bagged ACM debris in the dedicated lockable skip at the end of each work period.
- Wipe all tools, etc. with a dampened cloth.
- Place used damp rags in a waste sack and seal.
- At the edge of the work area, clean the outside of all waste sacks and seal.
- Wipe off boots and face mask (if worn) with a cloth and bucket provided.
- Disposable overalls (turned inside out), gloves and where required, any used disposable respirators in asbestos waste bag. Seal the clear bag.
- Once soils have nil visible asbestos and are chemically approved as suitable for further treatment or reuse, they can be sent to the non-hazardous void or restoration scheme following approval from FCC Compliance.
- Ambient asbestos monitoring in air to be undertaken daily during screening/hand picking works. Works must cease to allow damping down measures to be implemented if fibre concentrations exceed **0.01f/cm3**.

Site Manager to conduct a visual inspection of work areas and transit routes.

Personal Protection

PPE:

- Hi-Visibility vest/jacket (where required)
- Hard Hat
- Protective boots (steel toecap/midsole)
- Disposable overalls: Type 5 (BS EN ISO 13982-1)
- Disposable overshoes (where required)
- Disposable gloves

RPE:

- disposable respirator to standards EN149 (type FFP3) or EN1827 (type
- FMP3);
- half or full mask respirator (to standard EN140) with P3 filter; or semi-disposable respirator (to EN405) with P3 filter. Masks may be positive or negative pressure depending on face fit requirements. Should negative pressure masks be used then a break every hour of continuous use should be undertaken.

Also:

- Surfactant spay (e.g. Idenden Dampstrip Asbestos Penetrant 30-330 or similar)
- First Aid Kit
- Mobile Phone
- Site radio

Emergency Procedures

Personnel injury/overexposure:

Remove to fresh air and provide first aid procedures as required; Contact Emergency services if accident/injuries warrants; Decontaminate personnel if required (remove overalls and PPE, wash hands and forearms).

Fire or Explosion:

Evacuate the work area and summon local Fire Brigade. Do not attempt to fight fire. Remain upwind of smoke in safe area. Follow existing Emergency Site Procedures.

Decontamination Procedure

Personnel: 1) Remove disposable contaminated clothing and discard in the designated waste container.
2) Wash hands/face/forearms prior to leaving decontamination unit.

Site Rules

- **NO SMOKING**, No eating, drinking, or chewing of gum.
- Wear protective equipment specified above.
- Utilise good personal hygiene habits – wash hands and exposed skin with soap and water prior to leaving site.
- Remove and dispose of contaminated clothing as described above before leaving the working area.

The safe working procedures detailed in this method statement must be adhered to.

APPENDIX 3

Asbestos Surfactant MSDS Sheets

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name: EVERGARD WETTING AGENT

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.3. Details of the supplier of the safety data sheet

Company name: SMH Products Ltd
SMH House
Maxwell Street
South Shields
Tyne & Wear
NE33 4PU
Tel: 0191 456 6000
Fax: 0191 456 7777
Email: enquiries@smhproducts.com

1.4. Emergency telephone number

Section 2: Hazards identification

2.1. Classification of the substance or mixture

Classification under CLP: Aquatic Chronic 3: H412

Most important adverse effects: Harmful to aquatic life with long lasting effects.

[cont...]

Hazardous ingredients:

STEOL CS-230

EINECS	CAS	PBT / WEL	CLP Classification	Percent
-	-	-	Eye Dam. 1: H318; Skin Irrit. 2: H315; Aquatic Chronic 3: H412	1-10%

PRIMARY ALCOHOL ETHOXYLATE

614-482-0	68439-46-3	-	Eye Dam. 1: H318; Acute Tox. 4: H302	<1%

Section 4: First aid measures

4.1. Description of first aid measures

Skin contact: Wash immediately with plenty of soap and water.

Eye contact: Bathe the eye with running water for 15 minutes.

Ingestion: Wash out mouth with water.

Inhalation: Remove casualty from exposure ensuring one's own safety whilst doing so.

4.2. Most important symptoms and effects, both acute and delayed

Skin contact: There may be mild irritation at the site of contact.

Eye contact: There may be irritation and redness.

Ingestion: There may be irritation of the throat.

Inhalation: No symptoms.

Delayed / immediate effects: Immediate effects can be expected after short-term exposure.

4.3. Indication of any immediate medical attention and special treatment needed

Immediate / special treatment: Not applicable.

Section 5: Fire-fighting measures

5.1. Extinguishing media

Extinguishing media: Suitable extinguishing media for the surrounding fire should be used. Use water spray to cool containers.

5.2. Special hazards arising from the substance or mixture

Exposure hazards: In combustion emits toxic fumes.

5.3. Advice for fire-fighters

Advice for fire-fighters: Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: Refer to section 8 of SDS for personal protection details. Turn leaking containers leak-side up to prevent the escape of liquid. Mark out the contaminated area with signs and prevent access to unauthorised personnel.

6.2. Environmental precautions

Environmental precautions: Do not discharge into drains or rivers. Contain the spillage using bunding.

6.3. Methods and material for containment and cleaning up

Clean-up procedures: Absorb into dry earth or sand. Transfer to a closable, labelled salvage container for disposal by an appropriate method.

6.4. Reference to other sections

Reference to other sections: Refer to section 8 of SDS.

Section 7: Handling and storage

7.1. Precautions for safe handling

Handling requirements: Avoid direct contact with the substance. Ensure there is sufficient ventilation of the area. Avoid the formation or spread of mists in the air.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store in a cool, well ventilated area. Keep container tightly closed. The floor of the storage room must be impermeable to prevent the escape of liquids.

7.3. Specific end use(s)

Specific end use(s): No data available.

Section 8: Exposure controls/personal protection

8.1. Control parameters

Workplace exposure limits: No data available.

DNEL/PNEC Values

Hazardous ingredients:

STEOL CS-230

Type	Exposure	Value	Population	Effect
DNEL	Dermal	2750	Workers	Systemic
DNEL	Inhalation	175	Workers	Systemic
DNEL	Oral	15	General Population	Systemic
DNEL	Dermal	1650	General Population	Systemic
DNEL	Inhalation	52	General Population	Systemic
PNEC	Fresh water	0.24	-	-
PNEC	Marine water	0.024	-	-
PNEC	Fresh water sediments	0.9168	-	-
PNEC	Marine sediments	0.0917	-	-

PNEC	Soil (agricultural)	0.946	-	-
PNEC	Microorganisms in sewage treatment	10	-	-

8.2. Exposure controls

Engineering measures: The floor of the storage room must be impermeable to prevent the escape of liquids.

Respiratory protection: Respiratory protection not required.

Hand protection: Protective gloves.

Eye protection: Safety glasses.

Skin protection: Protective clothing.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

State: Liquid

Colour: Colourless

Odour: Characteristic odour

Viscosity: Non-viscous

pH: 3.00

9.2. Other information

Other information: No data available.

Section 10: Stability and reactivity

10.1. Reactivity

Reactivity: Stable under recommended transport or storage conditions.

10.2. Chemical stability

Chemical stability: Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions: Hazardous reactions will not occur under normal transport or storage conditions.

Decomposition may occur on exposure to conditions or materials listed below.

10.4. Conditions to avoid

Conditions to avoid: Heat.

10.5. Incompatible materials

Materials to avoid: Strong oxidising agents. Strong acids.

10.6. Hazardous decomposition products

Haz. decomp. products: In combustion emits toxic fumes.

Section 11: Toxicological information

11.1. Information on toxicological effects

Hazardous ingredients:

STEOL CS-230

DERMAL	RAT	LD50	>2000	mg/kg
ORAL	RAT	LD50	>2000	mg/kg

PRIMARY ALCOHOL ETHOXYLATE

ORL	RAT	LD50	>200<2000	mg/kg

Toxicity values: No data available.

Symptoms / routes of exposure

Skin contact: There may be mild irritation at the site of contact.

Eye contact: There may be irritation and redness.

Ingestion: There may be irritation of the throat.

Inhalation: No symptoms.

Delayed / immediate effects: Immediate effects can be expected after short-term exposure.

Section 12: Ecological information

12.1. Toxicity

Hazardous ingredients:

STEOL CS-230

ALGAE	48H EC50	27.7	mg/l
DAPHNIA	48H EC50	7.4	mg/l
FISH	96H LC50	7.1	mg/l

PRIMARY ALCOHOL ETHOXYLATE

FISH	96H LC50	1-10	mg/l

12.2. Persistence and degradability

Persistence and degradability: Not biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential: Bioaccumulation potential.

12.4. Mobility in soil

Mobility: Readily absorbed into soil.

12.5. Results of PBT and vPvB assessment

PBT identification: This product is not identified as a PBT/vPvB substance.

12.6. Other adverse effects

Other adverse effects: Toxic to aquatic organisms. Toxic to soil organisms.

Section 13: Disposal considerations

13.1. Waste treatment methods

Disposal operations: Transfer to a suitable container and arrange for collection by specialised disposal company.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

Section 14: Transport information

Transport class: This product does not require a classification for transport.

Section 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Specific regulations: Not applicable.

15.2. Chemical Safety Assessment

Chemical safety assessment: A chemical safety assessment has not been carried out for the substance or the mixture by the supplier.

Section 16: Other information

Other information

Other information: This safety data sheet is prepared in accordance with Commission Regulation (EU) No 2015/830.

* indicates text in the SDS which has changed since the last revision.

Phrases used in s.2 and s.3: H302: Harmful if swallowed.

H315: Causes skin irritation.

H318: Causes serious eye damage.

H412: Harmful to aquatic life with long lasting effects.

Legal disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.

APPENDIX 4

Complaints Recording Form

COMPLAINTS RECORDING FORM			
Date recorded:		**Reference Number:**	
Name and address of caller:			
Telephone number of caller:			
Time and Date of call:			
Nature of complaint (noise, odour, dust, other) (date, time, duration):			
Weather at the time of complaints: (rain, snow, fog, etc.)			
Any other complaints relating to this report			
Site activity/activities carried out at the time of the complaint:			
FOLLOW UP			
Actions taken:			
Date of call back to complainant:			
Summary of conversation:			
RECOMMENDATIONS			
Changes in procedures? Include details and date of changes made:			
Form completed by:			
Signed:			
Date:			

APPENDIX 5

Site Inspection Form

SITE INSPECTION FORM (DAILY INSPECTIONS)

WEEK STARTING:							
DAILY SITE INSPECTION	**DAY**						
	M	**T**	**W**	**T**	**F**	**S**	**S**
SITE ENTRANCE/NOTICE BOARD							
SECURITY - GATES							
SECURITY - FENCING							
SITE ROADS / SURFACES							
WASTE CONTAINERS & BAYS							
WASTE TYPES							
WASTE/SKIP STORAGE							
PLANT/EQUIPMENT							
FUEL TANK/BUND (if any)							
FLOORING & HARDSTANDING (if any)							
DRAINAGE CHANNELS/GULLIES							
WASTE TYPES/ QUANTITIES							
REJECTED WASTE TYPES / STORAGE							
NOISE LEVELS							
FIRES							
LITTER							
DUST							
ODOUR							
VERMIN							
RECORDS							
OTHER -							
INSPECTION CARRIED OUT BY							

NOTES/ACTION (CONTINUE ON A SEPARATE SHEET IF NECESSARY):

CHECKED BY		SIGNATURE	
POSITION		DATE	
Sheet		*of*	

SITE INSPECTION FORM (DAILY INSPECTIONS)

NOTES/ACTION (CONTINUATION SHEET):

CHECKED BY		SIGNATURE	
POSITION		DATE	
Sheet		*of*	

WWW.CAULMERT.COM

Caulmert
engineering environmental planning

Registered Office: InTec, Parc Menai, Bangor, Gwynedd, LL57 4FG
Tel: 01248 672666
Email: contact@caulmert.com
Web: www.caulmert.com

DOCUMENT 2.13

EMAIL: AUTOMATIC RESPONSE ACKNOWLEDGING RECEIPT OF EMAIL

Tom Roberts

From: Jon Owens <Jon.Owens@provectusgroup.com>
Sent: 10 January 2023 11:39
To: Samantha Hayden; Burston, Kellie-marie
Cc: Andy Stocks
Subject: RE: Automatic response

Thanks Samantha

From: Samantha Hayden <SamanthaHayden@Caulmert.com>
Sent: 10 January 2023 11:36
To: Jon Owens <Jon.Owens@provectusgroup.com>; Burston, Kellie-marie <kellie-marie.burston@fccenvironment.co.uk>
Cc: Andy Stocks <AndyStocks@caulmert.com>
Subject: FW: Automatic response

From: PSC Land <PSC@environment-agency.gov.uk>
Sent: Tuesday, 10 January 2023 11:33
To: Samantha Hayden <SamanthaHayden@Caulmert.com>
Subject: Automatic response

Environment Agency

Thank you for your email to the National Permitting Service, Regulated Industry (Waste, Installations and Mobile Plant) Permitting Support Team.

We are experiencing some delays on logging applications and it may take us longer than usual to get back to you. Rest assured we are doing our best to improve the situation and will be in touch with you as soon as your application has been logged.

We will allocate your application as quickly as we can and a permitting officer will contact you as soon as they start work on it.

In the meantime if you need to contact us please continue to use email or phone as not all of our buildings are open yet to access the post. If you require any further information or advice please contact the Regulated Industry team using the details below.

psc@environment-agency.gov.uk

DOCUMENT 2.14
EMAIL CHAIN: PERMITTING SUPPORT ADVISOR, EA AND APPELLANT'S AGENT: APPLICATION FEE REQUEST

Tom Roberts

From: Samantha Hayden <SamanthaHayden@Caulmert.com>
Sent: 31 January 2023 14:15
To: PSC Land
Cc: Andy Stocks
Subject: RE: Application Fee Request - Permit Variation Application - Maw Green Landfill Soils Treatment Facility - EPR/BS7722ID/V009
Attachments: Environment_Agency_30_01_2023 Remittance.pdf

Good afternoon Nicola,

Apologies, there appears to have been a delay with the accounts department, but payment was made yesterday 30/01/2023.

Please find attached remittance details.

Kind regards,
Samantha

Samantha Hayden	Caulmert Limited
Environmental Consultant	
	Mobile: 07960 410 776
samanthahayden@caulmert.com	Telephone: 01773 305 047
www.caulmert.com	

Nottingham Office • Strelley Hall • Main Street, Strelley, Nottingham • NG8 6PE • United Kingdom

From: PSC Land <PSC@environment-agency.gov.uk>
Sent: Tuesday, 31 January 2023 10:05
To: Samantha Hayden <SamanthaHayden@Caulmert.com>
Cc: Andy Stocks <AndyStocks@caulmert.com>
Subject: Application Fee Request - Permit Variation Application - Maw Green Landfill Soils Treatment Facility - EPR/BS7722ID/V009

Dear Samantha Hayden,

Environmental permitting application

Application reference: EPR/BS7722ID/V009
Operator: 3C Waste Limited
Facility: Maw Green Landfill

Thank you for your application received **10/01/2023.**

Unfortunately we cannot locate the fee as detailed on your application email below, Form Part F1 or with the payment reference.

Can you please send a copy of the remittance details for the payment so we can continue to log your application?

Please send this and the payment if not already made by **14 February 2023** so we can continue with this application.

If you email or write to us please quote the application reference EPR/BS7722ID/V009 on any correspondence and send it to the relevant address below.

When we receive the missing items we'll continue to check the details in your application. If there's enough information for us to begin the process of deciding whether or not we can grant your application we say the application is 'duly made' and we'll let you know this by letter. If we need further information before we can say it's duly made we'll let you know what is required.

Yours sincerely

Nicola Waller
Permitting Support Advisor – Permitting Support Regulated Industry - National Permitting Service

Environment Agency | Quadrant 2, 99 Parkway Ave, Parkway Business Park, Sheffield, S9 4WF
nicola.waller1@environment-agency.gov.uk

Regulated Industry Team Phone Number: 020 3025 3898 (9am to 4pm)
Regulated Industry Team Email: PSC@environment-agency.gov.uk

Working days: Monday to Thursday

Please consider this a "thanks" in advance.
Every email has a carbon footprint. So if you don't hear back from me, it's not because of you, it's because of the planet

Incident response
National duty communications officer (24/7) | 0800 023 2522
National duty communications manager | 0800 028 2411

Help us to improve our service and complete our customer survey
Environment Agency - National Permitting Service Survey (smartsurvey.co.uk)

Creating a better

From: Samantha Hayden <SamanthaHayden@Caulmert.com>
Sent: 10 January 2023 11:29
To: PSC Land <PSC@environment-agency.gov.uk>
Cc: Jon Owens <Jon.Owens@provectusgroup.com>; Burston, Kellie-marie <kellie-marie.burston@fccenvironment.co.uk>; Andy Stocks <AndyStocks@caulmert.com>
Subject: INSTALLATION VARIATION - Permit Variation Application - Maw Green Landfill Soils Treatment Facility - EPR/BS7722ID

Good morning,

On behalf of 3C Waste Limited, please find attached a permit variation application for Maw Green Landfill - Soils Treatment Facility.

Attached to this email are the following application documents:

- Submission cover letter
- Application forms Part A, B3, C2 and F1
- Environmental Setting & Installation Design – Addendum
- Amenity & Accidents Risk Assessment
- Activities & Operating Techniques Report

Due to their large file sizes, please find the following documents by clicking on the secure links below:

- Supporting Document: https://acrobat.adobe.com/link/track?uri=urn:aaid:scds:US:4ffc249e-72ef-3f34-aa45-ce085c9c6b86
- Treatment Process Description & BAT Review: https://acrobat.adobe.com/link/track?uri=urn:aaid:scds:US:56363069-138a-3ec9-8586-fe15e4eb9607
- Dust & Emissions Management Plan: https://acrobat.adobe.com/link/track?uri=urn:aaid:scds:US:63952d56-b974-3a98-809a-9b9dde8c49fb

A BACs transfer for the total application fee of **£18,021** has been made to the Environment Agency using payment ref. **PSCAPPMAWG5193**.

If you have any questions regarding this application, please do not hesitate to contact me.

Kind regards,
Samantha Hayden

Caulm

Samantha Hayden	Caulmert Limited
Environmental Consultant	
	Mobile: 07960 410 776
samanthahayden@caulmert.com	Telephone: 01773 305 047
www.caulmert.com	

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DOCUMENT 2.15
ATTACHMENT TO EMAIL OF 31.01.2023 – REMITTANCE ADVICE

Payment Instruction Confirmation

Payment Details

Date: 30/01/2023

Amount Paid: £18,021.00

Reference: PSCAPPMAWG5193

Payment Type: Faster Payments

Faster Payment ID: EWR0 2O1Y YZLQ E234 L110 2023 0130 8266 0837 1

Sent To

Name: Environment Agency

Sort Code: 607080

Account Number: 10014411

Sent From

Name: Provectus Soils Management Ltd

Sort Code: 608371

Account Number: 72975162

DOCUMENT 2.16
EMAIL: EA TO APPELLANT'S CONSULTANT – RECEIPT OF APPLICATION AND PROCESSING TIMESCALES

Tom Roberts

From: PSC Land <PSC@environment-agency.gov.uk>
Sent: 02 February 2023 10:28
To: Samantha Hayden
Cc: Andy Stocks
Subject: Receipt of Application - EPR/BS7722ID/V009

Dear Samantha Hayden,

Environmental permitting application

Application reference: EPR/BS7722ID/V009
Operator: 3C Waste Limited
Facility: Maw Green Landfill

Thank you for your application, received **10/01/2023**. We received your application fee on **30/01/2023.**

What happens next?

Allocation
Your application has been added to our work queue to be allocated to a Permitting Officer to be checked. A Permitting Officer will contact you as soon as they pick up your application.

Please note, the time it takes to allocate an application depends on the availability of an officer with the correct skills to work on your application, and the number of other applications we are working on.

Our current queues are large and we are taking longer than usual to allocate work for checks. The table below shows our estimated queue times by application type. Please note, this is based on our average times and some applications may be picked up before or after the timescales listed below.

Application type	Estimated time to allocation
New bespoke	29-33 weeks
New standard rules	27-31 weeks
Admin variation	24-28 weeks
Minor variation	24-28 weeks
Normal variation	**30-32 weeks**
Substantial variation	29-33 weeks
Transfer	18-22 weeks
Surrender	18-22 weeks
Medium Combustion Plant	16-20 weeks
Intensive Farming new bespoke	17-21 weeks

Intensive Farming admin variation	16-20 weeks
Intensive Farming normal variation	25-29 weeks
Intensive Farming substantial variation	20-24 weeks
Intensive Farming transfer	16-20 weeks
Intensive Farming surrender	16-20 weeks

When your application is allocated, a permitting officer will check that all relevant information requested in the application forms and application guidance is provided. If there is information missing, this will delay the progress of your application. You can avoid incurring delays by reviewing your application and checking you have provided everything we need. If you need to add something, please send it to us at PSC@environment-agency.gov.uk, quoting your application reference.

If you have used our enhanced pre application advice service, you must ensure you have paid all associated fees before your application can progress.

We aim to respond to all customer enquiries, however at busy times this can have a significant impact on our ability and capacity to progress applications. Please rest assured that we will contact you as soon as there is any update on your application. For urgent enquiries, you can contact our National Customer Contact Centre on 03708 506 506.

Duly made checks
Once your application is allocated, the permitting officer will check your application. When we are satisfied we have the necessary information to begin our assessment and decision making, your application is considered 'duly made'. We will then begin our technical assessment of your application, we call this the determination stage.

If we need any more information from you at the duly making stage, we will contact you to tell you what additional information you need to submit.

If we are still unable to progress your application any further, we will return it to you. Please note that we will retain part of your application charge where we have spent time reviewing your application and requesting information. Further details can be found in our charging scheme https://www.gov.uk/government/publications/environmental-permits-and-abstraction-licences-tables-of-charges

When we decide that your application is duly made, we will confirm this by email.

Please note, if you have provided evidence of technical competence which is due to expire soon, you will need to send an up-to-date continuing competency certificate when available to PSC@environment-agency.gov.uk, quoting your application reference. Without a current certificate your application will not be duly made, and sending this in advance can help avoid delays.

Determination
The officer determining your application will contact you when they begin this work. They will be your main contact for the remainder of the process, up to the point we notify you of our final decision.

For more complex applications, the officer may need further information to complete their assessment. Unless the information can easily be obtained by a phone conversation or exchange of emails, they will send you a notice explaining what you need to submit.

Consultation
If your application needs consultation with the public and other organisations we use an online consultation tool where we will add all application documents. Environmental permits: when and how we consult explains which applications we are required to consult on and how long this will take.

Yours sincerely

Nicola Waller
Permitting Support Advisor – Permitting Support Regulated Industry - National Permitting Service

Environment Agency | Quadrant 2, 99 Parkway Ave, Parkway Business Park, Sheffield, S9 4WF
nicola.waller1@environment-agency.gov.uk

Regulated Industry Team Phone Number: 020 3025 3898 (9am to 4pm)
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National duty communications officer (24/7) | 0800 023 2522
National duty communications manager | 0800 028 2411

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Environment Agency - National Permitting Service Survey (smartsurvey.co.uk)

DOCUMENT 2.17
EMAIL: EA TO APPELLANT'S AGENT – REVIEWING APPLICATION

Tom Roberts

From: Daniyan, Habiba <Habiba.Daniyan@environment-agency.gov.uk>
Sent: 12 April 2023 11:47
To: Andy Stocks
Subject: RE: EPR/BS7722ID/V009: 3C Waste Limited - Maw Green Landfill Site

Good Morning Andy,

It was nice talking to you yesterday.

As stated on the phone, I just wanted to let you know that I am the Permitting Officer for the above-referenced application, and I will be your primary contact. I am currently reviewing the application for duly making purposes and I will contact you should in case I need further information.

However, Please do not hesitate to email me if you have any queries or concerns.

Kind regards,

Habiba Daniyan
Permitting Officer
Environment Agency | National Permitting Service| Lateral, 8 City Walk, Leeds, LS11 9AT
habiba.daniyan@environment-agency.gov.uk
Tel| 07823792794
Simple, Fair, Effective Charges

My name is:	**Habiba Daniyan**
How to say my name (phonetic spelling)	Ha-bee-ba,Da-nee-yan

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DOCUMENT 2.18

EMAIL: EA TO CONSULTANT – CONFIRMATION THAT ENVIRONMENTAL PERMITTING APPLICATION IS DULY MADE

Tom Roberts

From: PSC Land <PSC@environment-agency.gov.uk>
Sent: 16 April 2023 15:54
To: Andy Stocks
Subject: Environmental permitting application EPR/BS7722ID/V009 is duly made

Dear Andy Stocks,

Your environmental permitting application is duly made

Application reference: EPR/BS7722ID/V009
Applicant: 3C Waste Limited
Facility: Maw Green Landfill

I'm writing to let you know that your application is duly made as of 13/04/2023. 'Duly made' means that we have all the information we need to start determination. Determination is where we assess and make a decision on your application.

We want to give you a decision as quickly as possible. Once the officer has familiarised themselves with your application, they'll be able to give an estimate of timescales.

The determination time will depend on a number of factors, such as:

- the complexity of the application
- whether we need to consult. See Environmental permits: when and how we consult for a list of applications that require public consultation.
- whether we need to ask you for further information so we can complete determination. If we do need further information, we'll contact you during determination. We'll explain what information we need and how long you have to provide it.

For further information on the permitting process, please see Environmental permitting guidance: Core guidance.

If your application contained a request for confidentiality, we'll write to you separately about our decision on that.

If you have any questions in the meantime, please phone our Customer Contact Centre on 03708 506506. They'll put you in touch with one of our Permitting Support Advisors. Alternatively, please email our Permitting Support Team: psc@environment-agency.gov.uk

Kind regards,

Harace Hussain
Permitting Support Advisor
Part of National Operations
National Permitting Service (part of National Services E&B)

☎ External: 02030256381 ☎ Internal: 56381 ☎ (Team Number) 02030253898

✉ Land Team, Environment Agency, Quadrant 2, 99 Parkway, Avenue, Sheffield, S9 4WF
✉ Email: harace.hussain@environment-agency.gov.uk
✉ Email: PSC@environment-agency.gov.uk

Operations
Regulation
Monitoring
Customer
Operations Regulatory Services

DOCUMENT 2.19
EMAIL CHAIN: EA AND APPELLANT'S OPERATOR'S COMMENTS ON DRAFT PERMIT

Andy Stocks

From: Andy Stocks
Sent: 23 June 2023 10:04
To: Cridge, Claudia
Cc: Burston, Kellie-marie; Jon Owens; Daniyan, Habiba
Subject: RE: Operator Review Request - EPR/BS7722ID/V009

Hi Claudia,

We have reviewed the draft permit and have the following comments:

Table S1.1 'activities'

Activity AR5 includes a WFD operation of biological treatment but the table of wastes it is referencing (S2.3a) is for physico-chemical treatment in the soils treatment facility.

Activity AR7 the WFD ref should not be D9, it is R5 as per the other treatment activities associated with the STF, the principles are the same. Hazardous soils undergo physico chemical treatment to remove the contaminants (bonded asbestos) to enable the soils to be used for the restoration of the landfill which is undertaken as a recovery (R5) activity. The pre acceptance procedures ensure that all wastes that undergo treatment in the STF will be suitable for use in the restoration of the landfill, following treatment. There is no solidification/stabilisation for disposal.

Whilst this is stated in the current permit, we have noticed an error in AR8 – this was originally included for the option to screen materials following biological treatment (therefore no longer hazardous) to remove any oversize materials prior to use in restoration of the landfill. Therefore, should be non-hazardous waste following treatment on site by Activity AR4.

Also

The plans at the end of the permit need updating to reflect the variation application, drawing 5193-CAU-XX-XX-DR-V-1805 should now be used to show the revised site layout.

Can Table S1.3 be removed as IC4 is now complete?

If you need to discuss any of the points raised above, please give me a call.

Regards

Andy

Caulmert
engineering environmental planning

Andy Stocks	Caulmert Limited
Director of Environment	Mobile: 07818 623158
AndyStocks@caulmert.com	Direct: 01773 305 041
www.caulmert.com	Phone: 01773 749132

Nottingham Office • Strelley Hall, Main Street • Strelley, Nottingham • NG8 6PE • United Kingdom

From: Cridge, Claudia <Claudia.Cridge@environment-agency.gov.uk>
Sent: Wednesday, June 21, 2023 12:29 PM
To: Andy Stocks <AndyStocks@caulmert.com>
Cc: Daniyan, Habiba <Habiba.Daniyan@environment-agency.gov.uk>
Subject: Operator Review Request - EPR/BS7722ID/V009

Dear Andy,

Review of draft permit variation and consolidation

Application reference: EPR/BS7722ID/V009
Operator: 3C Waste Limited
Facility: Maw Green Landfill Site, Maw Green Road, Coppenhall, Crewe, Cheshire, CW1 5NG

I enclose a draft of your permit variation and consolidation. I'm sending it to you so you can check we've stated your details correctly and it covers the activities you applied for. We're not asking for comments on the conditions we've used or how the permit is presented.

If you've concerns about the conditions we've chosen please discuss this with me or Habiba and I can explain why they've been included. These wording of these conditions is standard. We will only consider changes to the wording in very exceptional circumstances.

The draft notice also shows the changes we have made to this permit. The reasons for these are to correct previous errors and update some conditions.

If you consider that there are any errors in your details or the activities stated, or if it refers to matters which you regard as being confidential or affecting national security, please let me know by **5th July 2023**.

Please contact me and/or Habiba by replying to this email if you have any questions.

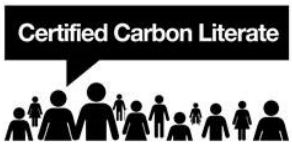
Kind regards,

Claudia Cridge Bsc (Hons), MRes
Permitting Officer, Regulated Industry (Installations), National Permitting Service
Environment Agency | Quadrant 2, 99 Parkway Avenue, Sheffield, S9 4WF
claudia.cridge@environment-agency.gov.uk | 020 7714 1259

Pronouns: she/her

Please consider this a 'thank you' in advance.
Every email has a carbon footprint. So, if you don't hear back from me, it's not because of you, it's because of the planet.

Do you operate a medium combustion plant or specified generator?
Click here to find out if you need to meet the regulations



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DOCUMENT 2.20

EMAIL APPELLANT'S AGENT TO EA - CONFIRMING OPERATOR HAS NO FURTHER COMMENTS ON CORRECTED DRAFT

Andy Stocks

From: Andy Stocks
Sent: 13 July 2023 13:52
To: Daniyan, Habiba; Kirk, Daniel
Cc: Burston, Kellie-marie; Jon Owens
Subject: RE: Operator Review Request - EPR/BS7722ID/V009

Hi Habiba

I can confirm that we have no further comments to make on the draft permit, please issue

Many thanks

Andy

From: Daniyan, Habiba <Habiba.Daniyan@environment-agency.gov.uk>
Sent: Wednesday, July 12, 2023 3:59 PM
To: Andy Stocks <AndyStocks@caulmert.com>; Kirk, Daniel <daniel.kirk@environment-agency.gov.uk>
Cc: Burston, Kellie-marie <kellie-marie.burston@fccenvironment.co.uk>; Jon Owens <Jon.Owens@provectusgroup.com>
Subject: RE: Operator Review Request - EPR/BS7722ID/V009

Hello Andy,

It was good to catch up with you today.

As discussed, please see attached the corrected Draft permit for the above application.

Your immediate response would be appreciated for me to carry on with the determination/issuing process.

Kind regards,

Habiba Daniyan
Permitting Officer
Environment Agency | National Permitting Service| Lateral, 8 City Walk, Leeds, LS11 9AT
habiba.daniyan@environment-agency.gov.uk
Tel| 07823792794
Simple, Fair, Effective Charges

My name is:	**Habiba Daniyan**
How to say my name (phonetic spelling)	Ha-bee-ba,Da-nee-yan

'Say My Name' Initiative – help people to pronounce your name. Click here for more information.

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DOCUMENT 2.21

EMAIL: APPELLANT'S CONSULTANT TO EA PERMITTING OFFICER – REQUEST CONFIRMATION THAT PERMIT HAS BEEN ISSUED

Tom Roberts

From: Andy Stocks <AndyStocks@caulmert.com>
Sent: 20 July 2023 15:04
To: Daniyan, Habiba
Subject: RE: Operator Review Request - EPR/BS7722ID/V009
Attachments: logo_e2d43f21-9cac-4229-931e-8a959fcbdc4c.png; banner_43a9ba83-a3de-44fa-b0d8-2b028414a79a.gif; linkedin_14b896ef-de54-45e5-8b77-3c6309a52ed1.png; twitter_3be277fc-9866-4acc-bbf1-cc81de99ceab.png; chaslogo_a89de6d8-1c88-4675-b0bb-4eb4256b77e5.png; BRE_Certification_blue_9d1d9f04-f24f-45a0-aca7-1c6a5472773c.jpg

Hi Habiba

Has this now been issued?

Andy

From: Daniyan, Habiba <Habiba.Daniyan@environment-agency.gov.uk>
Sent: Wednesday, July 12, 2023 3:59 PM
To: Andy Stocks <AndyStocks@caulmert.com>; Kirk, Daniel <daniel.kirk@environment-agency.gov.uk>
Cc: Burston, Kellie-marie <kellie-marie.burston@fccenvironment.co.uk>; Jon Owens <Jon.Owens@provectusgroup.com>
Subject: RE: Operator Review Request - EPR/BS7722ID/V009

Hello Andy,

It was good to catch up with you today.

As discussed, please see attached the corrected Draft permit for the above application.

Your immediate response would be appreciated for me to carry on with the determination/issuing process.

Kind regards,

Habiba Daniyan
Permitting Officer
Environment Agency | National Permitting Service| Lateral, 8 City Walk, Leeds, LS11 9AT
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My name is:	**Habiba Daniyan**
How to say my name (phonetic spelling)	Ha-bee-ba,Da-nee-yan

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DOCUMENT 2.22
EMAIL: EA TO APPELLANT'S AGENT – VARIATION ISSUE

Tom Roberts

From: SM-Defra-RESP-noreply (DEFRA) <RESP-noreply@defra.gov.uk>
Sent: 25 July 2023 11:51
To: Andy Stocks
Subject: EPR/BS7722ID/V009 Issue of Environmental Permit CRM:0813082
Attachments: Variation Issue letter.pdf; Permit Issued.pdf

Dear Andrew Stocks

Environmental Permitting (England and Wales) Regulations 2016

Permit reference: EPR/BS7722ID/V009

Operator: 3C WASTE LIMITED

Facility: Maw Green Landfill -EPR/BS7722ID, MAW GREEN LANE, CREWE, CW1 5NG

Our determination of your application for a permit is complete. We're satisfied that you can carry out your activities in accordance with the enclosed permit and without causing harm to the environment or human health. Please keep the permit in a safe place.
Operating other than in accordance with the enclosed permit is an offence under the Environmental Permitting Regulations. More information on our Enforcement and Sanctions Policy is available: https://www.gov.uk/government/publications/environment-agency-enforcement-and-sanctions-policy

Please look at the table below and note any of the things that apply to your permit.

If...	then...
you plan to keep your records at a site other than where the activity takes place	you need to let us know the alternative location within 20 working days of receiving this letter.
our permit includes pre-operational or improvement conditions	make sure you complete the requirements by the set deadlines. Note: additional charges apply for assessments or approvals under these conditions. The exception is for new waste incinerator or co-incinerator permits
your permit includes standard rules	we've enclosed the rules set/s. We may change these in future but will let you know about any changes. You must make sure you're always following the latest rules set.

If...	then...
you're carrying out a waste operation or activity and need to submit quarterly waste returns on waste movement	you can get the forms you need from our website https://www.gov.uk/government/collections/national-operator-waste-returns When you complete your return, use the waste returns reference above.
you need to submit other returns	speak to your local Environment regulatory officer to check arrangements.
your permit includes a (non-low impact) installation	we enclose a legal notice and information about reporting to the Pollution Inventory

Read the following guides to find out more about complying with your permit:
www.gov.uk/guidance/develop-a-management-system-environmental-permits
www.gov.uk/guidance/control-and-monitor-emissions-for-your-environmental-permit
www.gov.uk/guidance/legal-operator-and-competence-requirements-environmental-permits [delete last link for standalone water discharge and groundwater activity permits]

Subsistence charges

Most permits attract a subsistence charge for each full or part financial year they are in force. For these permits, the first subsistence invoice will be for a pro rata amount. This amount is usually based on the date we grant the permit, until the end of the financial year.
There are a few exceptions and additions. Please look at the table below and see if any apply to your permit.

If...	then...
your permit states a future start date or requires prior notice to be given	the charge starts from that date instead.
you are a domestic householder or charity and your permit is only for the: • discharge of sewage effluent; and • the maximum discharge volume is no more than 5 cubic metres per day	there is no subsistence charge.
your permit is only for mobile plant	there is no subsistence charge. Instead we will charge for each deployment. This does not apply to: • some mobile plant permits that allow the spreading of wastes on land. In these cases both subsistence and deployment charges apply. • mobile specified generator standard rules permit (SR2018 No 8). In these cases there is a fixed subsistence charge, but no separate deployment charge.

If...	then...
your permit is for bespoke medium combustion plant or specified generator(s)	there is no fixed subsistence charge. Instead we will recover costs on a time and materials basis.
Construction work or operation of your facility has yet to start	no subsistence charge is due until activities begin. You should keep your local Environment Agency regulatory officer informed about progress. Please

	contact our Customer Contact Centre on the number below if you are unable to do this. This does not apply to waste incineration or co-incineration plant, where a fixed pre-construction charge applies
your permit is for waste transfer or treatment permit	you will need to pay an one off extra charge of £672 for your first year of operation. This charge covers our additional costs in providing you with advice and support at the start of your operations.

You can find further information on charging, including when additional charges apply in our charging scheme:
https://www.gov.uk/government/publications/environmental-permits-and-abstraction-licences-tables-of-charges

and charging guidance:
https://www.gov.uk/government/publications/environmental-permitting-charges-guidance/environmental-permitting-charges-guidance

Other permissions
This permit grants permission to carry out the specific activities in the permit only, it does not grant planning permission or any other permissions. Other permissions from the Environment Agency and/or other bodies may be required for your activity, or if you carry out any associated or additional activities, for example:

- Activities that need an environmental permit https://www.gov.uk/guidance/check-if-you-need-an-environmental-permit#what-you-need-a-permit-for
- If you abstract or impound water https://www.gov.uk/guidance/water-management-abstract-or-impound-water
- Planning permission https://www.gov.uk/planning-permission-england-wales
- If you work on or near a river, flood defence or sea https://www.gov.uk/permission-work-on-river-flood-sea-defence

The National Permitting Service is committed to improving its customer service. By completing our customer satisfaction survey you can tell us what we are doing right and what we could do better. The survey should take no more than 10 minutes to complete and you can do so by clicking NPS Survey.

Yours sincerely,
Oliver Cox

DOCUMENT 2.23

PERMIT VARIATION ISSUE LETTER

The Company Director and/or Secretary
3 Sidings Court,
White Rose Way,
Doncaster,
DN4 5NU

Date: 25/07/2023

Dear The Company Director and/or Secretary

Your permit variation is complete

Permit reference: BS7722ID/V009
Operator: 3C Waste Limited
Facility: Maw Green Landfill Site

Our determination of your application to vary your permit is complete. We're satisfied that you can continue to carry out your activities in accordance with the variation, without harm to the environment or human health. I enclose a notice showing the changes to your permit. Please keep this in a safe place with your other permit records.

This letter contains web links to other documents. If you aren't able to access these phone our Customer Contact Centre for help on 03708 506 506.

If you're not familiar with our guidance on how to comply with your permit please look at the following guides:

www.gov.uk/guidance/develop-a-management-system-environmental-permits

www.gov.uk/guidance/control-and-monitor-emissions-for-your-environmental-permit

www.gov.uk/guidance/legal-operator-and-competence-requirements-environmental-permits

Please look at the table below and note any of the information or actions that apply to your permit.

If…	then..
the variation means you're now carrying out a waste operation or activity and need to submit quarterly waste returns on waste movements **Note:** This does not apply to permits that only have stand alone water discharge or groundwater activities.	you can get the forms you need from our website https://www.gov.uk/government/collections/national-operator-waste-returns When you complete your return use the waste returns reference above.
you need to submit other returns	send these to your area office. Speak to your area officer to check local arrangements.
your variation has added an installation to your permit for the first time	we've enclosed the pollution inventory letter, notice and fact sheet.

Rights of appeal

If you're not happy with any permit condition that has been imposed by the variation you may appeal to the Secretary of State. If you want to appeal any condition imposed as a result of your application you must make your appeal no later than six months from the date of the variation notice. If you want to appeal any condition we've added as an Environment Agency initiated variation you must make your appeal no later than two months from the date of the notice.

Further information on making an appeal and the forms you will need are available from the Planning Inspectorate website.

You will need to provide the documents listed below to the Secretary of State at the Planning Inspectorate.

The documents are:

- a statement of the grounds of appeal
- a copy of any relevant application
- a copy of any relevant environmental permit
- a copy of any relevant correspondence between the appellant and the regulator
- a copy of any decision or notice which is the subject matter of the appeal and
- a statement indicating whether you wish the appeal to be in the form of a hearing or dealt with by way of written representations.

At the same time you must send us a copy of the notice and documents to;

Appeals Co-ordinator – Appeals, Environment Agency, National Permitting Service, Knutsford Road, Latchford, Warrington, WA4 1HT.

Telephone: 02 03 02 50662
Email: NPSCentralisedServicesTeam@environment-agency.gov.uk

You may withdraw an appeal by writing to the Secretary of State and sending a copy of that notification to us.

Please phone our Customer Contact Centre on 03708 506 506 if you have any questions about the enclosed permit, the information in this letter or have trouble following any of the web links to supporting documents.

To report a suspected waste crime, please call CrimeStoppers on 0800 555 111, or visit: https://www.gov.uk/report-an-environmental-incident

The National Permitting Service is committed to improving its customer service. By completing our customer satisfaction survey you can tell us what we are doing right and what we could do better. The survey should take no more than 10 minutes to complete and you can do so by clicking NPS Survey.

Yours sincerely

Oliver Cox
Permitting Support Advisor

DOCUMENT 2.24

NOTICE OF VARIATION AND CONSOLIDATION, EPR/BS7722ID/V009

Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

3C Waste Limited

Maw Green Landfill Site
Maw Green Road
Coppenhall
Crewe
Cheshire
CW1 5NG

Variation application number

EPR/BS7722ID/V009

Permit number

EPR/BS7722ID

Maw Green Landfill Site
Permit number EPR/BS7722ID

Introductory note

This introductory note does not form a part of the notice

Under the Environmental Permitting (England & Wales) Regulations 2016 (schedule 5, part 1, paragraph 19) a variation may comprise a consolidated permit reflecting the variations and a notice specifying the variations included in that consolidated permit.

Schedule 1 of the notice specifies the conditions that have been varied and schedule 2 comprises a consolidated permit which reflects the variations being made. Only the variations specified in schedule 1 are subject to a right of appeal.

Specifically, the variation is to:

- Add an activity for the treatment of soils containing asbestos - Section 5.3A(1)(a)(ii) Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving physico-chemical treatment.
- Add new hazardous waste codes for acceptance at the Soil Treatment Facility. These include:

  - 17 05 03* soil and stones containing hazardous substances. This code is restricted to those wastes which contain identifiable pieces of bonded asbestos – this being any particle size that can be identified as potentially being asbestos by a competent person if examined by the naked eye.

  - 17 06 05* construction materials containing asbestos. This code is restricted to wastes containing discrete pieces of bonded asbestos within the soil matrix only.
- Increase the storage capacity for hazardous waste from 2000 tonnes up to 38,000 tonnes at any one time.

The installation operates as follows.

This site undertakes the landfilling of non-hazardous wastes and will be subject to restoration.

In addition, there are a number of waste treatment activities within the boundary of the landfill. This includes a Soil Treatment Facility located within the boundary, this undertakes the sorting and separation of asbestos from contaminated soils along with biological treatment activities taking leachate and hazardous and non-hazardous wastes.

The schedules specify the changes made to the permit.

The status log of a permit sets out the permitting history, including any changes to the permit reference number.

Status log of the permit		
Description	**Date**	**Comments**
Application EPR/BS7722ID/A001	09/10/2003	Received
Request for information	17/06/2004	Response received 19/07/2004
Request for information	23/06/2004	Response received 06/07/2004
Request for information	06/07/2004	Response received 20/07/2004
Request for information	25/08/2004	Response received 06/10/2004 and 11/10/2004
Request for information	30/12/2004	Response received 14/01/2005 and 27/01/2005
Permit determined EPR/BS7722ID	15/02/2005	
Variation notice UP3232LQ determined (EPR/BS7722ID/V002)	17/03/2005	
Application for Permit variation (EPR/BS7722ID/V003)	10/10/2007	Application received
Variation notice FP3931XK determined (EPR/BS7722ID/V003)	30/05/2008	
Environment Agency variation determined (EPR/BS7722ID/V005)	14/05/2013	Agency variation to implement changes introduced by IED
Environment Agency Landfill Sector Review Permit reviewed Variation notice determined EPR/BS7722ID/V006	15/02/2017	Permit varied and consolidated permit issued in the modern format
Application EPR/BS7722ID/V008	Duly made 11/07/2019	Application to vary Permit to include soil treatment facility and associated Activities on site.
Request for information in Schedule 5 Notice	23/08/2019	Response received 23/10/2019
Request for information in Schedule 5 Notice	22/11/2019	Responses received13/12/2019 and 10/01/2020
Request for information by email	20/01/2020	Response received 12/02/2020
Variation determined EPR/BS7722ID/V007	18/03/2020	Varied permit issued.
Application EPR/BS7722ID/V008 (variation and consolidation)	Duly made 27/09/2022	Application to vary and update the permit. Increasing the treatment capacity for hazardous soils at the Soil Treatment Facility. Operator registered office change of address incorporated as administrative change.
Variation determined and consolidation issued EPR/BS7722ID	25/01/2023	Varied and consolidated permit issued in modern format.
Application EPR/BS7722ID/V009 (variation and consolidation)	Duly Made 13/04/2023	Application to add an additional listed activity for the treatment and storage of soils contaminated with asbestos at the Soil Treatment Facility (STF), add associated waste codes and increase hazardous storage capacity at any one time.
Variation determination and consolidation issued EPR/BS7722ID Billing Reference: MP3940QG	20/07/2023	Varied and Consolidated permit issued

End of introductory note

Notice of variation and consolidation

The Environmental Permitting (England and Wales) Regulations 2016

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2016 varies

Permit number

EPR/BS7722ID

Issued to

3C Waste Limited ("the operator")

whose registered office is

3 Sidings Court
White Rose Way
Doncaster
DN4 5NU

company registration number 02632581

to operate a regulated facility at

Maw Green Landfill Site
Maw Green Road
Coppenhall
Crewe
Cheshire
CW1 5NG

to the extent set out in the schedules.

The notice shall take effect from 20/07/2023

Name	Date
Eleanor Blackeby	**20/07/2023**

Authorised on behalf of the Environment Agency

Schedule 1

The following conditions were varied as a result of the application made by the operator:

- Condition 1.5.1 and 1.5.2 have been updated
- Condition 2.1.2, 3.1.6, 4.1.1, 4.2.3, and 4.3.3 have been amended to reference the updated relevant activity codes
- Condition 2.6.4 has been updated to reference the new table of permitted waste codes
- Condition 3.5.5 has been added because it is relevant to the activities
- Condition 4.2.4 has been updated
- Condition 4.3.1 has been added because it is relevant to the new scheduled activity
- Table S1.1, as referenced in conditions 2.1.1 and 2.1.2, has been amended to include the new scheduled activity, specify the waste tables, amend the activity references, outline and update the activity limits and correct previous errors
- Table S1.2 as referenced in conditions 2.1.1 and 2.1.2 has been amended to include the relevant information submitted as part of this variation as operational techniques.
- Table S2.4 referenced in condition 2.6.4 has been added to incorporate the new asbestos hazardous waste codes

The following conditions were varied as a result of an Environment Agency initiated variation:

- Activity AR3, AR4, AR5 in Table S1.1 has been amended to include the maximum treatment capacity, permitted waste types and quantities as specified in table S2.3a and table S2.3b
- Table S2.3a and table S2.3b has been amended to state the relevant activities in table S1.1 and annual throughput
- Table S2.4 has been renumbered to S2.5

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/BS7722ID

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/BS7722ID/V009 authorising,

3C Waste Limited ("the operator"),

whose registered office is

3 Sidings Court
White Rose Way
Doncaster
DN4 5NU

company registration number 02632581

to operate an installation at

Maw Green Landfill Site
Maw Green Road
Coppenhall
Crewe
Cheshire
CW1 5NG

to the extent authorised by and subject to the conditions of this permit.

Name	Date
Eleanor Blackeby	**20/07/2023**

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

(a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and

(b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

1.1.4 The operator shall comply with the requirements of an approved competence scheme.

1.2 Finance

1.2.1 The financial provision for meeting the obligations under this permit shall be as set out in the Deed of Performance dated 17 October 2007 between the Waste Recycling Group Limited (now known as FCC Environment (UK) Limited) and the Environment Agency as varied by a Deed of Variation dated 15 October 2010 (as varied by further Deeds of Variation from time to time). The operator shall accordingly ensure that the Permit is and remains throughout its subsistence a Permit to which the Deed relates and the operator shall produce evidence of such provision whenever required by the Environment Agency.

1.2.2 The operator shall ensure that the charges it makes for the disposal of waste in the landfill cover all of the following:

(a) the costs of setting up and operating the landfill;

(b) the costs of the financial provision required by condition 1.2.1; and

(c) the estimated costs for the closure and aftercare of the landfill.

1.3 Energy efficiency

1.3.1 The operator shall:

(a) take appropriate measures to ensure that energy is used efficiently in the activities;

(b) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and

(c) implement any appropriate measures identified by a review.

1.4 Efficient use of raw materials

1.4.1 The operator shall:

(a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;

(b) maintain records of raw materials and water used in the activities;

(c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and

(d) take any further appropriate measures identified by a review.

1.5 Avoidance, recovery and disposal of wastes produced by the activities

1.5.1 The operator shall take appropriate measures to ensure that:

(a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and

(b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and

(c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment

1.5.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the "activities").

2.1.2 For the following activities referenced in schedule 1, table S1.1 (AR3 to AR8 and AR16) waste authorised by this permit shall be clearly distinguished from any other waste on the site.

2.2 The site

2.2.1 The activities shall not extend beyond the site, being the land shown edged in blue on the site plan at schedule 7 to this permit.

2.3 Operating techniques

2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.

2.3.2 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan or other documentation ("plan") specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.

2.3.3 Any raw materials or fuels listed in schedule 2 table S2.5 shall conform to the specifications set out in that table.

2.4 Pre-operational conditions

2.4.1 The operations specified in schedule 1 table S1.4 shall not commence until the measures specified in that table have been completed.

2.5 Landfill Engineering

2.5.1 No construction of any new cell of the landfill shall commence until the operator has submitted construction proposals and the Environment Agency has confirmed that it is satisfied with the construction proposals.

2.5.2 Where the operator proposes to construct any new cell other than the first cell, but proposes no change from the design of the most recently approved cell which could have any impact on the performance of any element of the design, no construction of the new cell shall commence until the operator has submitted a cell layout drawing and the Environment Agency has confirmed that it is satisfied with the cell layout drawing.

2.5.3 The construction of a new cell shall take place only in accordance with the approved construction proposals unless:

(a) any change to the approved construction proposals would have no impact on the performance of any element of the design; or

(b) a change has otherwise been agreed in writing by the Environment Agency.

2.5.4 No disposal of waste shall take place in a new cell until the operator has submitted a CQA Validation Report and the Environment Agency has confirmed that it is satisfied with the CQA Validation Report.

2.5.5 No construction of landfill infrastructure shall commence until the operator has submitted relevant construction proposals or a written request to use previous construction proposals and the Environment Agency has confirmed that it is satisfied with the construction proposals.

2.5.6 The construction of the landfill infrastructure shall take place only in accordance with the approved construction proposals unless:

(a) any change to the approved construction proposals would have no impact on the performance of any element of the design; or

(b) a change has otherwise been agreed in writing by the Environment Agency.

2.5.7 The operator shall submit a CQA Validation Report within four weeks of the completion of the construction of the relevant landfill infrastructure or other time period agreed in writing with the Environment Agency.

2.5.8 Where pollution controls are immediately necessary to prevent an incident or accident, then conditions 2.5.5 and 2.5.6 do not apply and the relevant landfill infrastructure may be constructed, provided that the construction proposals are submitted to the Environment Agency as soon as practicable.

2.5.9 For the purposes of conditions 2.5.1, 2.5.2, 2.5.4 and 2.5.5, the Environment Agency shall be deemed to be satisfied where it has not, within the period of four weeks from the date of receipt of the relevant construction proposals or CQA Validation Report, either:

(a) confirmed whether or not it is satisfied; or

(b) informed the operator that it requires further information.

2.5.10 Where the Environment Agency has required further information under condition 2.5.9(b), the Environment Agency shall be deemed to be satisfied where it has not, within the period of four weeks from the date of receipt of the further information, either:

(a) confirmed whether or not it is satisfied; or

(b) informed the operator that it requires further information.

2.6 Waste acceptance

2.6.1 For the following activities referenced in Schedule 1, Table S1.1 (AR1), wastes shall only be accepted for disposal if:

(a) they are listed in schedule 2, Table S2.1, and

(b) they are non-hazardous waste, and

(c) they are not whole used tyres (other than bicycle tyres and tyres with an outside diameter of more than 1400 mm), and

(d) they are not shredded used tyres, and

(e) they are not liquid waste (including waste waters but excluding sludge), and

(f) they are not chemical substances from research and development or teaching activities, for example laboratory residues, which are unidentified and/or which are new and whose effects on man and/or the environment are unknown, and

(g) all the relevant waste acceptance procedures have been completed, and

(h) they fulfil the relevant waste acceptance criteria, and

(i) they have not been diluted or mixed solely to meet the relevant waste acceptance criteria, and

(j) they are wastes which have been treated, except for: inert wastes for which treatment is not technically feasible; or it is waste other than inert waste and treatment would not reduce its quantity or the hazards which it poses to human health or the environment, and

(k) they are wastes with a code beginning with 07 05 and 16 03, they shall exclude waste medicinal products and pharmaceutically active waste materials arising from their manufacture.

2.6.2 Wastes shall only be accepted for restoration where:

(a) they are listed in schedule 2, table S2.2 and

(b) they are accepted in accordance with a restoration plan approved in writing by the Environment Agency.

2.6.3 The operator shall:

(1) visually inspect without unloading it, waste that is not in an enclosed container or enclosed vehicle on arrival at the landfill and waste at the point of deposit; and

(2) be satisfied that the waste conforms to the requirements of condition 2.6.1.

2.6.4 For the following activities referenced in schedule 1, Table S1.1 (AR3 – AR8 and AR16) waste shall only be accepted if:

(a) it is of a type and quantity listed in schedule 2, Tables S2.3a and S2.3b and S2.4

(b) it conforms to the description in the documentation supplied by the producer and holder.

2.6.5 Where the operator has taken samples to establish that the waste is in conformity with the documentation submitted by the holder then the samples taken shall be retained for at least one month and results of any analysis for at least two years.

2.6.6 The operator on accepting each delivery of waste shall provide a receipt to the person delivering it.

2.6.7 The total quantity of waste that shall be deposited in the landfill shall be limited by the pre-settlement levels shown on drawing reference 1351-01-08 Final Restoration Plan-.

2.6.8 The quantity of waste that is deposited or recovered in the landfill in any year shall not exceed the limits in schedule 1 table S1.5.

2.6.9 The operator shall maintain and implement a system which ensures that a record is made of the quantity, characteristics, date of delivery and, where practicable, origin of any waste that is received

for disposal or recovery and of the identity of the producer, or in the case of municipal waste and multiple collection vehicles, of the collector of such waste. Any information regarded by the operator as commercially confidential shall be clearly identified in the record.

2.6.10 Hazardous waste shall not be mixed, either with a different category of hazardous waste or with other waste, substances or materials, unless it is authorised by schedule 1 table S1.1 and appropriate measures are taken.

2.6.11 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:

(1) the nature of the process producing the waste;

(2) the composition of the waste;

(3) the handling requirements of the waste;

(4) the hazardous property associated with the waste, if applicable; and

(5) the waste code of the waste.

2.6.12 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.

2.7 Leachate levels

2.7.1 The limits for the level of leachate listed in schedule 3 table S3.1 shall not be exceeded.

2.8 Closure and aftercare

2.8.1 The operator shall maintain a closure and aftercare management plan.

2.9 Landfill gas management

2.9.1 The operator shall take appropriate measures, including, but not limited to, those specified in any approved landfill gas management plan, to:

(a) collect landfill gas; and

(b) control the migration of landfill gas.

2.9.2 The operator shall use the collected landfill gas to produce energy. If the collected landfill gas cannot be used to produce energy, the operator shall use appropriate measures to flare or treat the gas in accordance with an approved landfill gas management plan.

2.9.3 The operator shall:

(a) if notified by the Environment Agency, submit to the Environment Agency for approval within the period specified, a revised landfill gas management plan;

(b) implement the revised landfill gas management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3 Emissions and monitoring

3.1 Emissions to water, air or land

3.1.1 The limits in Schedule 3 shall not be exceeded.

3.1.2 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.2, S3.3 and S3.4.

3.1.3 The limits given in Table S3.2 shall not be exceeded, save that compliance with an emission limit in that table shall include incorporation of the uncertainty allowance stated in Environment Agency guidance LFTGN 05 and LFTGN 08.

3.1.4 The operator shall prevent the input of any hazardous substances from the activities into groundwater.

3.1.5 The operator shall submit to the Environment Agency a review of the Hydrogeological Risk Assessment:

(a) between nine and six months prior to the sixth anniversary of the granting of the permit, and

(b) between nine and six months prior to every subsequent six years after the fourth anniversary of the granting of the permit.

3.1.6 For the following activities referenced in schedule 1, table S1.1 (AR3 to AR8 and AR16) periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on systematic appraisal of the risk of contamination.

3.2 Emissions of substances not controlled by emission limits

3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

3.2.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;

(b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.2.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.3 Odour

3.3.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.

3.3.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;

(b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.4 Noise and vibration

3.4.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.

3.4.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;

(b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.5 Monitoring

3.5.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring and any other actions specified in the following tables in schedule 3 to this permit:

(a) Leachate specified in tables S3.1 and S3.11;

(b) Point source emissions specified in tables S3.2, S3.3 and S3.4;

(c) Groundwater specified in tables S3.5 and S3.9;

(d) Landfill gas specified in tables S3.6, S3.8 and S3.10;

(e) Surface water specified in table S3.12;

(f) Particulate matter specified in table S3.7.

3.5.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.

3.5.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by the Environment Agency.

3.5.4 A topographical survey of the site referenced to ordnance datum shall be carried out and shall be used to produce a plan of a scale adequate to show the surveyed features of the site:

(a) annually, and

(b) prior to the disposal of waste in any new cell or new development area of the landfill, and

(c) following closure of the landfill or part of the landfill.

3.5.5 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1 to S3.13 unless otherwise agreed in writing by the Environment Agency.

3.6 Pests

3.6.1 The activities shall not give rise to the presence of pests which are likely to cause pollution, hazard or annoyance outside the boundary of the site. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved pests management plan, have been taken to prevent or where that is not practicable, to minimise the presence of pests on the site.

3.6.2 The operator shall:

(a) if notified by the Environment Agency, submit to the Environment Agency for approval within the period specified, a pests management plan which identifies and minimises risks of pollution hazard or annoyance from pests;

(b) implement the pests management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.7 Fire prevention

3.7.1 The operator shall take all appropriate measures to prevent fires on site and minimise the risk of pollution from them including, but not limited to, those specified in any approved fire prevention plan.

3.7.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to a risk of fire, submit to the Environment Agency for approval within the period specified, a fire prevention plan which prevents fires and minimises the risk of pollution from fires;

(b) implement the fire prevention plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

4 Information

4.1 Records

4.1.1 All records required to be made by this permit shall:

(a) be legible;

(b) be made as soon as reasonably practicable;

(c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and

(d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:

(i) the results of groundwater monitoring;

(ii) sub-surface landfill gas monitoring;

(iii) leachate levels, quality and quantities;

(iv) landfill gas generation and collection;

(v) waste types and quantities;

(vi) the specification and as built drawings of the basal, sidewall and capping engineering systems.

for the following activities referenced in schedule 1, table S1.1 (AR3 to AR8 and AR16):

(vii) off-site environmental effects; and

(viii) matters which affect the condition of the land and groundwater.

4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

4.2 Reporting

4.2.1 The operator shall send reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.

4.2.2 For the following activities referenced in schedule 1, Table S1.1 (AR1 and AR2), a report or reports on the performance of the activities over the previous year ('the annual report') shall be submitted to the Environment Agency by 31st January each year or such other date as may be agreed in writing by the Agency, with the exception of 4.2.2(c) that must be provided by the end of February each year. The report(s) shall include as a minimum:

(a) a review of the results of the monitoring and assessment carried out in accordance with this permit against the relevant assumptions, parameters and results in the risk assessments submitted in relation to this installation and any agreed amendments thereto. The review will include written descriptions of the improvements made to operational performance during the year, action plans developed and planned improvements for the coming year;

(b) the energy consumed at the site, reported in the format set out in schedule 4 table S4.3;

(c) the annual production/treatment set out in schedule 4 table S4.2;

(d) the topographical surveys required by condition 3.5.3 other than those submitted as part of a CQA validation report;

(e) the volumetric difference (reported in cubic metres) between the most recent topographical survey and the previous annual topographical survey i.e. the additional volume of the landfill void that is occupied by waste;

(f) an assessment of the settlement behaviour of the landfill body based on the difference between the most recent topographical survey and previous annual topographical survey for the areas of the landfill which did not receive waste between the surveys;

(g) a calculation of the remaining capacity (reported in cubic metres) derived from the pre-settlement contours and the most recent topographical survey;

(h) a plan(s) ('the monitoring and extraction point plan – MEPP') showing the locations of existing and any new leachate and landfill gas extraction and all monitoring points.

4.2.3 For the following activities referenced in schedule 1, table S1.1 (AR3 to AR8 and A16) a report or reports on the performance of the activities over the previous year shall be submitted to the Environment Agency by 31st January (or other date agreed in writing by the Environment Agency) each year. The report(s) shall include as a minimum:

(a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;

(b) the annual production/treatment data set out in schedule 4 table S4.2; and

(c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule.

4.2.4 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:

(a) in respect of the parameters and emission points specified in schedule 4 table S4.1;

(b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4; and

(c) giving the information from such results and assessments as may be required by the forms specified in those tables.

4.2.5 Within one month of the end of each quarter, the operator shall submit to the Environment Agency using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter.

4.2.6 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

4.3 Notifications

4.3.1 In the event:

(a) that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—

(i) inform the Environment Agency,

(ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and

(iii) take the measures necessary to prevent further possible incidents or accidents.

(b) in the event of a breach of any permit condition the operator must immediately—

(i) inform the Environment Agency, and

(ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;

(c) in the event of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.

4.3.2 Any information provided under condition 4.3.1 (a)(i), or 4.3.1 (b)(i) where the information relates to the breach of a limit specified in the permit, shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.

4.3.3 For the following activities referenced in schedule 1, table S1.1 (AR3 to AR8 and AR16) where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.

4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

(a) any change in the operator's trading name, registered name or registered office address; and

(b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

(a) any change in the operator's name or address; and

(b) any steps taken with a view to the dissolution of the operator.

In any other case:

(a) the death of any of the named operators (where the operator consists of more than one named individual);

(b) any change in the operator's name(s) or address(es); and

(c) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:

(a) the Environment Agency shall be notified at least 14 days before making the change; and

(b) the notification shall contain a description of the proposed change in operation.

4.3.6 The Environment Agency shall be given at least 14 days notice before implementation of any part of the site closure plan.

4.4 Interpretation

4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "immediately", in which case it may be provided by telephone.

Schedule 1 – Operations

Table S1.1 activities				
Activity reference	**WFD Annex I and II operations (where applicable)**	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity**	**Limits of specified activity**
AR1	D5 –Specially engineered landfill; R5 - the recycling or reclamation of inorganic material and R10 – Land treatment resulting in benefit to agriculture or ecology	Section 5.2 Part A(1) (a), The disposal of waste in a landfill.	Landfill for non-hazardous waste and landfill restoration.	Receipt, handling, storage and disposal of wastes, consisting of the types and quantities specified in conditions 2.7, as an integral part of landfilling.
AR2	D8 – Biological treatment of waste	Section 5.4, Part A(1)(a)(i), Biological treatment of non-hazardous waste.	Treatment of leachate in a facility with a capacity of >50 tonnes/day.	Leachate arising from the landfill.
AR3	D8 – Biological treatment of waste and R5 - the recycling or reclamation of inorganic material	Section 5.3 Part A(1)(a)(ii)	Bioremediation process for hazardous waste.	A maximum treatment capacity of 38,000 tonnes at any one time. Hazardous waste types and quantities as specified in table S2.3b.
AR4	D8 – Biological treatment of waste and R5 - the recycling or reclamation of inorganic material	Section 5.4 Part A(1)(b)(i), Biological treatment of non-hazardous waste.	Recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 75 tonnes per day involving biological treatment.	A maximum treatment capacity of 38,000 tonnes at any one time. Non-hazardous waste types and quantities as specified in table S2.3b.

AR5	D8 – Biological treatment of waste and R5 - the recycling or reclamation of inorganic material	Section 5.3 Part A(1)(a)(ii)	Screening to remove oversize material.	A maximum treatment capacity of 38,000 tonnes at any one time. Hazardous waste types and quantities as specified in table S2.3a.
AR6	R13 - Storage of waste pending any of the operations numbered R1 to R12	Section 5.6 Part A(1)(a)	Temporary storage of hazardous waste.	A maximum of 38,000 tonnes at any one time on site for wastes due to undergo treatment as per Activities AR3, AR4, AR5 or AR7. Hazardous waste types and quantities as specified in table S2.3a, S2.3b and S2.4.
AR7	R5 - the recycling or reclamation of inorganic material	Section 5.3 Part A(1)(a)(ii)	Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving physico-chemical treatment.	From receipt of waste through to storage of treated waste. Including storage and use of process additives. All treatment and storage shall take place on an impermeable surface with a sealed drainage system as shown on site plan in schedule 7. Hazardous waste types and quantities as specified in table S2.4.
AR8	R5 - the recycling or reclamation of inorganic material	Section 5.4 Part A (1)(a)(ii) Physico-chemical treatment of non-hazardous waste with a capacity exceeding 50 tonnes per day.	Screening of non-hazardous waste to remove oversized material for recovery.	Non-hazardous waste following treatment on site by Activity AR4. Non-hazardous waste types and quantities as specified in table S2.3b.
Directly Associated Activities				
AR9	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.	Treatment and utilisation of landfill gas arising from the landfill.
AR10	N/A		Temporary storage of waste (leachate).	Leachate arising from the landfill.
AR11	N/A		Flaring of landfill gas for disposal in an appliance.	Landfill gas arising from the landfill.

AR12	D6 – release to water body except seas/ oceans		Discharges of site drainage from the landfill.	From surface water management system to point of entry to controlled waters.
AR13	N/A		Fuel Storage.	Storage of diesel for use in mobile plant at Soil Treatment Facility.
AR14	N/A		Water Storage.	Collection and storage of process water.
AR15	N/A		Pipework between the leachate treatment plant and public sewerage system.	From the point of discharge from the leachate treatment plant to the point where the pipework leaves the land under the control of the operator.
AR16	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)		Storage of waste.	Temporary storage of non-hazardous waste prior to treatment on site.

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Application	The response to questions 1.2, 2.1, 2.2, 2.3, 2.4 and 2.5 in part B of the Application Form, excluding the following sections: 2.2.4 to 2.2.6, 2.3.32, 2.3.33, 2.3.34, 2.3.35, 2.3.39, 2.3.43, 2.3.50 to 2.3.54, 2.3.68, 2.3.69, 2.3.71, 2.3.72 and 2.3.78	09/10/2003
SLR letter and supporting documents regarding requests for information dated 17/06/2004.	All Parts	19/07/2004
SLR letter and supporting documents regarding requests for information dated 06/07/2004.	All Parts	20/07/2004
SLR letter and supporting documents regarding requests for information dated 25/08/2004.	All Parts	11/10/2004
SLR e-mail and supporting documents regarding revised waste list.	All Parts	14/01/2005
SLR e-mail and supporting documents All parts 14/01/2005 and 27/01/2005 regarding requests for information dated 30/12/2004.	All Parts	28/02/2006
Correspondence dated 27/02/2006 re: 27/02/2006 re: Improvement condition 1.4.1.1	All Parts	28/02/2006
Correspondence dated 03/04/2006 re: Improvement condition 1.4.1.2	All Parts	03/04/2006
Correspondence dated 01/03/2006 re: Improvement condition 1.4.1.3	All Parts	06/03/2006
Correspondence dated 15/02/2006, (ref: 404- 0197-00178) re: Improvement condition 1.4.1.5	All Parts	16/02/2006
Correspondence dated 02/2006 (ref 404-0197-00178), CQA plan for downstream monitoring wells)	All Parts	02/2006
Correspondence dated 06/04/2006 (ref:402.0197.00423) re: Improvement condition 1.4.1.7	All Parts	12/04/2006
Correspondence dated 13/04/2006 (ref: 404.0197.00178) Re: improvement condition 1.4.1.9	All Parts	18/04/2006
Correspondence dated 15/03/2005 (ref: 4D-197-178) re improvement condition 1.4.1.12	All Parts	21/05/2005

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Correspondence 'Maw Green Leachate Extraction Review' re improvement condition 1.4.1.13	All parts	06/2006
Revised monitoring location plan (drawing no. ESID 14, dated August 2007)	All parts	22/01/2008
Monitoring reduction letter Ref ALM/MG/EAL53	All Parts	22/01/2014
FCC letter ref MG/LC2.2AR/ 20140829	All Parts	29/08/2014
FCC Document E mail from FCC 29 Jan 2016Attached updated tables for Doc ref: ALM/MG/EAL53	All Parts	29/01/2015
Landfill Restoration Plan (referenced report 10228-R07 and dated May 2017)	All Parts	15/05/2017
Application	Application Forms (All Parts) ESID Amendment Site Condition Report (referenced 3695-CAU-XX-XX-RP-V-0305.A0-C2 and dated March 2019) Soil Treatment Facility Amenity and Accident Plan (referenced 3695-CAU-XX-XX-RP-V-0302.A0-C2 and dated March 2019)	01/04/2019
Response to Schedule 5 Notice (1) dated 23/08/2019	Soil Treatment Facility Dust Management Plan (reference 3695-CAU-XX-XX-RP-V-0307-A0-C1 and dated October 2019) Soil Treatment Facility Operating Techniques (reference 3695-CAU-XX-XX-RP-V-0303 and dated October 2019) Response includes clarification on area drainage, clarification on waste codes and biofilter/air quality monitoring details.	02/10/2019
Response to Schedule 5 Notice (2) follow up request dated 22/11/2019 and 02/01/2020	STC Soil Characterisation Procedure (referenced WI-003) and dated 26/11/2019) Response includes further detail on waste code acceptance, biofilter and air quality monitoring.	13/12/2019
	Soil Treatment Facility Odour Management Plan (reference 3695-CAU-XX-XX-RP-V-0308-	10/01/2020

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
	A0-C3 OMP Combined and dated December 2019)	
Response to request for more information dated 20/01/2020	Drawings Leachate Pipeline Route (ref. 3695-CAU-XX-XX-DR-V-1802 P1) and Proposed Layout Plan (ref. 3695-CAU-XX-XX-DR-V-1801 P3) detailing sewer connections to site and proposed monitoring locations respectively.	12/02/2020
Response to Improvement Condition 4	H1 Assessment (referenced 5193-CAU-XX-XX-RP-V-0308.A0.C1 Final and dated November 2021)	08/11/2021
Application	Application Forms (All Parts) Updated Supporting Document (reference 5193-CAU-XX-XX-RP-V-0300.A0.C1 and dated December 2021) Updated Amenity and Accident Plan (reference 5193-CAU-XX-XX-RP-V-0301-A0.C1 and dated December 2021) Addendum to ESID Report (referenced 5193-CAU-XX-XX-RP-V-0302-A0.C1 and dated December 2021) Updated Operating Techniques Document (referenced 5193-CAU-XX-XX-RP-V-0306.A0.C1 and dated December 2021) Updated BAT Review (referenced 5193-CAU-XX-XX-RP-V-0307.A0.C1 and dated December 2021)	15/12/2021
Application EPR/BS7722ID/V009	Documents received in response to Section 3a of form Part C3: • Picking Station Specification – Site plan (Document Reference: 5193-CAU-XX-XX-RP-V-0313.A0.C1) • Treatment process & BAT review - reference 10012023 • Dust & Emissions Management Plan (Document Ref: 5193-CAU-XX-XX-RP-V-0313.A0.C1) • Environmental Setting and Installation Design (ESID) - Addendum 2022 (Document Ref: 5193-CAU-XX-XX-RP-V-0309.A0.C1) (Page 3 – Asbestos Soil Treatment) • Amenity & Accidents Risk Assessment (Document Ref: 5193-CAU-XX-XX-RP-V-0310.A0.C1)	10/01/2023

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
	• Activities & Operating Techniques Report (Document Ref: 5193-CAU-XX-XX-RP-V-0311.A0.C1)	

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
4	(b) The operator shall submit to the Environment Agency in writing for approval, a report detailing monthly chemical analysis monitoring results of collected waters from the Soil Treatment Facility (STF) at the point of discharge from the STF. The report should contain details of comparison of results from the chemical analysis to existing discharge consent limits and the Environment Agency's H1 Guidance.	Complete

Table S1.4 Pre-operational measures for future development		
Reference	**Operation**	**Pre-operational Measures**
1	Deposit of wastes in any area of the Permitted installation where waste deposit commences after the issue of the permit	As part of any construction proposals required by condition 2.5.1 the operator shall include a design for leachate collection infrastructure, which includes details of the leachate collection layer, drainage pipework, collection systems and drilling targets.
2	Deposit of waste over previously completed areas of phase 1	A leachate drainage layer shall be incorporated into the design of the internal slope between phase 1 and future phases. The design specification of this layer shall be approved in accordance with condition 2.5.1.
3	Engineering of any new cell	As part of any construction proposals required by condition 2.5.1, the operator shall submit a report investigating the existence of sand horizons beneath the cell base. The report shall detail the thickness of any encountered sand horizon, the presence of groundwater including the piezometric head and shall also include an assessment into the possibility of basal heave and any necessary preventative action required for the cell, together with any required amendments to CQA procedures for engineering at the site. If in the preparation of the report, extra intrusive site investigation is undertaken, the report shall contain all relevant borehole logs and descriptions.

Table S1.5 Annual waste input limits	
Category	**Limit Tonnes/ Year**
Non-hazardous waste	450,000
Inert waste	450,000
Waste for restoration	75,000

Schedule 2 – List of permitted wastes

Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste	
Waste code	**Description**
01	**Wastes resulting from exploration, mining, quarrying, and physical and chemical treatment of minerals**
01 01	**wastes from mineral excavation**
01 01 01	wastes from mineral metalliferous excavation
01 01 02	wastes from mineral non-metalliferous excavation
01 03	**wastes from physical and chemical processing of metalliferous minerals**
01 03 06	tailings other than those mentioned in 01 03 04 and 01 03 05
01 03 08	dusty and powdery wastes other than those mentioned in 01 03 07
01 03 09	red mud from alumina production other than the wastes mentioned in 01 03 10
01 04	**wastes from physical and chemical processing of non-metalliferous minerals**
01 04 08	waste gravel and crushed rocks other than those mentioned in 01 04 07
01 04 09	waste sand and clays
01 04 10	dusty and powdery wastes other than those mentioned in 01 04 07
01 04 11	wastes from potash and rock salt processing other than those mentioned in 01 04 07
01 04 12	tailings and other wastes from washing and cleaning of minerals other than those mentioned in 01 04 07 and 01 04 11
01 04 13	wastes from stone cutting and sawing other than those mentioned in 01 04 07
01 05	**drilling muds and other drilling wastes**
01 05 04	freshwater drilling muds and wastes
01 05 07	barite-containing drilling muds and wastes other than those mentioned in 01 05 05 and 01 05 06
01 05 08	chloride-containing drilling muds and wastes other than those mentioned in 01 05 05 and 01 05 06
02	**Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing**
02 01	**wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing**
02 01 01	sludges from washing and cleaning
02 01 02	animal-tissue waste
02 01 03	plant-tissue waste
02 01 04	waste plastics (except packaging)
02 01 06	animal faeces, urine and manure (including spoiled straw), effluent, collected separately and treated off-site
02 01 07	wastes from forestry
02 01 09	agrochemical waste other than those mentioned in 02 01 08
02 01 10	waste metal
02 02	**wastes from the preparation and processing of meat, fish and other foods of animal origin**

Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste	
Waste code	**Description**
02 02 01	sludges from washing and cleaning
02 02 02	animal-tissue waste
02 02 03	materials unsuitable for consumption or processing
02 02 04	sludges from on-site effluent treatment
02 03	**wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation**
02 03 01	sludges from washing, cleaning, peeling, centrifuging and separation
02 03 02	wastes from preserving agents
02 03 03	wastes from solvent extraction
02 03 04	materials unsuitable for consumption or processing
02 03 05	sludges from on-site effluent treatment
02 04	**wastes from sugar processing**
02 04 01	soil from cleaning and washing beet
02 04 02	off-specification calcium carbonate
02 04 03	sludges from on-site effluent treatment
02 05	**wastes from the dairy products industry**
02 05 01	materials unsuitable for consumption or processing
02 05 02	sludges from on-site effluent treatment
02 06	**wastes from the baking and confectionery industry**
02 06 01	materials unsuitable for consumption or processing
02 06 02	wastes from preserving agents
02 06 03	sludges from on-site effluent treatment
02 07	**wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)**
02 07 01	wastes from washing, cleaning and mechanical reduction of raw materials
02 07 02	wastes from spirits distillation
02 07 03	wastes from chemical treatment
02 07 04	materials unsuitable for consumption or processing
02 07 05	sludges from on-site effluent treatment
03	**Wastes from wood processing and the production of panels and furniture, pulp, paper and cardboard**
03 01	**wastes from wood processing and the production of panels and furniture**
03 01 01	waste bark and cork
03 01 05	sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04
03 03	**wastes from pulp, paper and cardboard production and processing**
03 03 01	waste bark and wood
03 03 02	green liquor sludge (from recovery of cooking liquor)
03 03 05	de-inking sludges from paper recycling

Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste	
Waste code	**Description**
03 03 07	mechanically separated rejects from pulping of waste paper and cardboard
03 03 08	wastes from sorting of paper and cardboard destined for recycling
03 03 09	lime mud waste
03 03 10	fibre rejects, fibre-, filler- and coating-sludges from mechanical separation
03 03 11	sludges from on-site effluent treatment other than those mentioned in 03 03 10
04	**Wastes from the leather, fur and textile industries**
04 01	**wastes from the leather and fur industry**
04 01 01	fleshings and lime split wastes
04 01 02	liming waste
04 01 06	sludges, in particular from on-site effluent treatment containing chromium
04 01 07	sludges, in particular from on-site effluent treatment free of chromium
04 01 08	waste tanned leather (blue sheetings, shavings, cuttings, buffing dust) containing chromium
04 01 09	wastes from dressing and finishing
04 02	**wastes from the textile industry**
04 02 09	wastes from composite materials (impregnated textile, elastomer, plastomer)
04 02 10	organic matter from natural products (for example grease, wax)
04 02 15	wastes from finishing other than those mentioned in 04 02 14
04 02 17	dyestuffs and pigments other than those mentioned in 04 02 16
04 02 20	sludges from on-site effluent treatment other than those mentioned in 04 02 19
04 02 21	wastes from unprocessed textile fibres
04 02 22	wastes from processed textile fibres
05	**Wastes from petroleum refining, natural gas purification and pyrolytic treatment of coal**
05 01	**wastes from petroleum refining**
05 01 10	sludges from on-site effluent treatment other than those mentioned in 05 01 09
05 01 13	boiler feedwater sludges
05 01 14	wastes from cooling columns
05 01 16	sulphur-containing wastes from petroleum desulphurisation
05 01 17	bitumen
05 06	**wastes from the pyrolytic treatment of coal**
05 06 04	waste from cooling columns
05 07	**wastes from natural gas purification and transportation**
05 07 02	wastes containing sulphur
06	**Wastes from inorganic chemical processes**
06 03	**wastes from the MFSU of salts and their solutions and metallic oxides**
06 03 14	solid salts and solutions other than those mentioned in 06 03 11 and 06 03 13
06 03 16	metallic oxides other than those mentioned in 06 03 15
06 05	**sludges from on-site effluent treatment**

Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste	
Waste code	**Description**
06 05 03	sludges from on-site effluent treatment other than those mentioned in 06 05 02
06 06	**wastes from the MFSU of sulphur chemicals, sulphur chemical processes and desulphurisation processes**
06 06 03	wastes containing sulphides other than those mentioned in 06 06 02
06 09	**wastes from the MSFU of phosphorous chemicals and phosphorous chemical processes**
06 09 02	phosphorous slag
06 09 04	calcium-based reaction wastes other than those mentioned in 06 09 03
06 11	**wastes from the manufacture of inorganic pigments and opacificiers**
06 11 01	calcium-based reaction wastes from titanium dioxide production
06 13	**wastes from inorganic chemical processes not otherwise specified**
06 13 03	carbon black
07	**Wastes from organic chemical processes**
07 01	**wastes from the manufacture, formulation, supply and use (MFSU) of basic organic chemicals**
07 01 12	sludges from on-site effluent treatment other than those mentioned in 07 01 11
07 02	**wastes from the MFSU of plastics, synthetic rubber and man-made fibres**
07 02 12	sludges from on-site effluent treatment other than those mentioned in 07 02 11
07 02 13	waste plastic
07 02 15	wastes from additives other than those mentioned in 07 02 14
07 02 17	waste containing silicones other than those mentioned in 07 02 16
07 03	**wastes from the MFSU of organic dyes and pigments (except 06 11)**
07 03 12	sludges from on-site effluent treatment other than those mentioned in 07 03 11
07 04	**wastes from the MFSU of organic plant protection products (except 02 01 08 and 02 01 09), wood preserving agents (except 03 02) and other biocides**
07 04 12	sludges from on-site effluent treatment other than those mentioned in 07 04 11
07 05	**wastes from the MFSU of pharmaceuticals**
07 05 12	sludges from on-site effluent treatment other than those mentioned in 07 05 11
07 05 14	solid wastes other than those mentioned in 07 05 13
07 06	**wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics**
07 06 12	sludges from on-site effluent treatment other than those mentioned in 07 06 11
07 07	**wastes from the MFSU of fine chemicals and chemical products not otherwise specified**
07 07 12	sludges from on-site effluent treatment other than those mentioned in 07 07 11
08	**Wastes from the manufacture, formulation, supply and use (MFSU) of coatings (paints, varnishes and vitreous enamels), adhesives, sealants and printing inks**
08 01	**wastes from MFSU and removal of paint and varnish**
08 01 12	waste paint and varnish other than those mentioned in 08 01 11
08 01 14	sludges from paint or varnish other than those mentioned in 08 01 13

Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste	
Waste code	**Description**
08 01 16	aqueous sludges containing paint or varnish other than those mentioned in 08 01 15
08 01 18	wastes from paint or varnish removal other than those mentioned in 08 01 17
08 02	**wastes from MFSU of other coatings (including ceramic materials)**
08 02 01	waste coating powders
08 02 02	aqueous sludges containing ceramic materials
08 03	**wastes from MFSU of printing inks**
08 03 07	aqueous sludges containing ink
08 03 13	waste ink other than those mentioned in 08 03 12
08 03 15	ink sludges other than those mentioned in 08 03 14
08 03 18	waste printing toner other than those mentioned in 08 03 17
08 04	**wastes from MFSU of adhesives and sealants (including water proofing products)**
08 04 10	waste adhesives and sealants other than those mentioned in 08 04 09
08 04 12	adhesive and sealant sludges other than those mentioned in 08 04 11
08 04 14	aqueous sludges containing adhesives or sealants other than those mentioned in 08 04 13
09	**Wastes from the photographic industry**
09 01	**wastes from the photographic industry**
09 01 07	photographic film and paper containing silver or silver compounds
09 01 08	photographic film and paper free of silver or silver compounds
09 01 10	single-use cameras without batteries
09 01 12	single-use cameras containing batteries other than those mentioned in 09 01 11
10	**Wastes from thermal processes**
10 01	**wastes from power stations and other combustion plants (except 19)**
10 01 01	bottom ash, slag and boiler dust (excluding boiler dust mentioned in 10 01 04)
10 01 02	coal fly ash
10 01 03	fly ash from peat and untreated wood
10 01 05	calcium-based reaction wastes from flue-gas desulphurisation in solid form
10 01 07	calcium-based reaction wastes from flue-gas desulphurisation in sludge form
10 01 15	bottom ash, slag and boiler dust from co-incineration other than those mentioned in 10 01 14
10 01 17	fly ash from co-incineration other than those mentioned in 10 01 16
10 01 19	wastes from gas cleaning other than those mentioned in 10 01 05, 10 01 07 and 10 01 18
10 01 21	sludges from on-site effluent treatment other than those mentioned in 10 01 20
10 01 23	aqueous sludges from boiler cleansing other than those mentioned in 10 01 22
10 01 24	sands from fluidised beds
10 01 25	wastes from fuel storage and preparation of coal-fired power plants
10 01 26	wastes from cooling-water treatment

Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste	
Waste code	**Description**
10 02	**wastes from the iron and steel industry**
10 02 01	wastes from the processing of slag
10 02 02	unprocessed slag
10 02 08	solid wastes from gas treatment other than those mentioned in 10 02 07
10 02 10	mill scales
10 02 12	wastes from cooling-water treatment other than those mentioned in 10 02 11
10 02 14	sludges and filter cakes from gas treatment other than those mentioned in 10 02 13
10 02 15	other sludges and filter cakes
10 03	**wastes from aluminium thermal metallurgy**
10 03 02	anode scraps
10 03 05	waste alumina
10 03 16	skimmings other than those mentioned in 10 03 15
10 03 18	carbon-containing wastes from anode manufacture other than those mentioned in 10 03 17
10 03 20	flue-gas dust other than those mentioned in 10 03 19
10 03 22	other particulates and dust (including ball-mill dust) other than those mentioned in 10 03 21
10 03 24	solid wastes from gas treatment other than those mentioned in 10 03 23
10 03 26	sludges and filter cakes from gas treatment other than those mentioned in 10 03 25
10 03 28	wastes from cooling-water treatment other than those mentioned in 10 03 27
10 03 30	wastes from treatment of salt slags and black drosses other than those mentioned in 10 03 29
10 04	**wastes from lead thermal metallurgy**
10 04 10	wastes from cooling-water treatment other than those mentioned in 10 04 09
10 05	**wastes from zinc thermal metallurgy**
10 05 01	slags from primary and secondary production
10 05 04	other particulates and dust
10 05 09	wastes from cooling-water treatment other than those mentioned in 10 05 08
10 05 11	dross and skimmings other than those mentioned in 10 05 10
10 06	**wastes from copper thermal metallurgy**
10 06 01	slags from primary and secondary production
10 06 02	dross and skimmings from primary and secondary production
10 06 04	other particulates and dust
10 06 10	wastes from cooling-water treatment other than those mentioned in 10 06 09
10 07	**wastes from silver, gold and platinum thermal metallurgy**
10 07 01	slags from primary and secondary production
10 07 02	dross and skimmings from primary and secondary production
10 07 03	solid wastes from gas treatment
10 07 04	other particulates and dust

Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste	
Waste code	**Description**
10 07 05	sludges and filter cakes from gas treatment
10 07 08	wastes from cooling-water treatment other than those mentioned in 10 07 07
10 08	**wastes from other non-ferrous thermal metallurgy**
10 08 04	particulates and dust
10 08 09	other slags
10 08 11	dross and skimmings other than those mentioned in 10 08 10
10 08 13	carbon-containing wastes from anode manufacture other than those mentioned in 10 08 12
10 08 14	anode scrap
10 08 16	flue-gas dust other than those mentioned in 10 08 15
10 08 18	sludges and filter cakes from flue-gas treatment other than those mentioned in 10 08 17
10 08 20	wastes from cooling-water treatment other than those mentioned in 10 08 19
10 09	**wastes from casting of ferrous pieces**
10 09 03	furnace slag
10 09 06	casting cores and moulds which have not undergone pouring other than those mentioned in 10 09 05
10 09 08	casting cores and moulds which have undergone pouring other than those mentioned in 10 09 07
10 09 10	flue-gas dust other than those mentioned in 10 09 09
10 09 12	other particulates other than those mentioned in 10 09 11
10 09 14	waste binders other than those mentioned in 10 09 13
10 09 16	waste crack-indicating agent other than those mentioned in 10 09 15
10 10	**wastes from casting of non-ferrous pieces**
10 10 03	furnace slag
10 10 06	casting cores and moulds which have not undergone pouring, other than those mentioned in 10 10 05
10 10 08	casting cores and moulds which have undergone pouring, other than those mentioned in 10 10 07
10 10 10	flue-gas dust other than those mentioned in 10 10 09
10 10 12	other particulates other than those mentioned in 10 10 11
10 10 14	waste binders other than those mentioned in 10 10 13
10 10 16	waste crack-indicating agent other than those mentioned in 10 10 15
10 11	**wastes from manufacture of glass and glass products**
10 11 03	waste glass-based fibrous materials
10 11 05	particulates and dust
10 11 10	waste preparation mixture before thermal processing, other than those mentioned in 10 11 09
10 11 12	waste glass other than those mentioned in 10 11 11
10 11 14	glass-polishing and -grinding sludge other than those mentioned in 10 11 13

Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste	
Waste code	**Description**
10 11 16	solid wastes from flue-gas treatment other than those mentioned in 10 11 15
10 11 18	sludges and filter cakes from flue-gas treatment other than those mentioned in 10 11 17
10 11 20	solid wastes from on-site effluent treatment other than those mentioned in 10 11 19
10 12	**wastes from manufacture of ceramic goods, bricks, tiles and construction products**
10 12 01	waste preparation mixture before thermal processing
10 12 03	particulates and dust
10 12 05	sludges and filter cakes from gas treatment
10 12 06	discarded moulds
10 12 08	waste ceramics, bricks, tiles and construction products (after thermal processing)
10 12 10	solid wastes from gas treatment other than those mentioned in 10 12 09
10 12 12	wastes from glazing other than those mentioned in 10 12 11
10 12 13	sludge from on-site effluent treatment
10 13	**wastes from manufacture of cement, lime and plaster and articles and products made from them**
10 13 01	waste preparation mixture before thermal processing
10 13 04	wastes from calcination and hydration of lime
10 13 06	particulates and dust (except 10 13 12 and 10 13 13)
10 13 07	sludges and filter cakes from gas treatment
10 13 10	wastes from asbestos-cement manufacture other than those mentioned in 10 13 09
10 13 11	wastes from cement-based composite materials other than those mentioned in 10 13 09 and 10 13 10
10 13 13	solid wastes from gas treatment other than those mentioned in 10 13 12
10 13 14	waste concrete and concrete sludge
11	**Wastes from chemical surface treatment and coating of metals and other materials; non-ferrous hydro-metallurgy**
11 01	**wastes from chemical surface treatment and coating of metals and other materials (for example galvanic processes, zinc coating processes, pickling processes, etching, phosphating, alkaline degreasing, anodising)**
11 01 10	sludges and filter cakes other than those mentioned in 11 01 09
11 01 14	degreasing wastes other than those mentioned in 11 01 13
11 02	**wastes from non-ferrous hydrometallurgical processes**
11 02 03	wastes from the production of anodes for aqueous electrolytical processes
11 02 06	wastes from copper hydrometallurgical processes other than those mentioned in 11 02 05
11 05	**wastes from hot galvanising processes**
11 05 01	hard zinc
11 05 02	zinc ash
12	**Wastes from shaping and physical and mechanical surface treatment of metals and plastics**

Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste	
Waste code	**Description**
12 01	**wastes from shaping and physical and mechanical surface treatment of metals and plastics**
12 01 01	ferrous metal filings and turnings
12 01 02	ferrous metal dust and particles
12 01 03	non-ferrous metal filings and turnings
12 01 04	non-ferrous metal dust and particles
12 01 05	plastics shavings and turnings
12 01 13	welding wastes
12 01 15	machining sludges other than those mentioned in 12 01 14
12 01 17	waste blasting material other than those mentioned in 12 01 16
12 01 21	spent grinding bodies and grinding materials other than those mentioned in 12 01 20
15	**Waste packaging, absorbents, wiping cloths, filter materials and protective clothing not otherwise specified**
15 01	**packaging (including separately collected municipal packaging waste)**
15 01 01	paper and cardboard packaging
15 01 02	plastic packaging
15 01 03	wooden packaging
15 01 04	metallic packaging
15 01 05	composite packaging
15 01 06	mixed packaging
15 01 07	glass packaging
15 01 09	textile packaging
15 02	**absorbents, filter materials, wiping cloths and protective clothing**
15 02 03	absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02
16	**Wastes not otherwise specified in the list**
16 01	**end-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)**
16 01 03	end-of-life tyres
16 01 12	brake pads other than those mentioned in 16 01 11
16 01 17	ferrous metal
16 01 18	non-ferrous metal
16 01 19	plastic
16 01 20	glass
16 02	**wastes from electrical and electronic equipment**
16 02 14	discarded equipment other than those mentioned in 16 02 09 to 16 02 13
16 02 16	components removed from discarded equipment other than those mentioned in 16 02 15

Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste	
Waste code	**Description**
16 03	**off-specification batches and unused products**
16 03 04	inorganic wastes other than those mentioned in 16 03 03
16 03 06	organic wastes other than those mentioned in 16 03 05
16 08	**spent catalysts**
16 08 01	spent catalysts containing gold, silver, rhenium, rhodium, palladium, iridium or platinum (except 16 08 07)
16 08 03	spent catalysts containing transition metals or transition metal compounds not otherwise specified
16 11	**waste linings and refractories**
16 11 02	carbon-based linings and refractories from metallurgical processes others than those mentioned in 16 11 01
16 11 04	other linings and refractories from metallurgical processes other than those mentioned in 16 11 03
16 11 06	linings and refractories from non-metallurgical processes others than those mentioned in 16 11 05
17	**Construction and demolition wastes (including excavated soil from contaminated sites)**
17 01	**concrete, bricks, tiles and ceramics**
17 01 01	concrete
17 01 02	bricks
17 01 03	tiles and ceramics
17 01 07	mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
17 02	**wood, glass and plastic**
17 02 01	wood
17 02 02	glass
17 02 03	plastic
17 03	**bituminous mixtures, coal tar and tarred products**
17 03 02	bituminous mixtures other than those mentioned in 17 03 01
17 04	**metals (including their alloys)**
17 04 01	copper, bronze, brass
17 04 02	aluminium
17 04 03	lead
17 04 04	zinc
17 04 05	iron and steel
17 04 06	tin
17 04 07	mixed metals
17 04 11	cables other than those mentioned in 17 04 10
17 05	**soil (including excavated soil from contaminated sites), stones and dredging spoil**
17 05 04	soil and stones other than those mentioned in 17 05 03

Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste	
Waste code	**Description**
17 05 06	dredging spoil other than those mentioned in 17 05 05
17 05 08	track ballast other than those mentioned in 17 05 07
17 06	**insulation materials and asbestos-containing construction materials**
17 06 04	insulation materials other than those mentioned in 17 06 01 and 17 06 03
17 09	**other construction and demolition wastes**
17 09 04	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03
18	**Wastes from human or animal health care and/or related research (except kitchen and restaurant wastes not arising from immediate health care)**
18 01	**wastes from natal care, diagnosis, treatment or prevention of disease in humans**
18 01 04	wastes whose collection and disposal is not subject to special requirements in order to prevent infection (for example dressings, plaster casts, linen, disposable clothing, diapers)
18 02	**wastes from research, diagnosis, treatment or prevention of disease involving animals**
18 02 03	wastes whose collection and disposal is not subject to special requirements in order to prevent infection
18 02 06	chemicals other than those mentioned in 18 02 05
19	**Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use**
19 01	**wastes from incineration or pyrolysis of waste**
19 01 02	ferrous materials removed from bottom ash
19 01 12	bottom ash and slag other than those mentioned in 19 01 11
19 01 14	fly ash other than those mentioned in 19 01 13
19 01 16	boiler dust other than those mentioned in 19 01 15
19 01 18	pyrolysis wastes other than those mentioned in 19 01 17
19 01 19	sands from fluidised beds
19 02	**wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)**
19 02 03	premixed wastes composed only of non-hazardous wastes
19 02 06	sludges from physico/chemical treatment other than those mentioned in 19 02 05
19 02 10	combustible wastes other than those mentioned in 19 02 08 and 19 02 09
19 03	**stabilised/solidified wastes**
19 03 05	stabilised wastes other than those mentioned in 19 03 04
19 03 07	solidified wastes other than those mentioned in 19 03 06
19 04	**vitrified waste and wastes from vitrification**
19 04 01	vitrified waste
19 05	**wastes from aerobic treatment of solid wastes**
19 05 01	non-composted fraction of municipal and similar wastes
19 05 02	non-composted fraction of animal and vegetable waste

Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste	
Waste code	**Description**
19 05 03	off-specification compost
19 06	**wastes from anaerobic treatment of waste**
19 06 04	digestate from anaerobic treatment of municipal waste
19 06 06	digestate from anaerobic treatment of animal and vegetable waste
19 08	**wastes from waste water treatment plants not otherwise specified**
19 08 01	screenings
19 08 02	waste from desanding
19 08 05	sludges from treatment of urban waste water
19 08 09	grease and oil mixture from oil/water separation containing only edible oil and fats
19 08 12	sludges from biological treatment of industrial waste water other than those mentioned in 19 08 11
19 08 14	sludges from other treatment of industrial waste water other than those mentioned in 19 08 13
19 09	**wastes from the preparation of water intended for human consumption or water for industrial use**
19 09 01	solid waste from primary filtration and screenings
19 09 02	sludges from water clarification
19 09 03	sludges from decarbonation
19 09 04	spent activated carbon
19 09 05	saturated or spent ion exchange resins
19 09 06	solutions and sludges from regeneration of ion exchangers
19 10	**wastes from shredding of metal-containing wastes**
19 10 01	iron and steel waste
19 10 02	non-ferrous waste
19 10 04	fluff-light fraction and dust other than those mentioned in 19 10 03
19 10 06	other fractions other than those mentioned in 19 10 05
19 11	**wastes from oil regeneration**
19 11 06	sludges from on-site effluent treatment other than those mentioned in 19 11 05
19 12	**wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12 01	paper and cardboard
19 12 02	ferrous metal
19 12 03	non-ferrous metal
19 12 04	plastic and rubber
19 12 05	glass
19 12 07	wood other than that mentioned in 19 12 06
19 12 08	textiles
19 12 09	minerals (for example sand, stones)
19 12 10	combustible waste (refuse derived fuel)

Table S2.1 Permitted waste types for disposal at a landfill for non-hazardous waste	
Waste code	**Description**
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11
19 13	**wastes from soil and groundwater remediation**
19 13 02	solid wastes from soil remediation other than those mentioned in 19 13 01
19 13 04	sludges from soil remediation other than those mentioned in 19 13 03
19 13 06	sludges from groundwater remediation other than those mentioned in 19 13 05
20	**Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions**
20 01	**separately collected fractions (except 15 01)**
20 01 01	paper and cardboard
20 01 02	glass
20 01 08	biodegradable kitchen and canteen waste
20 01 10	clothes
20 01 11	textiles
20 01 25	edible oil and fat
20 01 28	paint, inks, adhesives and resins other than those mentioned in 20 01 27
20 01 30	detergents other than those mentioned in 20 01 29
20 01 36	discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35
20 01 38	wood other than that mentioned in 20 01 37
20 01 39	plastics
20 01 40	metals
20 01 41	wastes from chimney sweeping
20 02	**garden and park wastes (including cemetery waste)**
20 02 01	biodegradable waste
20 02 02	soil and stones
20 02 03	other non-biodegradable wastes
20 03	**other municipal wastes**
20 03 01	mixed municipal waste
20 03 02	waste from markets
20 03 03	street-cleaning residues
20 03 04	septic tank sludge
20 03 06	waste from sewage cleaning
20 03 07	bulky waste

Table S2.2 Permitted waste types for restoration	
Waste code	**Description**
01	**Wastes resulting from exploration, mining, quarrying, and physical and chemical treatment of minerals**
01 04	wastes from physical and chemical processing of non-metalliferous minerals
01 04 08	waste gravel and crushed rocks other than those mentioned in 01 04 07
01 04 09	waste sand and clays
02	**Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing**
02 04	wastes from sugar processing
02 04 01	soil from cleaning and washing beet
03	**Wastes from wood processing and the production of panels and furniture, pulp, paper and cardboard**
03 03	wastes from pulp, paper and cardboard production and processing
03 03 05	de-inking sludges from paper recycling
03 03 09	lime mud waste
17	**Construction and demolition wastes (including excavated soil from contaminated sites)**
17 05	soil (including excavated soil from contaminated sites), stones and dredging spoil
17 05 04	soil and stones other than those mentioned in 17 05 03
17 05 06	dredging spoil other than those mentioned in 17 05 05
19	**Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use**
19 05	wastes from aerobic treatment of solid wastes
19 05 03	off-specification compost
19 08	wastes from waste water treatment plants not otherwise specified
19 08 05	sludges from treatment of urban waste water
19 09	wastes from the preparation of water intended for human consumption or water for industrial use
19 09 02	sludges from water clarification
19 12	wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified
19 12 09	minerals (for example sand, stones)
19 13	wastes from soil and groundwater remediation
19 13 02	solid wastes from soil remediation other than those mentioned in 19 13 01
19 13 04	sludges from soil remediation other than those mentioned in 19 13 03
20	**Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions**
20 02	garden and park wastes (including cemetery waste)
20 02 02	soil and stones

Table S2.3a Permitted waste types for Physico-Chemical Treatment (Activity A5 in Table S1.1) at Soil Treatment Facility	
Maximum Quantity	**Annual throughput shall not exceed 50,000 tonnes for activities AR3, AR4, AR5, AR6, AR7, AR8, AR16**
Waste code	**Description**
01	**Wastes resulting from exploration, mining, quarrying, and physical and chemical treatment of minerals**
01 04	**wastes from physical and chemical processing of non-metalliferous minerals**
01 04 09	waste sand and clays
01 05	**Drilling muds and other wastes**
01 05 05*	oil-containing drilling muds and wastes
01 05 06*	drilling muds and other drilling wastes containing hazardous substances
05	**Wastes from petroleum refining, natural gas purification and pyrolytic treatment of coal**
05 01	**wastes from petroleum refining**
05 01 05*	oil spills
13	**Oil wastes and wastes of liquid fuels (except edible oils, and those in chapters 05, 12 and 19)**
13 05	**Oil/water separator contents**
13 05 01*	solids from grit chambers and oil/water separators
13 05 02*	sludges from oil/water separators
13 05 03*	interceptor sludges
13 05 08*	mixtures of wastes from grit chambers and oil/water separators
17	**Construction and demolitions wastes (including excavated soil from contaminated sites)**
17 02	**Wood, glass and plastic**
17 02 01	wood
17 05	**Soil (including excavated soil from contaminated sites), stones and dredging spoil**
17 05 03*	soil and stones containing hazardous substances
17 05 04	soil and stones other than those mentioned in 17 05 03
17 05 05*	dredging spoil containing hazardous substances
17 05 06	dredging spoil other than those mentioned in 17 05 05
17 05 07*	track ballast containing hazardous substances
17 05 08	track ballast other than those mentioned in 17 05 07
19	**Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use**
19 02	**Wastes from physico/chemical treatment treatments of waste (including dechromatation, decyanidation, neutralisation)**
19 02 05*	sludges from physico/chemical treatment containing hazardous substances – wastes suitable for biological treatment only
19 02 06	sludges from physico/chemical treatment other than those mentioned in 19 02 05 – wastes suitable for biological treatment only

Table S2.3a Permitted waste types for Physico-Chemical Treatment (Activity A5 in Table S1.1) at Soil Treatment Facility	
Maximum Quantity	**Annual throughput shall not exceed 50,000 tonnes for activities AR3, AR4, AR5, AR6, AR7, AR8, AR16**
Waste code	**Description**
19 05	**wastes from aerobic treatment of solid wastes**
19 05 03	off-specification compost
19 08	**wastes from waste water treatment plants not otherwise specified**
19 08 02	waste from desanding
19 08 13*	sludges containing hazardous substances from other treatment of industrial waste water
19 08 14	sludges from other treatment of industrial waste water other than those mentioned in 19 08 13
19 12	**wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12 07	wood other than those mentioned in 19 12 06
19 13	**Wastes from soil and groundwater remediation**
19 13 01*	solid wastes from soil remediation containing hazardous substances
19 13 02	solid wastes from soil remediation other than those mentioned in 19 13 01
19 13 03*	sludges from soil remediation containing hazardous substances
19 13 04	sludges from soil remediation other than those mentioned in 19 13 03
20	**Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions**
20 01	**Separately collected fractions (except 15 01)**
20 01 38	wood other than that mentioned in 20 01 37
20 02	**Garden and park wastes (including cemetery waste)**
20 02 01	biodegradable waste
20 02 02	soil and stones
20 03	**Other municipal wastes**
20 03 03	street cleaning residues

Table S2.3b Permitted waste types for Biological Treatment (Activity A3/A4 in Table S1.1) at Soil Treatment Facility	
Maximum Quantity	**Annual throughput shall not exceed 50,000 tonnes for activities AR3, AR4, AR5, AR6, AR7, AR8, AR16**
Waste code	**Description**
01	**Wastes resulting from exploration, mining, quarrying, and physical and chemical treatment of minerals**
01 04	**wastes from physical and chemical processing of non-metalliferous minerals**
01 04 09	waste sand and clays
01 05	**Drilling muds and other wastes**
01 05 05*	oil-containing drilling muds and wastes
01 05 06*	drilling muds and other drilling wastes containing hazardous substances
05	**Wastes from petroleum refining, natural gas purification and pyrolytic treatment of coal**
05 01	**wastes from petroleum refining**
05 01 05*	oil spills
13	**Oil wastes and wastes of liquid fuels (except edible oils, and those in chapters 05, 12 and 19)**
13 05	**Oil/water separator contents**
13 05 01*	solids from grit chambers and oil/water separators
13 05 02*	sludges from oil/water separators
13 05 03*	interceptor sludges
13 05 08*	mixtures of wastes from grit chambers and oil/water separators
17	**Construction and demolitions wastes (including excavated soil from contaminated sites)**
17 02	**Wood, glass and plastic**
17 02 01	wood
17 05	**Soil (including excavated soil from contaminated sites), stones and dredging spoil**
17 05 03*	soil and stones containing hazardous substances
17 05 04	soil and stones other than those mentioned in 17 05 03
17 05 05*	dredging spoil containing hazardous substances
17 05 06	dredging spoil other than those mentioned in 17 05 05
17 05 07*	track ballast containing hazardous substances
17 05 08	track ballast other than those mentioned in 17 05 07
19	**Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use**
19 02	**Wastes from physico/chemical treatment treatments of waste (including dechromatation, decyanidation, neutralisation)**
19 02 05*	sludges from physico/chemical treatment containing hazardous substances – wastes suitable for biological treatment only
19 02 06	sludges from physico/chemical treatment other than those mentioned in 19 02 05 – wastes suitable for biological treatment only
19 05	**wastes from aerobic treatment of solid wastes**

Table S2.3b Permitted waste types for Biological Treatment (Activity A3/A4 in Table S1.1) at Soil Treatment Facility	
Maximum Quantity	**Annual throughput shall not exceed 50,000 tonnes for activities AR3, AR4, AR5, AR6, AR7, AR8, AR16**
Waste code	**Description**
19 05 03	off-specification compost
19 08	**wastes from waste water treatment plants not otherwise specified**
19 08 02	waste from desanding
19 08 13*	sludges containing hazardous substances from other treatment of industrial waste water
19 08 14	sludges from other treatment of industrial waste water other than those mentioned in 19 08 13
19 12	**wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12 07	wood other than those mentioned in 19 12 06
19 12 11*	other wastes (including mixtures of materials) from mechanical treatment of waste containing hazardous substances
19 13	**Wastes from soil and groundwater remediation**
19 13 01*	solid wastes from soil remediation containing hazardous substances
19 13 02	solid wastes from soil remediation other than those mentioned in 19 13 01
19 13 03*	sludges from soil remediation containing hazardous substances
19 13 04	sludges from soil remediation other than those mentioned in 19 13 03
20	**Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions**
20 01	**Separately collected fractions (except 15 01)**
20 01 38	wood other than that mentioned in 20 01 37
20 02	**Garden and park wastes (including cemetery waste)**
20 02 01	biodegradable waste
20 03	**Other municipal wastes**
20 03 03	street cleaning residues

Table S2.4 Permitted waste types for Site Treatment Facility for the acceptance of bonded asbestos contaminated soil	
Maximum quantity	**Annual throughput shall not exceed 50,000 tonnes for activities AR3, AR4, AR5, AR6, AR7, AR8, AR16**
Waste code	**Description**
17	**CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITE**
17 05	**soil (including excavated soil from contaminated sites), stones and dredging spoil**

Table S2.4 Permitted waste types for Site Treatment Facility for the acceptance of bonded asbestos contaminated soil	
Maximum quantity	**Annual throughput shall not exceed 50,000 tonnes for activities AR3, AR4, AR5, AR6, AR7, AR8, AR16**
Waste code	**Description**
17	**CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITE**
17 05 03*	soil and stones containing hazardous substances
17 06	**insulation materials and asbestos-containing construction materials**
17 06 05*	other construction materials containing asbestos

Table S2.5 Raw materials and fuels	
Raw materials and fuel description	**Specification**
NPK fertilizers	50 tonnes storage maximum at any one time

Schedule 3 – Emissions and monitoring

Table S3.1 Leachate level limits and monitoring requirements			
Monitoring point reference/Description	**Limit**	**Monitoring frequency**	**Monitoring method**
Phase 1: Two leachate monitoring points in addition to the collection sump for each hydraulically separate cell unless otherwise agreed in writing with the Agency.	3 m above cell base	Monthly	In accordance with Environment Agency document LFTGN02 (February 2003) 'Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water' or such other subsequent guidance as may be agreed in writing with the Environment Agency.
Phase 2: Two leachate monitoring points in addition to the collection sump for each hydraulically separate cell unless otherwise agreed in writing with the Agency.	6 m above cell base		

Table S3.2 Point source emissions to air – emission limits and monitoring requirements						
Emission point Ref. & Location	**Parameter**	**Source**	**Limit (including unit)**	**Reference Period**	**Monitoring Frequency**	**Monitoring Standard or Method**
Engines 1-5 Landfill gas engine on Plan ESID4	Oxides of Nitrogen	Gas utilisation plant	650 mg/m^3	Hourly mean	Annually	As per M2 or such other subsequent guidance as may be agreed in writing with the Environment Agency.
	CO		1500 mg/m^3			
	Total VOCs		1750 mg/m^3			
A1: Flare on plan 116-1-3026/A dated 27/02/2006	Oxides of Nitrogen	Landfill Gas Flares	150 mg/m^3	Hourly mean	Annually	As per M2 or such other subsequent guidance as may be agreed in writing with the Environment Agency. Monitoring is unnecessary where the flare is active for <10% of the year.
	CO		50 mg/m^3			
	Total VOCs		10 mg/m^3			
Biofilter Monitoring Point as shown on plan 3695-CAU-XX-XX-DR-V-1801	Ammonia	Biofilter at Soil Treatment Facility	20 mg/m^3	Hourly mean	Every six months	As agreed in writing with the Environment Agency.
	TVOCs		40 mg/m^3			
	Hydrogen Sulphide		No Limit			

Table S3.3 Point source emissions to water (other than sewer) – emission limits and monitoring requirements						
Emission point Ref. & Location	**Parameter**	**Source**	**Limit (incl unit)**	**Reference Period**	**Monitoring Frequency**	**Monitoring Standard or Method**
W1 On Plan ESID14 dated August 2007	Suspended Solids	Site drainage from the site surface water drainage system	75 mg/l	Spot Sample	Monthly	As specified in Environment Agency Guidance TGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), risk assessments for your environmental permit (www.gov.uk) or such other subsequent guidance as may be agreed in writing with the Environment Agency
	Oil or grease		No visible discharge	Spot Sample	Monthly	
	pH		>6 and <9	Spot Sample	Monthly	
	Volume		750 m^3/day	24 hours	Monthly	
	Flow rate		20 l/s	Instantaneous	Monthly	
	Conductivity		No limit set	Spot Sample	Monthly	
	Ammoniacal Nitrogen		No limit set	Spot Sample	Monthly	
	Chloride		No limit set	Spot Sample	Monthly	
	DO		No limit set	Spot Sample	Monthly	
	Sulphate		No limit set	Spot Sample	Quarterly	
	Alkalinity (as $CaCO_{3)}$		No limit set	Spot Sample	Quarterly	
	COD		No limit set	Spot Sample	Quarterly	
	TON		No limit set	Spot Sample	Quarterly	
	Na		No limit set	Spot Sample	Quarterly	
	K		No limit set	Spot Sample	Quarterly	
	Ca		No limit set	Spot Sample	Quarterly	

Table S3.3 Point source emissions to water (other than sewer) – emission limits and monitoring requirements						
Emission point Ref. & Location	**Parameter**	**Source**	**Limit (incl unit)**	**Reference Period**	**Monitoring Frequency**	**Monitoring Standard or Method**
	Mg		No limit set	Spot Sample	Quarterly	
	Cr		No limit set	Spot Sample	Quarterly	
	Cd		No limit set	Spot Sample	Quarterly	
	Mn		No limit set	Spot Sample	Quarterly	
	Fe		No limit set	Spot Sample	Quarterly	
	Cu		No limit set	Spot Sample	Quarterly	
	Ni		No limit set	Spot Sample	Quarterly	
	Zn		No limit set	Spot Sample	Quarterly	
	Pb		No limit set	Spot Sample	Quarterly	
	Hg		No limit set	Spot Sample	Quarterly	
	List 1 substances identified in leachate, unless otherwise agreed in writing with the Environment Agency		No limit set	Spot Sample	Annually	

Table S3.4 Point source emissions to sewer, effluent treatment plant or by tankering or other transfer off-site – emission limits and monitoring requirements						
Emission point Ref. & Location	**Parameter**	**Source**	**Limit (including unit)**	**Reference Period**	**Monitoring Frequency**	**Monitoring Standard or Method**
Treated Process Water Monitoring Point as shown on Plan 3695-CAU-XX-XX-DR-V-1801	No parameters	Soil Treatment Facility	No limits	-	-	As agreed in writing with the Environment Agency

Table S3.5 Groundwater – emission limits and monitoring requirements					
Monitoring point reference	**Parameter**	**Limit (including unit)**	**Reference Period**	**Monitoring frequency**	**Monitoring standard or method**
GW5.01 as detailed on drawing number 124E232 dated February 2013	Ammoniacal Nitrogen	1.41 mg/l[1]	Spot Sample	Monthly	As specified in Environment Agency Guidance TGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), risk assessments for your environmental permit (www.gov.uk) or such other subsequent guidance as may be agreed in writing with the Environment Agency
	Chloride	225 mg/l[1]		Monthly	
	Mecoprop	0.04 µg/l[1]		Quarterly	
	Xylene	3.0 µg/l[1]		Quarterly	
	Trichlorobenzene	0.01 µg/l[1]		Quarterly	
GW08 as detailed on drawing number 124E232 dated February 2013	Ammoniacal Nitrogen	1.80 mg/l		Monthly	
	Chloride	410 mg/l		Monthly	
	Mecoprop	0.04 µg/l		Quarterly	
	Xylene	3.0 µg/l		Quarterly	
	Trichlorobenzene	0.01 µg/l		Quarterly	
1. Unless otherwise agreed in writing by the Environment Agency					

Table S3.6 Landfill gas in external monitoring boreholes – limits and monitoring requirements				
Monitoring point Ref. /description	**Parameter**	**Limit (including units)**	**Monitoring frequency**	**Monitoring standard or method**
BH1, BH2, BH5-BH18, BH22-BH35 as detailed on drawing no. 124E232 dated February 2013	Methane	1% v/v	Monthly	As per LFTGN03 (Sept 2004) or such other subsequent guidance as may be agreed in writing with the Environment Agency. Record whether the ground is: waterlogged frozen snow covered
	Carbon Dioxide	1.5% v/v		
	Oxygen	No limit		
	Atmospheric pressure	No limit		
	Differential Pressure	No limit		
BH3, BH3.01, BH3.02, BH4.00, BH4.01 as detailed on drawing no. 124E232 dated February 2013	Methane	1% v/v		
	Carbon Dioxide	2% v/v		
	Oxygen	No limit		
	Atmospheric pressure	No limit		
	Differential Pressure	No limit		
BH4.02 as detailed on drawing no. 124E232 dated February 2013	Methane	1% v/v		
	Carbon Dioxide	11.5% v/v		
	Oxygen	No limit		
	Atmospheric pressure	No limit		
	Differential Pressure	No limit		
BH36, BH37, BH38.1, BH39.1, BH40.1, BH41-BH44 as detailed on drawing no. 124E232 dated February 2013	Methane	1% v/v		
	Oxygen	No limit		
	Atmospheric pressure	No limit		
	Differential Pressure	No limit		
BH36 and BH37	Carbon Dioxide	1.5% v/v		
BH38.1	Carbon Dioxide	2.6% v/v		
BH39.1	Carbon Dioxide	5.5% v/v		

Table S3.6 Landfill gas in external monitoring boreholes – limits and monitoring requirements				
Monitoring point Ref. /description	**Parameter**	**Limit (including units)**	**Monitoring frequency**	**Monitoring standard or method**
BH40.1	Carbon Dioxide	3.3% v/v	Monthly	As per LFTGN03 (Sept 2004) or such other subsequent guidance as may be agreed in writing with the Environment Agency. Record whether the ground is: waterlogged frozen snow covered
BH41	Carbon Dioxide	3.0% v/v		
BH42	Carbon Dioxide	2.7% v/v		
BH43	Carbon Dioxide	2.2% v/v		
BH44	Carbon Dioxide	2.3% v/v		

Table S3.7 Particulate matter in ambient air - monitoring requirements					
Monitoring Point Ref. /Description	**Parameter**	**Limit**	**Reference Period**	**Monitoring Frequency**	**Monitoring Standard or Method**
Dust monitoring points as detailed on drawing no.ESID14, dated August 2007	Deposited dust	200 mg/m^2/day	24 hours	Monthly	
	Suspended particulate PM10	None set	In accordance with correspondence ref: 402.0197.00423 dated 06/04/2006	In accordance with correspondence ref: 402.0197.00423 dated 06/04/2006	

Table S3.8 Landfill gas emissions from capped surfaces for cells that have accepted non-hazardous biodegradable waste – monitoring requirements			
Monitoring point Ref. /description	**Parameter**	**Monitoring frequency**	**Monitoring Standard or method**
Permanently capped zone	Methane concentration	Every 12 months	As per LFTGN 07 (v2 2010) or such other subsequent guidance as may be agreed in writing with the Environment Agency.

Table S3.8 Landfill gas emissions from capped surfaces for cells that have accepted non-hazardous biodegradable waste – monitoring requirements			
Monitoring point Ref. /description	**Parameter**	**Monitoring frequency**	**Monitoring Standard or method**
Temporarily capped zone	Methane concentration	Every 12 months	As per LFTGN 07 (v2 2010) or such other subsequent guidance as may be agreed in writing with the Environment Agency.
Whole site	Total methane emission	As agreed with the Environment Agency	As per LFTGN 07 (v2 2010) or such other subsequent guidance as may be agreed in writing with the Environment Agency.
Uncapped areas	Methane concentration	Every 12 months	As agreed with the Environment Agency based on the wording of revised LFTGN 07 or landfill sector guidance or such other subsequent guidance as may be agreed in writing with the Environment Agency.

Table S3.9 Groundwater – other monitoring requirements			
Monitoring Point Ref./Description	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**
Up gradient MEPP	Water level, electrical conductivity, chloride, ammoniacal nitrogen, pH,	Quarterly	As specified in Environment Agency Guidance TGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), risk assessments for your environmental permit (www.gov.uk) or such other subsequent guidance as may be agreed in writing with the Environment Agency
	total alkalinity, magnesium, potassium, total sulphates, calcium, sodium, chromium, copper, iron, lead, nickel, zinc, manganese	Annually	
	Hazardous substances	Annually for first six years of operation	
Down or cross gradient MEPP	Water level, electrical conductivity, chloride, ammoniacal nitrogen, pH,	Quarterly	As specified in Environment Agency Guidance TGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), risk assessments for your environmental permit (www.gov.uk) or such other subsequent guidance as may be agreed in writing with the Environment Agency After the initial 6 year monitoring period for hazardous substances, if the results of quarterly or annual monitoring suggest an increase in contamination, the operator shall also undertake a full leachate hazardous substances screen.
	total alkalinity, magnesium, potassium, total sulphates, calcium, sodium, chromium, copper, iron, lead, nickel, zinc, manganese	Annually	
	Hazardous substances detected in leachate	Annually for first six years of operation then every two years	
MEPP	Base of monitoring point (mAoD)	Annually	

Table S3.10 Landfill gas – other monitoring requirements				
Monitoring Point Ref. /Description	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
In waste gas monitoring boreholes or sealed leachate wells or sacrificial gas extraction system	Methane Carbon Dioxide Oxygen Carbon Monoxide Differential pressure Atmospheric pressure	Monthly until gas extraction commences	Calibrated handheld monitoring instrument	For cells or phases which have no active gas extraction. Gas extraction system shall be installed and extraction commenced once monitoring shows onset of methane production in waste at a rate that can be sustainably extracted. Once gas extraction has commenced in a particular cell or phase, there is no longer a requirement to carry out this monitoring.
	Hydrogen sulphide	Quarterly	Calibrated handheld monitoring instrument or Tedlar Bag sample in accordance with LFTGN04 (V3, March 2010) or other such subsequent guidance as may be agreed in writing with the Environment Agency or a method agreed with the Environment Agency.	For cells or phases which have no active gas extraction. Once gas extraction has commenced in a particular cell or phase, there is no longer a requirement to carry out this monitoring. Concentrations of hydrogen sulphide shall be assessed in accordance with the gas and odour management plans

Table S3.10 Landfill gas – other monitoring requirements				
Monitoring Point Ref. /Description	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Gas collection system at well control valve, manifolds (if applicable) and strategic points on gas system	Methane Carbon Dioxide Oxygen Carbon Monoxide Atmospheric pressure Gas flow rate or suction % Balance Gas (calculated as the difference between the sum of measured gases and 100%)	Monthly or at such other frequency as may be agreed in writing with the Environment Agency.	Calibrated handheld monitoring instrument	Where the oxygen concentration exceeds 5% or the % balance gas is greater than 20% an assessment of air ingress into the system shall be undertaken. Where the concentration of carbon monoxide exceeds 100ppm then further investigation shall be undertake Record the ambient air temperature and whether the ground is: waterlogged frozen snow covered
Gas collection system at well control valve	Hydrogen sulphide	Six monthly	Calibrated handheld monitoring instrument or Tedlar Bag sample in accordance with LFTGN04 (v3, March 2010) or other such subsequent guidance as may be agreed in writing with the Environment Agency or a method agreed with the Environment Agency.	Concentrations of hydrogen sulphide shall be assessed in accordance with the gas and odour management plans

Table S3.10 Landfill gas – other monitoring requirements				
Monitoring Point Ref. /Description	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Output to flare or LFG Utilisation Compound	Trace gas	Annually	Trace gas analysis in accordance with LFTGN04 (v3, March 2010) or such other subsequent guidance as may be agreed in writing with the Environment Agency [or a trace gas characterisation method agreed with the Environment Agency].	The concentration of trace gas components shall be assessed against the assumptions made in the Landfill gas risk assessment and dispersion modelling.
Output to flare or LFG Utilisation Compound	Methane Carbon Dioxide Oxygen Gas flow rate Suction % Balance Gas (calculated as the difference between the sum of measured gases and 100%)	Weekly		Where the oxygen concentration exceeds 5% or the % balance gas is greater than 20% an assessment of air ingress into the system shall be undertaken.

Table S3.10 Landfill gas – other monitoring requirements				
Monitoring Point Ref. /Description	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Flare 1 shown on Plan 3026/A dated 27/02/2006	Temperature	As per LFTGN05 (v2, March 2010) or such other subsequent guidance as may be agreed in writing with the Environment Agency.	As per M2 or such other subsequent guidance as may be agreed in writing with the Environment Agency.	
Gas engines 1-5, post turbo	NOx and CO	Quarterly	In accordance with Appendix C of LFTGN08, (v2, 2010) or such other subsequent guidance as may be agreed in writing with the Environment Agency.	Where monitoring using hand-held, electrochemical equipment indicates an exceedance of the emissions standards specified in Table S3.2, these shall be used as action levels and the operator shall investigate the cause and take appropriate measures to reduce emissions.

Table S3.11 Leachate – other monitoring requirements				
Monitoring point reference or description	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Operational Cells or Phases **(Any cell or phases that do not have a final engineered cap agreed in accordance with condition 2.6)**			At leachate compliance point as listed in table S3.1. As specified in Environment Agency Guidance TGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), risk assessments for your environmental permit (www.gov.uk) or such other subsequent guidance as may be agreed in writing with the Environment Agency	
MEPP	pH, EC, total alkalinity, ammoniacal nitrogen, Chloride, COD, BOD, cadmium, chromium, copper, lead, nickel, iron, arsenic, magnesium, potassium, total sulphates, calcium, sodium, zinc, manganese	Quarterly		None
MEPP	Hazardous substances	Annually		None
MEPP	Depth to base (mAoD)	Annually		None
Non Operational Cells or Phases **(Any cell or phases that have a final engineered cap agreed in accordance with condition 2.6)**				
MEPP	pH, EC, total alkalinity, ammoniacal nitrogen, Chloride, COD, BOD, cadmium, chromium, copper, lead, nickel, iron, arsenic, magnesium, potassium, total sulphates, calcium, sodium, zinc, manganese	Annually		
MEPP	Hazardous substances	Once every four years		None
MEPP	Depth to base (mAoD)	Annually		

Table S3.12 Surface water – other monitoring requirements				
Monitoring Point Ref. /Description	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
MEPP	Ammoniacal nitrogen Chloride Suspended Solids Visual Oil and Grease pH electrical conductivity	Monthly	Spot sample	As specified in Environment Agency Guidance TGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), risk assessments for your environmental permit (www.gov.uk) or such other subsequent guidance as may be agreed in writing with the Environment Agency

Table S3.13 Process monitoring requirements				
Monitoring Point	**Substance or parameter**	**Monitoring frequency**	**Monitoring method**	**Other specifications**
Biofilter Monitoring Point as shown on Plan 3695-CAU-XX-XX-DR-V-1801	Moisture content, flow rate, nutrient levels, contaminant elimination	As required	As required	Biofilter should be checked and maintained to ensure appropriate temperature and moisture content on a daily basis. Monitoring equipment shall be available on-site and used as required.

Schedule 4 – Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

Table S4.1 Reporting of monitoring data		
Parameter	**Reporting period**	**Period ends**
Leachate and/ or groundwater level As specified by schedule 3, table S3.1	Every 3 months	31 March, 30 June, 30 September, 31 December
Point source emission to air As specified by schedule 3, table S3.2	Every 12 months	31 December
Point source emission to water (other than sewer) As specified by schedule 3, table S3.3	Every 3 months	31 March, 30 June, 30 September, 31 December
Point source emission to sewer As specified by schedule 3, table S3.4	Every 3 months	31 March, 30 June, 30 September, 31 December
Emission to groundwater As specified by schedule 3, table S3.5	Every 3 months	31 March, 30 June, 30 September, 31 December
Landfill gas in external monitoring boreholes As specified by schedule 3, table S3.6	Every 3 months	31 March, 30 June, 30 September, 31 December
Particulate matter in ambient air. As required by schedule 3, table S3.7	Every 6 months	30 June, 31 December
Emission of landfill gas from capped surfaces As specified by schedule 3, table S3.8	Every 12 months	31 December
Other groundwater monitoring As specified by schedule 3, table S3.9	Every 3 months	31 March, 30 June, 30 September, 31 December
Other Landfill gas monitoring As specified by schedule 3, table S3.10	Every 3 months	31 March, 30 June, 30 September, 31 December
Trace gas monitoring	Every 12 months	31 December
Other leachate monitoring As specified by schedule 3, table S3.11	Every 12 months	31 December
Other surface water monitoring As specified by schedule 3, table S3.12	Every 12 months	31 December

Table S4.1 Reporting of monitoring data		
Parameter	**Reporting period**	**Period ends**
Process monitoring requirements As specified by Schedule 3, table S3.13	As agreed with the Environment Agency	31 December
Meteorological data Landfill Directive, annex III, section 2	Every 12 months	31 December

* - where the reporting period is 12 months, you may submit this information as part of the 'annual report' required by condition 4.2.2.

Table S4.2 Annual production/treatment	
Leachate: Disposed of off site; Disposed of to any onsite effluent treatment plant; Recirculated into the waste mass. Accepted from offsite for treatment at any onsite effluent treatment plant.	Cubic metres/year
Landfill gas: combustion in flares; combustion in gas engines; Other methods of gas utilisation. Average methane content entering the landfill gas utilisation or treatment compound (based on the annual average of Table S3.9 monitoring) Methane generation rate (50%ile from a representative model)	Normalised cubic metres/year % methane v/v m3 /hr

Table S4.3 Performance Parameters			
Parameter	**Frequency of assessment**	**Annual total**	**Unit**
Energy used (including for leachate treatment)	Annually		MWh of electricity or natural gas

Table S4.4 Reporting Forms		
Media/parameter	**Reporting Format**	**Date of Form**
Leachate	Form leachate 1 or other reporting format to be agreed in writing with the Environment Agency	02/02/17
Air	Form Air 1 or other reporting format to be agreed in writing with the Environment Agency	02/02/17
Controlled water	Form Water 1 or other reporting format to be agreed in writing with the Environment Agency	02/02/17
Groundwater	Form Groundwater 1 or other reporting format to be agreed in writing with the Environment Agency	02/02/17
Landfill gas	Form LFG 1 or other reporting format to be agreed in writing with the Environment Agency	02/02/17
Particulate matter	Form Particulate 1 or other reporting format to be agreed in writing with the Environment Agency	02/02/17
Waste Return	Waste Return Form RATS2E	02/02/17
Landfill topographical surveys and interpretation	Reporting format to be agreed in writing with the Environment Agency	02/02/17

Schedule 5 – Notification

This page outlines the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	
Name of operator	
Location of Facility	
Time and date of the detection	

(a) Notification requirements for any incident or accident which significantly affects or may significantly affect the environment	
To be notified within 24 hours of detection	
Date and Time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Measures taken, or intended to be taken, to stop the emission	

Time periods for notification following detection of a breach of a limit	
Parameter	**Notification period**

(c) Notification requirements in the event of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B to be supplied as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

“accident” means an accident that may result in pollution.

“annually” means once every year.

“application” means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

“authorised officer” means any person authorised by the Environment Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

“Background concentration” means such concentration of that substance as is present in:

- For emissions to surface water, the surface water quality up-gradient of the site; or
- For emissions to sewer, the surface water quality up-gradient of the sewage treatment works discharge; or
- For emissions of landfill gas, the ground or air outside the site and not attributable to the site.

(3) “Cell layout drawing” means: A drawing or drawings of the proposed new cell that illustrate(s) in sufficient detail:

(i) the location of the new cell on the site;

(ii) the proposed level (Above Ordnance Datum) of the base of the excavation;

(iii) the proposed finished levels of all containment and leachate drainage layers;

(iv) the positions of leachate management infrastructure; and

(v) the positions of landfill gas infrastructure (if appropriate).

(4) A detailed written explanation of any minor design changes from the most recently approved cell that result from the new cell layout. This would include, for example:

(i) changes to slope length and gradient within the cell;

(ii) new leachate or landfill gas infrastructure construction design;

(iii) slope stability issues such as new basal excavation level; and/or

(iv) depth of waste.

“Construction Proposals” means written information, at a level of detail appropriate to the complexity and pollution risk, on the design, specifications of materials selected, stability assessment (where relevant) and the construction quality assurance (CQA) programme in relation to the New Cell or Landfill Infrastructure.

“CQA Validation Report” means the final “as built” construction and engineering details of the New Cell or of the Landfill Infrastructure. It must provide a comprehensive record of the construction and must include, where relevant:

- The results of all testing required by the CQA programme - this must include the records of any failed tests with a written explanation, details of the remedial action taken, referenced to the appropriate secondary testing;
- Plans showing the location of all tests;
- “As-built” plans and sections of the works;
- Copies of the site engineer’s daily records;
- Records of any problems or non-compliances and the solution applied;

- Any other site specific information considered relevant to proving the integrity of the New Cell or Landfill Infrastructure;
- Validation by a qualified person that all of the construction has been carried out in accordance with the Construction Proposals.

“emissions to land” includes emissions to groundwater.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations 2016, SI 2016 No.1154 and words and expressions used in this permit which are also used in those Regulations have the same meanings as in those Regulations.

“emissions of substances not controlled by emission limits” means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission or background concentration limit.

“exceeded” means that a value is above a permitted limit, or where a range of values or a minimum value is set as a permitted limit it means a value outside that range or below the minimum value, whichever is applicable.

‘Hazardous property’ has the meaning in Annex lll of the Waste Framework Directive.

“Hazardous substances” as defined by the Environmental Permitting (England and Wales) Regulations 2010, SI 2010 No.675, schedule 22 and listed in our Hydrogeological risk assessment guidance, annex J to our H1 risk assessment guidance.

‘Hazardous waste’ has the meaning given in the Hazardous Waste (England and Wales) Regulations 2005 (as amended).

“Landfill Infrastructure” means any specified element of the:

- permanent capping;
- temporary capping (i.e. engineered temporary caps not cover materials);
- leachate abstraction systems;
- leachate transfer, treatment and storage systems;
- surface water drainage systems;
- leachate monitoring wells;
- groundwater monitoring boreholes;
- landfill gas monitoring boreholes;
- landfill gas management systems;
- lining within the installation.

within the site.

“Liquids” means any liquid other than leachate within the engineered landfill containment system.

“List of Wastes” means the list of wastes established by Commission Decision 2000/532/EC replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste, as amended from time to time.

“LFTGN 05” means Environment Agency Guidance for monitoring enclosed landfill gas flares.

“LFTGN 07” means Environment Agency Guidance on monitoring landfill gas surface emissions.

“LFTGN 08” means Environment Agency Guidance for monitoring landfill gas engines.

“Groundwater” means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

"Inert waste" means waste that does not undergo any significant physical, chemical or biological transformations. Inert waste will not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm human health. The total leachability and pollutant content of the waste and the ecotoxicity of the leachate must be insignificant, and in particular not endanger the quality of surface water and/or groundwater.

“Medicinal product” means any medicine licensed by the Medicines and Healthcare products Regulatory Agency (MHRA) or their predecessors under the Medicines Act 1968, section 130.

“MEPP” Monitoring and extraction point plan, required by condition 4.2.2(h) to specify extraction points and routine monitoring locations.

“M2” means Environment Agency Guidance Monitoring of stack emissions to air.

“New Cell” means any new cell, part of a cell or other similar new area of the site where waste deposit is to commence after issue of this permit and can comprise:

- groundwater under-drainage system;
- permanent geophysical leak location system;
- leak detection layer;
- sub-grade;
- barriers;
- liners;
- leachate collection system;
- leachate abstraction system;
- separation bund/layer;
- cell or area surface water drainage system;
- side wall subgrade and containment systems;

for the New Cell.

“MCERTS” means the Environment Agency’s Monitoring Certification Scheme.

“No impact” means that the change made to the construction process will not affect the agreed design criteria, specification or performance in a way that has a negative effect.

“Pests” means Birds, Vermin and Insects.

“Previous year” means the 12 month period preceding the month the annual report is submitted in.

“quarter” means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

“Relevant waste acceptance procedures” means the procedure for the acceptance of waste at landfills and the associated sampling and test methods specified in the Council Decision Annex (2003/33/EC, European Council of 19 December 2002).

“Relevant waste acceptance criteria” means the waste acceptance criteria and the associated sampling and test methods specified in the Council Decision Annex (2003/33/EC, European Council of 19 December 2002).

“Review of the Hydrogeological Risk Assessment” means a written review of the hydrogeological risk assessment included in the Application, together with any other parts of the Application that addressed the requirements of the EP Regulations. The review shall assess whether the activities of disposal or tipping for the purpose of disposal of waste authorised by the permit continue to meet the requirements of the EP Regulations.

‘Sustainably extracted’ means where suction can be applied to the extraction wells such that a flow rate of landfill gas, with a methane content capable of either being combusted, or treated by bio-oxidation, can be extracted without increasing the risk of air ingress to the waste or inducing aerobic degradation within the waste.

‘Waste code’ - See ‘List of Wastes’.

“WFD” means Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste [and repealing certain Directives] – the Waste Framework Directive.

Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means the standards included in Environment Agency Guidance for Monitoring Enclosed Landfill Gas Flares LFTGN 05 or Guidance for Monitoring Landfill Gas Engine Emissions LFTGN 08.

Where the following terms appear in the waste code list in Tables S2.1 or S2.2 they have the meaning given below:

‘hazardous substance’ means a substance classified as hazardous as a consequence of fulfilling the criteria laid down in parts 2 to 5 of Annex I to Regulation (EC) No 1272/2008;

‘heavy metal’ means any compound of antimony, arsenic, cadmium, chromium (VI), copper, lead, mercury, nickel, selenium, tellurium, thallium and tin, as well as these materials in metallic form, as far as these are classified as hazardous substances;

‘polychlorinated biphenyls and polychlorinated terphenyls’ (‘PCBs’) means PCBs as defined in Article 2(a) of Council Directive 96/59/EC’.
Article 2(a) says that ‘PCBs’ means:

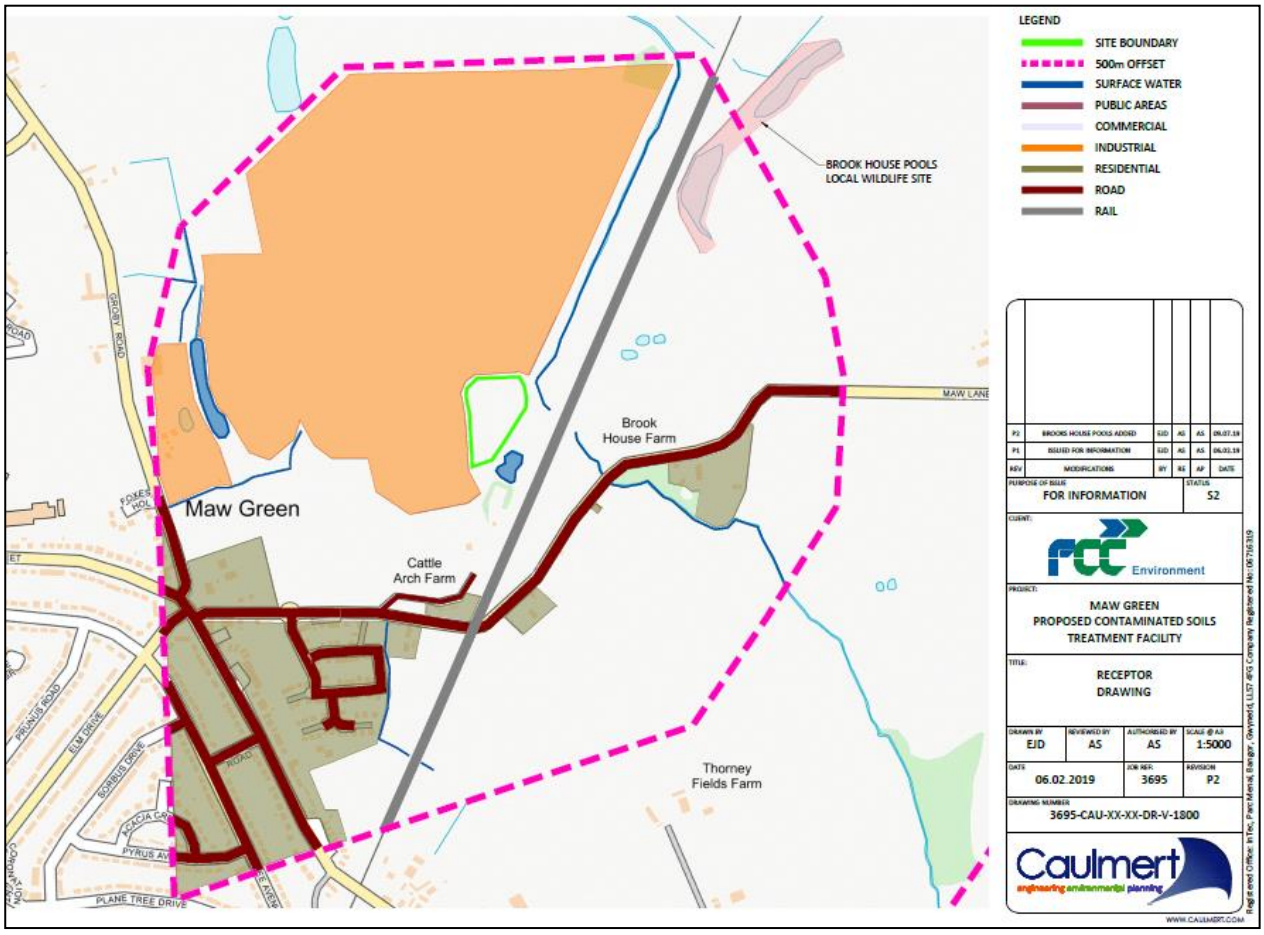
- polychlorinated biphenyls
- polychlorinated terphenyls
- monomethyl-tetrachlorodiphenyl methane, Monomethyl-dichloro-diphenyl methane, Monomethyldibromo-diphenyl methane
- any mixture containing any of the above mentioned substances in a total of more than 0,005 % by weight;

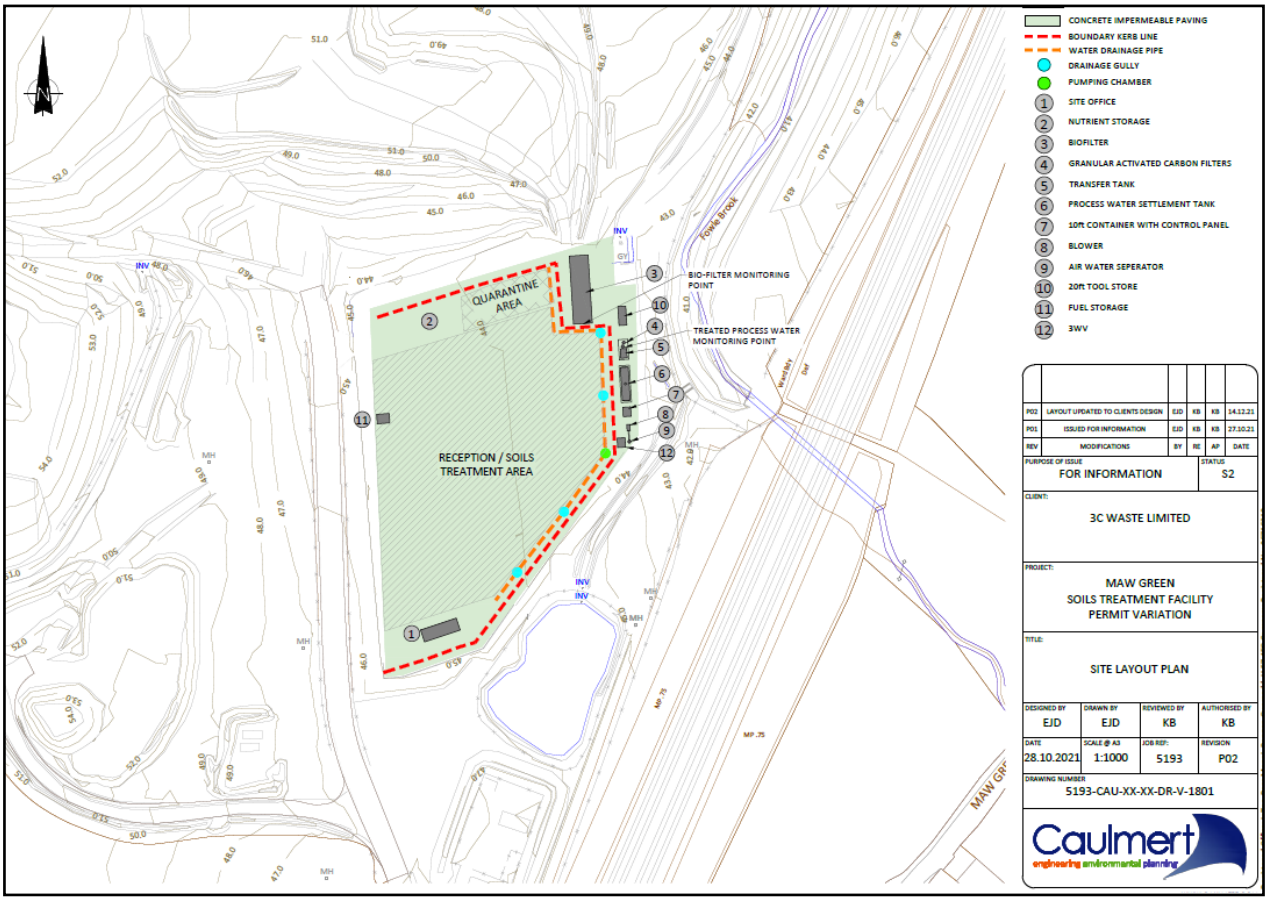
‘transition metals’ means any of the following metals: any compound of scandium, vanadium, manganese, cobalt, copper, yttrium, niobium, hafnium, tungsten, titanium, chromium, iron, nickel, zinc, zirconium, molybdenum and tantalum, as well as these materials in metallic form, as far as these are classified as hazardous substances;

‘stabilisation’ means processes which change the hazardousness of the constituents in the waste and transform hazardous waste into non-hazardous waste;

‘solidification’ means processes which only change the physical state of the waste by using additives without changing the chemical properties of the waste;

‘partly stabilised wastes’ means wastes containing, after the stabilisation process, hazardous constituents which have not been changed completely into non-hazardous constituents and could be released into the environment in the short, middle or long term.





END OF PERMIT

DOCUMENT 2.25
EMAIL: APPELLANT'S CONSULTANT TO EA PERMITTING OFFICER – REQUEST FOR EA'S DECISION DOCUMENT

Tom Roberts

From: Andy Stocks <AndyStocks@caulmert.com>
Sent: 25 July 2023 11:56
To: Daniyan, Habiba
Subject: RE: Operator Review Request - EPR/BS7722ID/V009
Attachments: logo_e2d43f21-9cac-4229-931e-8a959fcbdc4c.png; banner_43a9ba83-a3de-44fa-b0d8-2b028414a79a.gif; linkedin_14b896ef-de54-45e5-8b77-3c6309a52ed1.png; twitter_3be277fc-9866-4acc-bbf1-cc81de99ceab.png; chaslogo_a89de6d8-1c88-4675-b0bb-4eb4256b77e5.png; BRE_Certification_blue_9d1d9f04-f24f-45a0-aca7-1c6a5472773c.jpg

Hi Habiba

Just to let you know we have just received the permit,

Would it be possible to have a copy of the decision document for our records please

Many thanks

Andy

From: Andy Stocks <AndyStocks@caulmert.com>
Sent: Thursday, July 20, 2023 3:04 PM
To: Daniyan, Habiba <Habiba.Daniyan@environment-agency.gov.uk>
Subject: RE: Operator Review Request - EPR/BS7722ID/V009

Hi Habiba

Has this now been issued?

Andy

From: Daniyan, Habiba <Habiba.Daniyan@environment-agency.gov.uk>
Sent: Wednesday, July 12, 2023 3:59 PM
To: Andy Stocks <AndyStocks@caulmert.com>; Kirk, Daniel <daniel.kirk@environment-agency.gov.uk>
Cc: Burston, Kellie-marie <kellie-marie.burston@fccenvironment.co.uk>; Jon Owens <Jon.Owens@provectusgroup.com>
Subject: RE: Operator Review Request - EPR/BS7722ID/V009

Hello Andy,

It was good to catch up with you today.

As discussed, please see attached the corrected Draft permit for the above application.

Your immediate response would be appreciated for me to carry on with the determination/issuing process.

Kind regards,

DOCUMENT 2.26
EMAIL: EA TO APPELLANT'S CONSULTANT – EA'S DECISION DOCUMENT

Tom Roberts

From: Daniyan, Habiba <Habiba.Daniyan@environment-agency.gov.uk>
Sent: 25 July 2023 12:59
To: Andy Stocks
Subject: RE: Operator Review Request - EPR/BS7722ID/V009
Attachments: Decision document.pdf

Hi Andy,

I am glad you received the permit just some minutes after we've spoken on the phone.

Also, please see attached a copy of the Decision Document as requested.

Kind regards,

Habiba Daniyan
Permitting Officer
Environment Agency | National Permitting Service| Lateral, 8 City Walk, Leeds, LS11 9AT
habiba.daniyan@environment-agency.gov.uk
Tel| 07823792794
Simple, Fair, Effective Charges

My name is:	**Habiba Daniyan**
How to say my name (phonetic spelling)	Ha-bee-ba,Da-nee-yan

'Say My Name' Initiative – help people to pronounce your name. Click here for more information.

Help us to improve our service and complete our customer survey - click NPS Survey.

From: Andy Stocks <AndyStocks@caulmert.com>
Sent: 25 July 2023 11:56
To: Daniyan, Habiba <Habiba.Daniyan@environment-agency.gov.uk>
Subject: RE: Operator Review Request - EPR/BS7722ID/V009

Hi Habiba

Just to let you know we have just received the permit,

Would it be possible to have a copy of the decision document for our records please

Many thanks

Andy

DOCUMENT 2.27
ATTACHMENT TO EMAIL OF 25 JULY 2023 - DECISION DOCUMENT

Permitting Decisions- Variation

We have decided to grant the variation for Maw Green Landfill Site operated by 3C Waste Limited.

The variation number is: EPR/BS7722ID/V009

The variation is for adding an activity for the treatment of soils containing asbestos - Section 5.3A(1)(a)(ii) Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving physico-chemical treatment, and to also add hazardous waste codes for acceptance at the Soil Treatment Facility, and increase the storage capacity at the site from 2000 to 38,000 tonnes of hazardous waste.

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

Purpose of this document

This decision document provides a record of the decision-making process. It summarises the decision-making process to show how the main relevant factors have been taken into account. We have assessed the aspects that are changing as part of this variation, we have not revisited any other sections of the permit

Unless the decision document specifies otherwise we have accepted the applicant's proposals.

Read the permitting decisions in conjunction with the environmental permit and the variation notice.

Decision considerations

Confidential information

A claim for commercial or industrial confidentiality has not been made.

The decision was taken in accordance with our guidance on confidentiality.

Identifying confidential information

We have not identified information provided as part of the application that we consider to be confidential.

The decision was taken in accordance with our guidance on confidentiality

Consultation

The consultation requirements were identified in accordance with the Environmental Permitting (England and Wales) Regulations (2016) and our public participation statement.

The application was publicised on the GOV.UK website.

We consulted the following organisations:

- Local Authority – Environmental Health
- Food Standards Agency
- Health and Safety Executive
- Director of Public Health & UKHSA (formerly PHE)

The comments and our responses are summarised in the consultation responses section.

The regulated facility

We considered the extent and nature of the facility at the site in accordance with RGN2 ‘Understanding the meaning of regulated facility’, Appendix 2 of RGN2 ‘Defining the scope of the installation’, Appendix 1 of RGN 2 ‘Interpretation of Schedule 1’,

The extent of the facility is defined in the site plan and in the permit. The activities are defined in table S1.1 of the permit.

Nature conservation, landscape, heritage and protected species and habitat designations

We have checked the location of the application to assess if it is within the screening distances, we consider relevant for impacts on nature conservation, landscape, heritage and protected species and habitat designations. The application is within our screening distances for these designations.

We have assessed the application and its potential to affect sites of nature conservation, landscape, heritage and protected species and habitat designations identified in the nature conservation screening report as part of the permitting process.

We consider that the application will not affect any site of nature conservation, landscape and heritage, and/or protected species or habitats identified

Environmental risk

We have reviewed the operator's assessment of the environmental risk from the facility.

The operator’s risk assessment is satisfactory.

General operating techniques

We have reviewed the techniques used by the operator and compared these with the relevant guidance notes, Waste appropriate measures guidance, Waste BAT conclusions and SGN 5.06, and we consider them to represent appropriate techniques for the facility.

The operating techniques that the applicant must use are specified in table S1.2 in the environmental permit.

Noise and vibration management

We have reviewed the noise and vibration management plan in accordance with our guidance on noise assessment and control.

We consider that the noise and vibration management plan is satisfactory and we approve this plan.

We have approved the noise and vibration management plan as we consider it to be appropriate measures based on information available to us at the current time. The applicant should not take our approval of this plan to mean that the measures in the plan are considered to cover every circumstance throughout the life of the permit.

The applicant should keep the plans under constant review and revise them annually or if necessary sooner if there have been complaints arising from operations on site or if circumstances change. This is in accordance with our guidance ‘Control and monitor emissions for your environmental permit’.

Dust management

We have reviewed the dust and emission management plan in accordance with our guidance on emissions management plans for dust.

We consider that the dust and emission management plan is satisfactory and we approve this plan.

We have approved the dust and emission management plan as we consider it to be appropriate measures based on information available to us at the current time. The applicant should not take our approval of this plan to mean that the measures in the plan are considered to cover every circumstance throughout the life of the permit.

The applicant should keep the plans under constant review and revise them annually or if necessary sooner if there have been complaints arising from operations on site or if circumstances change. This is in accordance with our guidance ‘Control and monitor emissions for your environmental perm

Changes to the permit conditions due to an Environment Agency initiated variation

We have varied the permit as stated in the variation notice.

The previous permit did not restrict the activities for Bioremediation to Hazardous and Non Hazardous waste. We have therefore adjusted this in table S1.1 by identifying which activity is Hazardous or Non-Hazardous waste as specified in table S2.3a and table S2.3b. We have specified the waste tables, amend activity references, outline activity limits and corrected previous errors.

Waste types

We have specified the permitted waste types, descriptions and quantities, which can be accepted at the regulated facility.

We are satisfied that the operator can accept these wastes for the following reasons:

- they are suitable for the proposed activities
- the proposed infrastructure is appropriate; and
- the environmental risk assessment is acceptable.

We have restricted the following wastes for the following reasons:

All forms of asbestos are classified the same way in the Mandatory Classification List (MCL) underthe GB CLP Regulation:

- Carc. Cat 1A; H350, and
- STOT RE1; H372**

The assessment of asbestos containing waste considers both the presence of asbestos as

- fibres that are free and dispersed, and

- identifiable pieces of asbestos containing material

If the waste contains fibres that are free and dispersed, then the waste will be hazardous if the waste as a whole contains 0.1% or more asbestos.

If the waste contains any identifiable pieces of suspected asbestos containing material they must be assessed as set out below. This would also apply to any dispersed fibres produced by deliberately breaking up such identifiable pieces.

- 17 05 03* soil and stones containing hazardous substances. This code is restricted to those wastes which contain identifiable pieces of bonded asbestos – this being any particle size that can be identified as potentially being asbestos by a competent person if examined by the naked eye.
- 17 06 05* construction materials containing asbestos. This code is restricted to wastes containing discrete pieces of bonded asbestos within the soil matrix only.

We made these decisions with respect to waste types in accordance with Waste appropriate measures guidance, Waste BAT conclusions and SGN 5.06.

Emission limits

No emission limits have been added, amended or deleted as a result of this variation.

Monitoring

Monitoring has not changed as a result of this variation.

Management system

We only review a summary of the management system during determination. The applicant submitted their full management system. We have therefore only reviewed the summary points.

A full review of the management system is undertaken during compliance checks.

Technical competence

Technical competence is required for activities permitted.

The operator is a member of the CIWM/WAMITAB scheme

Growth duty

We have considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the guidance issued under section 110 of that Act in deciding whether to grant this permit variation.

Paragraph 1.3 of the guidance says:

“The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation.”

We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections.

We consider the requirements and standards we have set in this permit are reasonable and necessary to avoid a risk of an unacceptable level of pollution. This also promotes growth amongst legitimate operators because the standards applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards.

Consultation Responses

The following summarises the responses to consultation with other organisations, our notice on GOV.UK for the public, newspaper advertising and the way in which we have considered these in the determination process.

Responses from organisations listed in the consultation section:

Response received from: UK Health Security Agency (UKHSA).

Brief summary of issues raised: Based on the information contained in the application supplied to us, UKHSA has no significant concerns regarding the risk to the health of the local population from the installation.

This consultation response is based on the assumption that the permit holder shall take all appropriate measures to prevent or control pollution, in accordance with the relevant sector guidance and industry best practice.