CAULMERT LIMITED

Engineering, Environmental & Planning
Consultancy Services

Wootton Landfill Site

Viridor Waste Wootton Limited

Variation Supporting Document

Environmental Permit Variation Application

Prepared by:

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August 2021

APPROVAL RECORD

Site: Wootton Landfill Site

Client: Viridor Waste Wootton Limited

Project Title: Environmental Permit Variation Application

Document Title: Variation Supporting Document

Document Ref: 4898-CAU-XX-XX-RP-V-0305.A0.C1

Report Status: **Final**

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Reviewer	Andy Stocks	**Date**	02/08/2021
Approved	Andy Stocks	**Date**	02/08/2021

DISCLAIMER

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1. INTRODUCTION

1.1 Application context

1.1.1 Viridor Waste Wootton Limited (hereafter referred to as the 'Operator') have appointed Caulmert Limited to prepare an application to vary the existing permit for Wootton Landfill (the Site), based in Collingtree, Northants.

1.2 Application Proposal

1.2.1 The Operator proposes the installation of a methane stripping plant (MSP) with a treatment capacity of less than 50 tonnes per day to treat the leachate before it is discharged to foul public sewer. The permit already includes a point source emission of leachate discharged to Anglian Water Services Limited (Anglian Water). Trade effluent shall pass through the monitoring point into public foul sewer situated at Wootton Valley foul sewer and subsequently treated at Anglian Water Treatment works located off Crow Lane.

1.2.2 The Wootton MSP is proposed to discharge up to 25 m^3 of treated leachate to public foul sewer a day, this is within limits of the Trade Effluent Discharge Consent (Appendix 1), which allows a discharge of up to 80m^3 in any 24 hour period. This variation will also include for the construction of pipework infrastructure for effluent discharge from the MSP which will connect to the foul sewer network owned by Anglian Water.

1.2.3 Following basic pre-application advice from the Environment Agency (Appendix 2) it is confirmed that the application is to add a new activity to the permit under a variation application, assuming the treatment capacity of <50 tonnes per day of non-hazardous leachate.

1.3 Document structure

1.3.1 This Supporting Document has been prepared to provide additional information to support the information requested in Part C2 of the environmental permit application forms for varying a bespoke permit. To aid cross-referencing between this document and the application forms, the various issues are presented in the same order as in the application form and the headings in this document include the specific question number to which the information relates.

1.3.2 The Part C4 form requests information about the activities the variation relates to and the operating techniques that will apply to them. Details of the Part C4 form are included in the 'Activities & Operative Techniques Report', document ref: 4898-CAU-XX-XX-RP-V-0307 Information is requested on: -

a) Activities to be varied;
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 (e.g. the combustion sector and the hazardous and non-hazardous waste recovery and disposal sector);
h) Monitoring of point source emissions;
i) Resource efficiency and climate change.

2. PART A- ABOUT YOU

2.1 Directors Details (Part A question 5c)

2.1.1 Information on Viridor Waste Wootton Limited company directors are detailed below:

Name	Role
Lyndi Margaret Hughes	Secretary
Kevin Michael Bradshaw	Director
Nicholas William Maddock	Director

2.1.2 Dates of birth information is only required for new permit applications or transfer; therefore these details are not included within this application.

3. PART C2 – GENERAL – VARYING A BESPOKE PERMIT

3.1 Pre-application discussions (Part C2 question 1a)

3.1.1 A pre-application enquiry has been made to Environment Agency to agree the scope of the application, a copy of which can be found in Appendix 2.

3.2 Permit number (Part C2 question 1b)

3.2.1 The permit for which this variation relates is permit EPR/UP3795NQ which was first issued to Sandspinners Limited in June 1992.

3.3 Type of variation (Part C2 question 2a)

3.3.1 It was confirmed via pre-application (Appendix 2) dated 14th January 2020 that, assuming the leachate stripping plant has a capacity of <50tonnes per day treating and discharging non-hazardous leachate, the application will be a 'Normal Variation' application.

3.4 Changes to existing activities (Part C2 question 2b)

3.4.1 Viridor Waste Wootton limited proposes to install a methane stripping plant at the Wootton Landfill site to treat raw leachate on site and discharge the treated effluent to foul public sewer.

3.4.2 The methane stripping plant proposes a treated leachate discharge rate limited to 24.6m^3 per day which is within the limits of Anglian Water's trade effluent consent (Appendix 1). As this is <50 tonnes per day, the methane stripping plant can be added as

a specified activity in Table S1.1 Activities, 'Schedule 1 – Operations' of the permit, via a normal variation of the current permit.

3.4.3 All the pipework and site infrastructure associated with the methane stripping plant will be within the permitted site boundary.

3.4.4 Part C2 Question 2 requires Table 1 completing to describe changes to the existing activities which has been summarised in Table 1 below.

Table 1 Changes to existing activities

Name	Description of waste operation	Proposed changes
Wootton Landfill Site	Landfill	Installation of a methane stripping plant that proposes to discharge 24.6m^3 of treated leachate into public foul sewer to meet agreed trade effluent consent with Anglian Water. The treatment capacity is <50 tonnes per day and the leachate is non-hazardous, the MSP can be added to the current permit as a specified activity to the permit.

3.5 Relevant offences (Part C2 question 3a)

3.5.1 The application form specifies that details of any relevant offences need to be provided when applying to add waste installations or waste operations to a permit that has not previously had them. Viridor Waste Wootton Limited have confirmed that there are no unspent conviction for any relevant persons or against the business.

3.6 Technical ability (Part C2 question 3b)

3.6.1 Viridor Waste Wootton Limited has a Competent Management Certificate which they will use to demonstrate technical competence for operating the site. Philip Kitchener provides Technical ability for Wootton Landfill Site including the treatment operations of the proposed MSP. Philip Kitchener also provide TCM cover for the following sites:

EPR FP3195DF
Lackford Landfill Site
Hall Heath
Lackford,
Bury St.Edmunds
Suffolk
IP28 6HT

EPR BW2943IG
Foxhall Landfill Site
Foxhall Road
Brightwell
Ipswich
IP10 9HT

EPR BV4509IG
Wangford Landfill Site
Wangford
Beccles
Suffolk
NR34 8AR

3.6.2 A Copy of the relevant WAMITAB certificate is attached in Appendix 3. Date of birth information is included in Section 3.14 and must be kept confidential.

3.7 Finances (Part C2 question 3c)

3.7.1 There are no relevant persons within Viridor Waste Wootton Limited who have current or past bankruptcy or insolvency proceedings against them.

3.8 Management system (Part C2 question 3d)

3.8.1 Viridor Waste Wootton Limited operate under ISO14001 environmental management system which includes practices by supporting environmental protection, pollution prevention, waste minimisation, energy and materials consumption reduction. Wootton Landfill Site is covered by this EMS, a copy of all relevant certification is included in Appendix 4.

3.9 Consultation (Part C2 question 4a)

3.9.1 Anglian Water are the sewerage undertakers for all leachate arisings that are proposed to discharge from the Wootton Landfill Site methane stripping plant.

3.10 Site plans (Part C2 question 5a)

3.10.1 All site infrastructure and pipework relating to the MSP will be within the permitted site boundary. Plans that identify all of the land on which the activities will take place must be submitted, in addition a Sensitive Receptors Plan has been submitted in relation to the MSP location. The location of the trade effluent discharge and monitoring point, and the receptors plan is also included in Table 2 below.

Table 2: Description of the submitted plans

Drawing No.	Content
4898-CAU-XX-XX-DR-V-1800	Sensitive Receptors Plan
WTN3000	MEPP Monitoring & Extraction Point Plan

3.11 Site report for additional land (Part C2 question 5b)

3.11.1 This question relates to variations which require extra land to be included in the permit and requests that relevant sections of a site condition report should be submitted if this applies.

3.11.2 As all pipework and site infrastructure relating to the Methane Stripping Plant proposed are within the original permitted boundary, there are no requirements to submit a Site Condition Report.

3.12 Non-technical summary (Part C2 question 5c)

3.12.1 The Operator, Viridor Waste Wootton Limited, currently holds a Bespoke Waste Operation Permit for Wootton Landfill Site under permit ref: EPR/UP3795NQ which was issued in June 1992 to Sandspinners Limited as a Waste Disposal Licence. This underwent subsequent modifications including change in company name and updated to an environmental permit in April 2008. The permit was consolidated with EPR/GP3395NB which was approved and issued in April 2016 under EPR/UP3795NQ.

3.12.2 The Operator proposes the installation of a methane stripping plant (MSP with a treatment capacity of less than 50 tonnes per day. The MSP is being installed to remove dissolved methane in the leachate to comply with the limit required by the Trade effluent discharge consent. The discharge from a leachate management system to point of entry to sewer is already included as a permitted activity under Table S1.1 Activities, Schedule 1 Operations of the environmental permit.

3.12.3 It is proposed to vary the Wootton Landfill Site permit for the installation of the MSP to treat landfill leachate arisings before discharge to foul sewer and subsequent treatment at the nearby sewage treatment works. The plant will be designed to discharge 24.6m^3 per day and is within the 80m^3 daily limit of the trade effluent consent already issued by Anglian Water. As the treatment activity will be less than 50 tonnes per day, it will be added as a specified activity to the current permit (EPR/UP3795NQ). This variation will also include for the construction of pipework infrastructure for effluent discharge from the MSP which will connect to the Anglian Water foul sewer network. An emissions point will monitor effluent as it leaves the site boundary and enters the foul sewer. The location of the trade effluent discharge and monitoring point is shown in the Wootton Closed Landfill 'MEPP Monitoring and Extraction Point Plan' drawing ref: WTN3000. The MSP has been assessed accordance with the Waste Treatment BREF, Best Available Techniques (BREF) 'Waste Treatment Industries, under Article 16(2) of Council Directive 96/61/EC (IPPC Directive) and an assessment of Best Available Techniques (BAT) which has been taken from the 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. A BAT review and process description is included within document ref: 4898-CAU-XX-XX-RP-V-0308.

3.12.4 It is proposed that only leachate arisings from Wootton Landfill Site will be treated with no leachate accepted from any other external sources.

3.12.5 The Methane Stripping Plant (MSP) removes methane gas from leachates via a process of using a passage of air bubbles passing through the leachate. Providing that adequate volumes of air are used during the process, concentrates of methane dissolved in the leachate will be well below explosive levels. The process involves the agitation and movement of leachate, typically creating foaming, this will be controlled by dosing in a controlled amount of antifoam solution.

3.12.6 Following basic pre-application from the Environment Agency (Appendix 2) it was confirmed that the application can be made under a 'Normal Variation' assuming the treatment capacity of the methane stripping plant at <50 tonnes per day of non-hazardous leachate. In addition, risk assessments undertaken for the permit variation have confirmed that there is no significant risk to the environment as a result of the proposed activities.

3.13 Environmental risk assessment (Part C2 question 6)

3.13.1 Environmental risk assessments conducted in line with the Environment Agency's GOV.UK guidance 'Risk Assessments for your environmental permit' are presented separately within this application under doc refs:

Amenity and Accidents Risk Assessment; 4898-CAU-XX-XX-RP-V-0306;

Surface Water Pollution Risk Assessment; 4898-CAU-XX-XX-RP-V-0309;

3.14 Date of birth information for Relevant Offences and/or Technical ability (Part C2 Appendix 2)

3.14.1 Date of birth information for Technical Ability is detailed in Appendix 6.

3.14.2 Date of birth information must be kept confidential and withdrawn from any public databases.

4. PART F1 CHARGES AND DECLARATIONS

4.1 Working out charges (Part F1 question 1 Table 1 & 2)

4.1.1 Viridor Waste Wootton Limited are applying to vary their permit for the operation of a methane stripping plant. The Charge activity reference is 1.17.5 for a 'Leachate treatment place with a capacity of less than 50 tonnes a day'.

4.1.2 The EA charge for the above activity is £10,141.

4.2 Payment (Part F1 question 2)

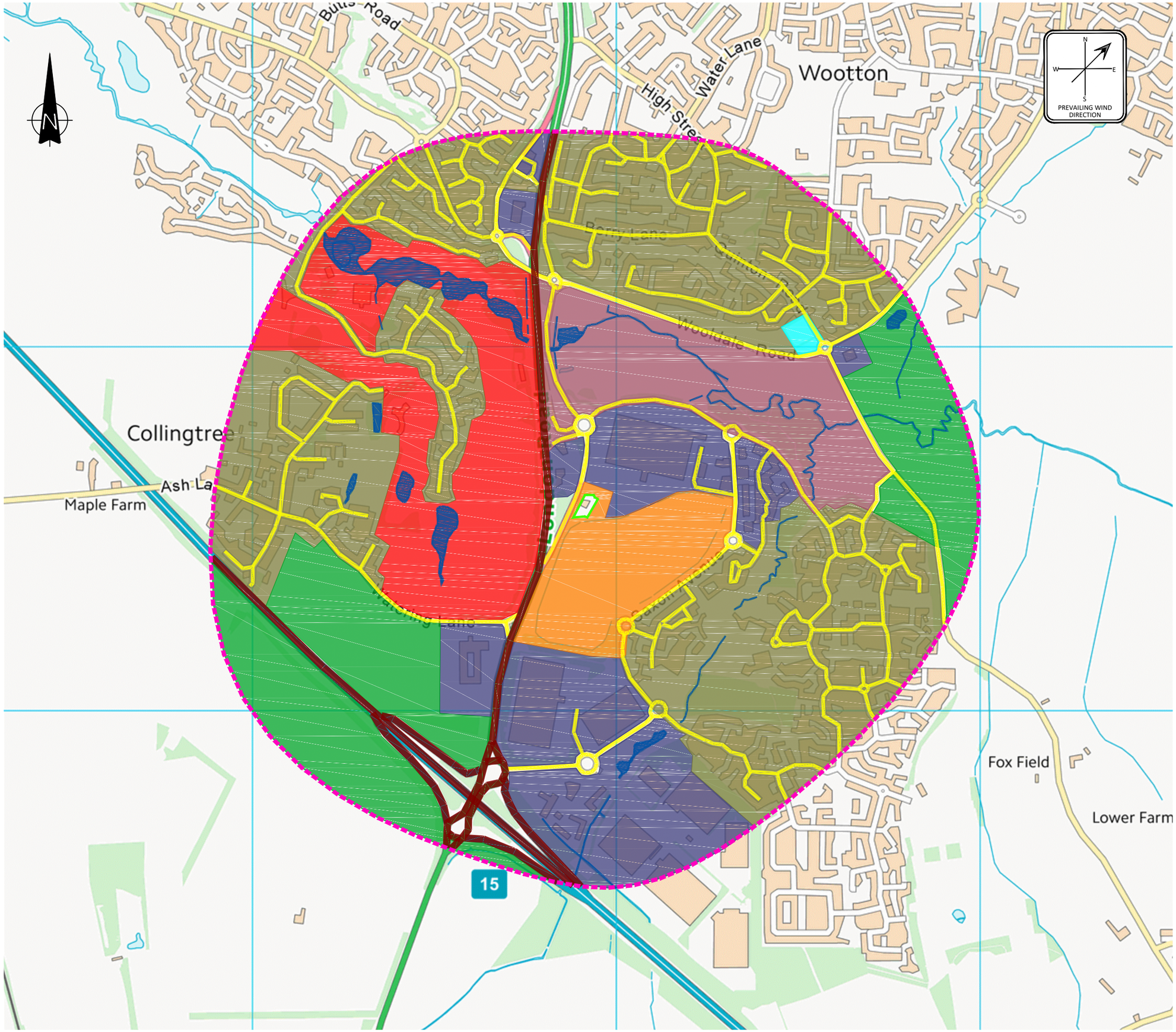
4.2.1 A payment for the application of £10,141 been made via BACS under remittance number: PSCAPPUP3795NQ.

4.3 Declaration (Part F1 question 5)

4.3.1 The Declaration part of the form has been authorised by the relevant person: Lisa Edmonds, who is authorised to sign EA declarations on behalf of Viridor companies, a letter of authorisation has been included in Appendix 5.

Drawings

4898-CAU-XX-XX-DR-V-1800 Sensitive Receptors Plan
WTN3000 Wootton Landfill MEPP – Monitoring Extraction Point Plan



LEGEND

- ACTIVITY BOUNDARY
- 1000m OFFSET
- SURFACE WATER
- PUBLIC AREAS
- COMMERCIAL
- LANDFILL SITE
- RESIDENTIAL
- MAJOR ROAD
- MINOR ROAD
- AGRICULTURAL
- INDUSTRIAL
- RECREATIONAL

REV	MODIFICATIONS	BY	RE	AP	DATE
P01	ISSUED FOR INFORMATION	EJD	SB	SB	22.02.21

PURPOSE OF ISSUE: FOR INFORMATION

STATUS: S2

CLIENT: Viridor

PROJECT:
WOOTTON LANDFILL SITE
METHANE STRIPPING PLANT

TITLE:
SENSITIVE RECEPTORS PLAN

DESIGNED BY	DRAWN BY	REVIEWED BY	AUTHORISED BY
EJD	EJD	SB	SB

DATE	SCALE @ A3	JOB REF:	REVISION
19.02.2021	1:10,000	4898	P01

DRAWING NUMBER
4898-CAU-XX-XX-DR-V-1800

Caulmert
engineering environmental planning

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MEPP SIZE A1

Viridor

- LEACHATE MONITORING POINT
- LEACHATE SUMP
- PERIMETER GAS MONITORING POINT
- DUAL GAS / GROUND WATER MONITORING
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- SURFACE WATER MONITORING POINT
- AIR EMISSIONS MONITORING POINT
- DEPOSITIONAL DUST GAUGE
- AIR QUALITY MONITORING POINT
- F.I.D MONITORING POINT
- EFFLUENT MONITORING POINT

(UG) UP GRADIENT
(DG) DOWN GRADIENT
(CG) CROSS GRADIENT

(US) UP STREAM
(DS) DOWN STREAM
→ DIRECTION OF FLOW

AS BUILT CELL BASAL AREA
ENVIRONMENTAL PERMIT BOUNDARY

ENLARGED AREA OF GAS COMPOUND

GAS PLANT
FLARE
GENERATION AE
GENERATION AE
AE

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SITE NAME
WOOTTON
CLOSED LANDFILL

DRAWING TITLE
MEPP
MONITORING & EXTRACTION POINT PLAN

SCALE 1:2000
O/DATE DEC 2016
O/DRN RW
O/APP PK

WTN3000

REVISION	TASK 8859
ORN	APP DATE
FOR REVISION INFORMATION, SEE D.O. REGISTER	
DRAWING BASED UPON :	

MEPP SIZE A3

Viridor

- LEACHATE MONITORING POINT
- LEACHATE SUMP
- PERIMETER GAS MONITORING POINT
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ENVIRONMENTAL PERMIT BOUNDARY

N
W E
S

ENLARGED AREA OF GAS COMPOUND

GAS PLANT
FLARE

GOLF COURSE
WATER
PLAYING FIELD
ISSUES
NURSING HOME
FILLING STATION
RICHMOND CARE VILLAGE
GRANGE FARM COTTAGES
SURGERY
COMMUNITY CENTRE
WOODLAND VIEW PRIMARY SCHOOL

NON OPERATIONAL
PHASE 1
PHASE 2
PHASE 3
PHASE 4
PHASE 5
PHASE 6
PHASE 7
PHASE 8

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MONITORING & EXTRACTION POINT PLAN

SCALE NTS
O/DATE DEC 2016
O/DRN RW
O/APP PK

WTN3000

REVISION		TASK 8859	
DRN	APP	DATE	

FOR REVISION INFORMATION, SEE D.O. REGISTER

DRAWING BASED UPON :

Wootton MEPP Tables Permit Variation 006 dated 26th April 2016

Permit Schedule 3, Revised Table S3.1

Table S3.1 Leachate level limits and monitoring requirements			
Monitoring Point Ref/Description	Limit	Monitoring frequency	Monitoring standard or method
Operational Cells or Phases[1]			
			As specified in Environment Agency Guidance LFTGN02 'Guidance on Monitoring of Surface Landfill Leachate, Groundwater and Surface Water' (issued in 2003), or such other subsequent guidance as may be agreed in writing with the Environment Agency
Non Operational Cells or Phases[2]			
1WT303LM	71.8 metres AOD	Quarterly	
1WT110LM, 1WT304LM and 1WT500LM 1WT305LM	73.0 metres AOD		
1WT510LM, 1WT511LM, 1WT514LM, 1WT610LM, 1WT611LM, 1WT810LM and 1WT811LM	73.7 metres AOD		
1WT710LM and 1WT711LM	74.5 metres AOD		

[1] Any cells or phases that do not have a final engineered cap agreed in accordance with the existing 'landfill engineering' condition 2.6
[2] Any cells or phases that have a final engineered cap agreed in accordance with the existing 'landfill engineering' condition 2.6

Permit Schedule 3, Revised Table S3.7

Table S3.7 Leachate – other monitoring requirements				
Monitoring Point Ref/Description	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Operational Cells or Phases[1]				
			As specified in Appendix 6 of Environment Agency TGN02 (February 2003) and Horizontal Guidance Note H1 – Environmental Risk Assessment for permits (Annex J3, version 2.1, Dec 2011) with one sampling point per cell / phase.	None
Non Operational Cells or Phases[2]				
Points 1WT110LM, 1WT303LM, 1WT304LM, 1WT305LM, 1WT500LM, 1WT510LM, 1WT511LM, 1WT514LM, 1WT610LM, 1WT611LM, 1WT710LM, 1WT711LM, 1WT810LM, 1WT811LM	Leachate elevation Pumped volume	Quarterly		
Points 1WT500LM, 1WT510LM, 1WT514LM, 1WT610LM, 1WT710LM, 1WT810LM,	Ammoniacal nitrogen, electrical conductivity, chloride, pH, BOD, COD, total alkalinity, sulphate, manganese, calcium, magnesium, sodium, potassium, iron, cadmium, mercury, arsenic, chromium, copper, lead, nickel, zinc, phenol, monitoring point base	Annually		
Points 1WT500LM, 1WT510LM, 1WT514LM, 1WT610LM, 1WT710LM, 1WT810LM,	Hazardous substances suite	Once every four years		

[1] Any cells or phases that do not have a final engineered cap agreed in accordance with the existing 'landfill engineering' condition 2.6
[2] Any cells or phases that have a final engineered cap agreed in accordance with the existing 'landfill engineering' condition 2.6

Permit Schedule 3, Revised Table S3.5

Table S3.5 Groundwater – other monitoring requirements			
Monitoring Point Ref /Description	Parameter	Monitoring frequency	Monitoring standard or method
Sand and Gravel Aquifer *Up gradient* 1WT021GM, 1WT022WM	Water level (mAOD)	Quarterly	As specified in Environment Agency Guidance TGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003) and Horizontal Guidance Note H1 – Environmental Risk Assessment for permits (Annex J, version 2, Apr 2010) or other guidance which supersedes these documents as agreed with the Environment Agency.
	pH, ammoniacal nitrogen, chloride, electrical conductivity	Six monthly	
	Potassium, calcium, sodium, manganese, sulphate, alkalinity, iron, cadmium, chromium, copper, lead, nickel, zinc, phenol, xylene, mecoprop	Annually	
	Base of monitoring point	Every two years	
Sand and Gravel Aquifer *Down or cross gradient* 1WT002WM, 1WT004WM, 1WT044WM, 1WT2006/01	Water level (mAOD), pH, ammoniacal nitrogen, chloride, electrical conductivity	Quarterly	
	Potassium, calcium, sodium, manganese, sulphate, alkalinity, iron, cadmium, chromium, copper, lead, nickel, zinc, phenol, xylene, mecoprop	Annually	
	Hazardous substances present at concentrations > MRV in leate	Every two years	
	Base of monitoring point	Every two years	
Other wells 1WT038GM, 1WT039GM, 1WT040GM, 1WT041GM, 1WT045GM, 1WT048GM, 1WT050GM, 1WT2006/07, 1WT2006/08	Water level (mAOD)	Quarterly	
	Base of monitoring point	Every two years	
Lias Aquifer *Up gradient* 1WT704WM	Water level (mAOD)	Quarterly	As specified in Environment Agency Guidance TGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003) and Horizontal Guidance Note H1 – Environmental Risk Assessment for permits (Annex J, version 2, Apr 2010) or other guidance which supersedes these documents as agreed with the Environment Agency.
	pH, ammoniacal nitrogen, chloride, electrical conductivity, potassium, calcium, sodium, manganese, sulphate, alkalinity, iron, cadmium, chromium, copper, lead, nickel, zinc, phenol, xylene, mecoprop	Annually	
	Base of monitoring point	Every two years	
Lias Aquifer *Downgradient* WT009CWM, WT010CWM	Water level (mAOD)	Quarterly	
	pH, ammoniacal nitrogen, chloride, electrical conductivity, nickel	Six monthly	
	Potassium, calcium, sodium, manganese, sulphate, alkalinity, iron, cadmium, chromium, copper, lead, zinc, phenol, xylene, mecoprop	Annually	
	Hazardous substances present at concentrations > MRV in leachate	Every two years	
	Base of monitoring point	Every two years	

Permit Schedule 3, Revised Table S3.3

Table S3.3 Groundwater – emission limits and monitoring requirements					
Monitoring Point Ref Note 1	Parameter	Limit (including unit)	Reference Period	Monitoring frequency	Monitoring standard or method
Downstream groundwater quality within the Sand and Gravel aquifer 1WT002WM, 1WT004WM, 1WT044WM and 1WT2006/01	Ammoniacal Nitrogen	1.8 mg/l	Spot sample	Quarterly	As specified in Environment Agency Guidance TGN02 'Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), Horizontal Guidance Note H1 – Environmental Risk Assessment for permits, Annex J3, version 2.1, Dec 2011 or such other subsequent guidance as may be agreed in writing with the Environment Agency
	Chloride	250 mg/l			
	Nickel	0.2 mg/l			
	Phenol	0.5 µg/l			
	Xylene	3.0 µg/l			
	Mecoprop	0.1 µg/l		Annually	
Downstream groundwater quality within the Lias Limestone aquifer WT009CWM WT010CWM	Ammoniacal Nitrogen	To be determined upon completion of IC1	Spot sample	Monthly then six monthly upon completion of IC1	As specified in Environment Agency Guidance TGN02 'Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), Horizontal Guidance Note H1 – Environmental Risk Assessment for permits, Annex J3, version 2.1, Dec 2011 or such other subsequent guidance as may be agreed in writing with the Environment Agency
	Chloride				
	Nickel				
	Phenol			Monthly then annually upon completion of IC1	
	Xylene				
	Mecoprop				

Permit Schedule 3, Revised Table S3.8

Table S3.8 Surface water – other monitoring requirements				
Monitoring Point Ref/Description	Parameter	Monitoring Frequency	Monitoring Standard or Method	Other specifications
1WT405SW, 1WT409SW, 1WT410SW and 1WT411SW	Chloride Electrical conductivity pH Ammoniacal nitrogen Visual Oil and Grease	Quarterly	Spot sample	As specified in Environment Agency Guidance LFTGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003) and Horizontal Guidance Note H1 – Environmental Risk Assessment for permits, Annex J, version 2 April 2010 or other such guidance which supersedes this document as agreed with the Environment Agency

MEPP SIZE A3

Viridor

- LEACHATE MONITORING POINT
- LEACHATE SUMP
- PERIMETER GAS MONITORING POINT
- DUAL GAS / GROUND WATER MONITORING
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(UG) UP GRADIENT
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(CG) CROSS GRADIENT

(US) UP STREAM
(DS) DOWN STREAM
→ DIRECTION OF FLOW

AS BUILT CELL BASAL AREA
ENVIRONMENTAL PERMIT BOUNDARY

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SITE NAME
WOOTTON CLOSED LANDFILL

DRAWING TITLE
MEPP TABLES

SCALE NTS
O/DATE DEC 2016
O/DRN RW
O/APP PK
WTN3000

REVISION		TASK 8859
DRN	APP	DATE
FOR REVISION INFORMATION, SEE D.O. REGISTER		
DRAWING BASED UPON :		

APPENDIX 1

Southern Water Trade Effluent Consent

Viridor
WASTE MANAGEMENT

APPROVAL FORM

1.1.F03
Issue 3 (Oct 2004)

Document Title :	**Wootton Landfill** **Consent to Discharge Trade Effluent ADU 106 dated 19 May 2009** **(replaces consent ADO263 dated 14/06/04)**	
Issue Number :	**One** (detail revisions below)	
Issue Date		
Approved	**Signatory One**	**Signatory Two**
Signed :		
Name :	**S P Hodges**	**H Holland**
Position :	**Director of Engineering**	**Management Systems Administrator**
Date :	10/8/09.	11/08/09.

Document History

Issue No	Details	Issue Date	Initial
Issue 2			
Issue 3			
Issue 4			
Issue 5			
Issue 6			
Issue 7			
Issue 8			
Issue 9			
Issue 10			

If document attached is a CONTROLLED DOCUMENT, include Registration Stamp & Binder Number:

MASTER COPY

anglianwater

Anglian Water Services Limited
Henderson House
Lancaster Way
Huntingdon
Cambs.
PE29 6XQ

Tel 01480 323900
Fax 01480 326008

Our ref ADU 106

Your ref

The Company Secretary
Viridor Waste Wootton Limited
Peninsula House
Rydon Lane
Exeter
Devon
EX2 7HR

19 May 2009

Dear Sir / Madam,

Water Industry Act 1991 (as amended)
Consent to Discharge Trade Effluent (Variation)

Please find enclosed the consent to discharge trade effluent referenced ADU 106 which relates to the following premises:

Viridor Waste Wootton Limited
Wootton Landfill Site
A508 Southbound
Collingtree
Northampton
Northamptonshire
NN4 0LY

As from 19 May 2009 the conditions contained within this document will replace those in the consent dated 14 June 2004 referenced ADO 263.

Health and Safety
You have a duty of care under the Health & Safety at Work Act 1974 to identify and notify our employees of any health and safety risks they may face whilst visiting your premises in connection with our trade effluent duties (We have a statutory right of access for trade effluent purposes under section 171 of the Water Industry Act 1991). All associated risk assessments should also be made available to our employees on entering your premises and all significant hazards brought to their attention.

Compliance
The consent is a legal document issued by Anglian Water under its powers within the Water Industry Act 1991. Consent conditions have been set to protect public health, our infrastructure, processes and the aquatic environment. These conditions must be complied with at all times. Therefore any person who may influence the quality or quantity of the discharge must be made aware of these conditions. It should be noted that failure to comply with the conditions of the consent may result in prosecution and/or other

enforcement action being taken by Anglian Water, including the recovery of civil damages.

Review of Consent
Anglian Water will review the consent on a regular basis to ensure that it remains appropriate and fully protects public health, our operations and the wider environment. The review process may result in a requirement to vary one or more of the conditions contained within your existing consent. Anglian Water will advise you at the earliest opportunity should this be the case. No change will be made until the end of 2 years after the date of the last change unless the variation is required as a consequence of a change of circumstances.

Provision of Information
In accordance with your consent document you must contact the Anglian Water person named below in any of the following circumstances:

- spillage or pollution incident at the above premises
- non-compliance with consent conditions
- proposed changes to the volume or flow rate of the trade effluent
- proposed changes to the nature and composition of the trade effluent
- proposed changes to the discharge point
- changes in name or status
- changes of contact details at the premises

Prompt communication will enable Anglian Water to ensure that its operations are effectively protected and that consent conditions remain appropriate.

If you do not own the above premises you should ensure that a copy of this consent is forwarded to the owner at the earliest opportunity.

Anglian Water Contact
Your contact for all trade effluent issues relating to the above premises, including trade effluent charges, is as follows:

John Walshaw - Catchment Quality Scientist
Anglian Water Services Ltd
Broadholme WwTW
Ditchford Lane
Wellingborough, Northants NN8 1RR

Tel: 01933 337002
Fax: 01933 337003
email: jwalshaw@anglianwater.co.uk
Anglian Water Helpline: 08457 145145

Please retain a copy of this letter for information and quote consent reference ADU 106 in all correspondence.

Appeals
If you have any queries regarding the consent you should contact Anglian Water and we

will attempt to resolve any issues that may arise. However, should you ultimately consider any of the conditions in the consent are unreasonable, you have a right of appeal to the Water Services Regulation Authority (WSRA). Information Note No. 21 has been produced to explain the WSRA's approach to appeals. Should you require a copy of this information note please contact the person named above.

Yours faithfully

Jim Keech
Trade Effluent Scientist

Registered Office
Anglian House,
Ambury Road, Huntingdon,
Cambridgshire, PE29 3NZ
Registered in England
No. 2366656

an AWG Company

anglianwater

NOTICE OF DIRECTION VARYING THE CONDITIONS ATTACHING TO A CONSENT TO THE DISCHARGE OF TRADE EFFLUENT ISSUED PURSUANT TO: WATER INDUSTRY ACT 1991 (AS AMENDED)

to Viridor Waste Wootton Limited
of Peninsula House
Rydon Lane
Exeter
Devon
EX2 7HR
Company No. : 01196767
('the trader')

in relation to a premises known as: Viridor Waste Wootton Limited
Wootton Landfill Site
A508 Southbound
Collingtree
Northampton
Northamptonshire
NN4 0LY
('the premises')

SEE NOTE 2 ANGLIAN WATER SERVICES LIMITED ('Anglian Water') under their powers in the above Act hereby direct that as from the 19 May 2009 the conditions attaching to the Consent given on 29 November 1990 shall cease to apply and the Consent to discharge trade effluent from the premises into a public sewer shall be subject to the following conditions:

Nature and Composition

1. The trade effluent discharged shall be of the following nature and composition ('the trade effluent'):

   Waste waters arising from the treatment of landfill leachate, originating from a closed landfill site that previously received domestic, commercial and inert industrial wastes

Monitoring Point and Receiving Sewer

2. The trade effluent shall pass through the monitoring point situated at a poiint after treatment and prior to discharging to ('the monitoring point') and shall only be discharged into the public foul sewer situated at a point on the Wootton Valley Foul Sewer, Collingtree, Northampton ('the sewer').

Maximum quantity to be discharged in any 24 hour period

3. The volume of trade effluent shall not exceed 80.0 cubic metres in any period of 24 hours.

Maximum rate of discharge

4. The rate of discharge of trade effluent shall not exceed 7.0 cubic metres per hour.

Matters to be eliminated prior to discharge to the sewer.

5. (a) There shall be eliminated from the trade effluent prior to the monitoring point and before the trade effluent is discharged to sewer:

(i) Petroleum spirit and other volatile or flammable organic solvents.

(ii) Calcium carbide.

(iii) Sludges arising from the pre-treatment of the trade effluent.

(iv) Waste liable to form viscous or solid coatings or deposits on or in any part of the sewerage system through which the trade effluent is to pass.

(v) Any substance which is likely to give rise to the production in the receiving sewerage system or sewage treatment works of fumes, gases or odours which are inflammable or obnoxious, or prejudicial to health or a nuisance within the meaning of section 79 of the Environmental Protection Act 1990.

(vi) Halogenated hydrocarbons unless specified in 5(b).

(vii) Halogen substituted phenolic compounds unless specified in 5(b).

(viii) Thiourea and its derivatives unless specified in 5(b).

(ix) Any substance or combination of substances likely to affect prejudicially the sewerage system, the effective and economic treatment of sewage at the receiving sewage treatment works or the lawful disposal of effluent or sludge arising from that works.

(x) Substances listed in Schedule 1 of the Trade Effluent (Prescribed Processes and Substances) Regulations 1989; at a concentration greater than the background concentration (see Appendix I to this Direction for the listing of Prescribed Substances) unless specified in section 5(b) below.

Matters to be eliminated prior to discharge to the sewer. (Continued)

5 (b) The trade effluent when passing through the monitoring point shall not exceed any of the composition or quality standards set out below:

Chemical oxygen demand (after one hours quiescent settlement)	3000 mg/l
Sulphate (expressed as SO4)	1000 mg/l
Fat, oil & grease (expressed as non-volatile matter extractable by 40°/60°C petroleum ether)	250 mg/l
Suspended solids	200 mg/l
Ammonia (expressed as N)	1200 mg/l
Chromium	0.25 mg/l
Copper	0.15 mg/l
Nickel	0.25 mg/l
Zinc	3 mg/l

mg/l = milligrammes per litre
ug/l = microgrammes per litre

Temperature

6. The trade effluent shall have a temperature not higher than 45° Celsius.

Acidity or Alkalinity

7. The trade effluent shall have a pH value not less than 6.0 or greater than 10.0.

Payment

8. The trader shall pay to Anglian Water in respect of the discharge of trade effluent authorised under this consent, charges fixed in accordance with the charges scheme made from time to time by Anglian Water under Section 143 of the Act.

Entry and samples

9. The trader shall permit Anglian Water's duly authorised representatives to inspect, examine, take readings from and test at any time any works and apparatus installed in connection with the trade effluent and to take samples of the trade effluent.

Inspection chamber

10. In addition to the monitoring point referred to in condition 2 above, the trader shall provide and maintain if required by Anglian Water a further monitoring point or points in a suitable position(s) in connection with each pipe through which the trade effluent is being discharged and such inspection chamber(s) or manhole(s) shall be so constructed and maintained by the trader as to enable duly authorised representatives of Anglian Water readily to take samples at any time of the trade effluent passing into the sewer from the premises and to take readings from any apparatus located in such an inspection chamber or manhole.

Measurement and determination of discharge

11. The trader shall provide and maintain if required by Anglian Water a notch gauge and continuous recorder and/or some other approved apparatus suitable and adequate for measuring and automatically recording the volume, rate of discharge and nature of the trade effluent to the satisfaction of Anglian Water in connection with every pipe through which trade effluent is being discharged.

Calculation of charges if measuring and recording apparatus fails to measure correctly

12. If the said measuring and recording apparatus ceases to register or measure correctly then, unless otherwise agreed, the quantity of trade effluent discharged into the sewer during the period from the date on which records of the volume of the trade effluent discharged into the sewer were last accepted by Anglian Water as being correct up to the date when the said measuring and recording apparatus again registers correctly shall for the purpose of any payment to be made to Anglian Water be based on the average daily volume of the trade effluent discharged during the period of one month preceding the date on which the said records were last accepted as aforesaid, or during the month immediately after the said measuring and recording apparatus has been corrected, which ever is the higher.

Records

13. The trader shall provide records in such form as Anglian Water may require of the volume, rate of discharge, nature and composition of trade effluent discharged into the sewer and these shall be available at all reasonable times for inspection by duly authorised representatives of Anglian Water. Copies of such records shall be sent to Anglian Water on demand.

Changes to processes

14. The trader shall forthwith give to Anglian Water notice in writing of any change or proposed changes in the flow, the process of manufacture or nature of the raw materials used or of any other circumstances which may alter the nature and composition of the trade effluent or may result in cessation of the discharge.

Appendices

15. The Appendices to this Consent shall form part of this Consent for all purposes and the terms of the Appendices shall be complied with accordingly.

Definitions

16. References to the Act are to the Water Industry Act 1991, as amended, and references to any Act, Regulations or Order include any amendment or replacement. Except where a contrary intention is intended, any term defined in the Act shall be given the same meaning in this consent.

Duly authorised to sign on this behalf:

Signed.....

Trade Effluent Scientist

Dated this..... 19th ..... day of ..... May 2009

NOTE 1:

Your attention is drawn to the right to appeal to the Water Services Regulation Authority ("WSRA") conferred by Section 126(1) of the Act which reads as follows:

'The owner of occupier of any trade premises may -

(a) within two months of the giving to him under subsection (5) of section 124 of a notice of a direction under that section; or

(b) with the written permission of the WSRA, at any time,

appeal to the WSRA against the direction.'

NOTE 2:

This consent variation has been issued to reflect (i) the EA requirement to increase daily & hourly flow rates, and (ii) amend Section 5(b) limits to meet current trade effluent requirements

APPENDIX

Trade Effluent (Prescribed Processes and Substances) Regulations 1989

Prescribed Substances - Schedule 1

Mercury and its compounds
Cadmium and its compounds
gamma-Hexachlorocyclohexane
DDT
Pentachlorophenol
Hexachlorobenzene
Hexachlorobutadiene
Aldrin
Dieldrin
Endrin
Carbon tetrachloride
Polychlorinated biphenyls
Dichlorvos
1,2-Dichloroethane
Trichlorobenzene
Atrazine
Simazine
Tributyltin compounds
Triphenyltin compounds
Trifluralin
Fenitrothion
Azinphos-methyl
Malathion
Endosulphan

Reason for consent

This consent document has been issued for the following reasons:

- to allow you to use our trade effluent service
- to define the level of service offered by Anglian Water in respect of that service
- to protect public health and that of our employees
- to protect the environment
- to protect our infrastructure, processes and product
- to ensure compliance with the regulatory regime.

You must comply with the consent conditions at all times. Failure to do so may lead to enforcement action being taken against you by Anglian Water.

Contact Details

Your Anglian Water contact for all trade effluent matters is detailed in the covering letter associated with this document.

In case of an out of hours emergency you must contact Anglian Water via the Helpline on 08457 145145.

Further contact details may also be obtained from the Anglian Water website located at www.anglianwater.co.uk

Consent History

The following represents a listing of consent documents associated with this discharge:

WCB 64 - 29/11/1990 - Sandspinners Ltd - Original consent
ADK 93 - 02/07/1999 - Sandspinners Ltd - Variation
ADO 263 - 14/06/2004 - Landfill Site - Variation
ADU 106 - 19/05/2009 - Viridor Waste Wootton Limited - Variation

APPENDIX 2

Basic Pre-App and Response

Miss Kellie-Marie Pacifico Burston
Viridor Waste Wooton Limited
Viridor House
Priory Bride Road
Taunton
TA1 1AP

Our reference: EA/EPR/UP3795NQ/V008
Date: 04/03/2021

Dear Miss Pacifico Burston

Pre application advice – Basic service

Site: Wootton Landfill, Wootton Quarry, A508 Southbound, Collingtree, Northants, NN4 0LY

Thank you for your pre application enquiry on 16/02/2021.

Based on the information contained in the enquiry form you submitted, I understand you wish to vary the current permit to include a new methane stripping plant with a capacity of less than 50 tonnes per day within the boundary of the permit. The response here is based solely on the information provided in the form.

You will need to apply for a variation to the permit to add this activity.

Below are details about how to apply for this variation and how much it will cost.

Forms

You will need to submit the following forms. Please ensure you download the latest version of the forms, as your application will be returned if an old version of the forms is used:

- Part A
- Part C2
- Part C4
- Part F1

These forms can be found at the following link:

Environmental permit application form: change (vary) an existing permit - GOV.UK (www.gov.uk)

You must read all accompanying guidance when completing the forms to ensure you do not miss anything out.

Declaration

Please ensure the Declaration section is completed by each "relevant person".

- For an application from an individual, a relevant person is the person to be named on the permit.
- For an application from more than one individual, each person who is applying for their name to be on the permit must complete the declaration – you will have to print a separate copy of the declaration page for each additional individual to complete.
- In the case of a company, a relevant person must be an active director/company secretary as listed on Companies House – https://beta.companieshouse.gov.uk/
- For a charity, a relevant person is a key post holder, i.e., chair, chief executive, director or trustee.

Additional information required

The following additional documents and supporting information will be required as part of your application:

- Non-technical summary of how you wish to vary your permit
- Evidence of appropriate technical competence for the new activity
- Site specific risk assessment

Environmental Management System

You must also send a summary of your environmental management system (EMS). Guidance on this is available from Gov.uk:

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

Useful information on other permissions can be found here:

I would highly recommend that you read our Core Guidance document which will tell you about the permitting process and provide information about your responsibility as a waste operator. Here is the link:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/211852/pb13897-ep-core-guidance-130220.pdf

You might also find useful to read relevant sections of the Sector Guidance Note S5.06 for the recovery and disposal of hazardous and non-hazardous waste, which can be found here:

https://www.gov.uk/government/publications/sector-guidance-note-s506-recovery-and-disposal-of-hazardous-and-non-hazardous-waste

Application Fees

The application fee will be: £10,141

This fee is comprised of:

As you are adding a new activity to your permit, you will need to pay the new application fee for that activity. The new application fee for a leachate treatment plant with a capacity of 50 tonnes or less per day is £10,141 (section 1.17.5 of the Environmental Permitting Charging Scheme).

Please note that your application will not be processed until we receive the full application fee payment.

The Environmental Permitting Charging Scheme can be found at the following link:

The Environment Agency (Environmental Permitting) (England) Charging Scheme - Consolidated versions including all ammendments up to and including April 2019 (publishing.service.gov.uk)

What happens next?

If you submit an environmental permit application then please quote this pre-application reference number: EA/EPR/UP3795NQ/V008

If the advice above details using the online digital application form, your application can be submitted using this method. If not, please send your completed application documents via email to:

psc@environment-agency.gov.uk

We are not currently processing paper applications as our offices are closed. Any applications submitted via post will be stored at the Permitting Support Centre until we are able to re-open the office. For further information, please check our latest operational update on the Environment Agency website.

Current application timescales

Dealing with the impact of COVID-19

We are following Government advice to manage the risks of Coronavirus to our organisation, to protect the health, safety and wellbeing of our staff and sustain our critical operations.

We are doing all we can to maintain our service, however it may take us longer than usual to respond to you. It is important that you inform us of any applications that are critical to maintain national resilience, national infrastructure and critical environmental protection.

Our current queues are large and we are taking longer than usual to allocate work for duly made checks. Please see the table below for current average queue times.

Application type	Average time on queue
New standard rules	7-9 weeks

New Bespoke	10-12 weeks
Admin variation	2-4 weeks
Minor variation	6-8 weeks
Normal variation	9-11 weeks
Substantial variation	9-11 weeks
Transfer	6-8 weeks
Surrender	6-8 weeks

Disclaimer

The advice given is based on the information you have provided, and does not constitute a formal response or decision of the Environment Agency with regard to future permit applications. Any views or opinions expressed are without prejudice to the Environment Agency's formal consideration of any application. Please note that any application is subject to duly making and then full technical checks during determination, and additional information may be required based on your detailed submission and site specific requirements and the advice given is to address the specific pre-application request.

This advice covers waste only. Other permissions from the Environment Agency and/or other bodies may be required for associated or other activities.

This pre-application request is now closed.

Further enquiries resulting from this response must be logged as a new request using the online form:

https://www.gov.uk/government/publications/environmental-permit-pre-application-advice-form

Our basic pre-application service is free and is limited to the information detailed on section 2 of the Environmental permitting charges guidance on gov.uk.

If you need more extensive or technical pre-application advice, you can ask for our enhanced pre-application service. The enhanced pre-application advice is charged at £100 per hour plus VAT. You will need to complete and submit a new online pre-application request to request enhanced pre-application advice.

If you have any questions please find my contact details below.

Yours sincerely

Ellie Hayes

Ellie.Hayes@Environment-Agency.gov.uk

Viridor Waste Management Ltd.

Tender submission:

Methane Stripping Plants for 4 sites

1st June 2020

Viridian Systems Ltd.
Unit 39
Wirral Business Centre
Dock Road
Birkenhead
CH41 1JW
0151 – 639 8666
www.viridiansystems.com
info@viridiansystems.com

1. Introduction

Viridor Waste Management Ltd has invited Viridian Systems Ltd to tender for design, construction and commissioning of treatment plants to strip dissolved methane (DM) from landfill leachate at four of their sites, specifically Poole, Wootton, Yanley and Beddingham landfill sites.

2. Proposal

Although there are different methods for driving DM out of solution in leachate, aeration is most widely employed in the UK and is considered BAT. Aeration is the method we will be offering in this proposal.

Discussion on utilising existing infrastructure:

We do not believe it to be efficacious or cost-effective to install aeration systems in existing leachate storage tanks or lagoons. We would not provide any process guarantees for methane stripping in existing tanks or lagoons that are not designed for that purpose. Moreover, the operating costs of aeration systems for methane stripping in large tanks and lagoons is prohibitively expensive. The lagoon aeration system at Beddingham is a prime example of this: the system comprises of very inefficient course bubble diffusers and 7.5kW blowers and does not achieve the trade effluent consent (TEC) limit in respect of DM. The plants we are proposing will be more cost-effective to operate and maintain. In the case of Beddingham, our plant will use perhaps 1/10th of the electrical energy of the current arrangement whilst achieving the TEC limit for DM.

We have considered the information provided to us within Table 1-3: Summary of Daily Leachate Discharge Volumes within the tender document and have sized the plants to treat the 95th %ile daily flows in each case. Similarly, our design considers the 95th %ile values for DM. Our design values are as follows:

Site	m^3/day	m^3/hour	DM (mg/l)
Poole	177	7.38	4.3
Wootton	24.6	1.03	6.3
Yanley	142.3	5.93	7.2
Beddingham	103.7	4.32	1.6

Based on the information provided, we are proposing 4 self-contained, fully bunded, skid-mounted plants, 3 of the of the same size and a smaller plant for Wootton. In addition to process chemicals, these plants will only require supply of electrical power and leachate and as they are skid-mounted, they can be placed on a level, compacted stone base.

The MSP's for Poole, Yanley & Beddingham will generally comprise:

- Duty/standby raw leachate progressing cavity feed pumps, mounted on a concrete plinth
- Electromagnetic flow meter on feed to MSP
- Prefabricated steel skid and bund arrangement, approximately 10.9m long x 3.0m wide, with a bund depth of 0.7m to provide CIRIA C736 compliant bunding in respect of hydraulic containment, jetting and surge. The bund will have a small sump, pump c/w level controls and a hi-hi float switch
- Steel access gantry and stairs to 1m below the top of the reaction tanks to enable access for viewing, sampling and maintenance
- Enclosure with MCC/SCADA and telemetry, mounted externally to the bund on the skid
- 4 x 1.8m^3 HDPE reaction tanks, 455mm diameter top access and vent, tanks connected in series at high level
- 1 x 1.8m^3 HDPE degassing tank fitted with a top-mounted agitator
- 1 x 1.8m^3 discharge pumping tank
- Duty/standby progressing cavity discharge pumps
- MCERTS Electromagnetic flow meter on discharge to sewer
- Each reaction tank will be fitted with two easy-to-remove Jaeger TD63 x 750mm long, fine-bubble tube diffusers, capable of accepting 2 - 9 m_N^3/hour of air
- Enclosure mounted at high level within the bund, housing duty/standby blowers capable of delivering 43 m^3/hour @ 200mBars for Poole and 25 m^3/hour @ 200mBars for Yanley and Beddingham

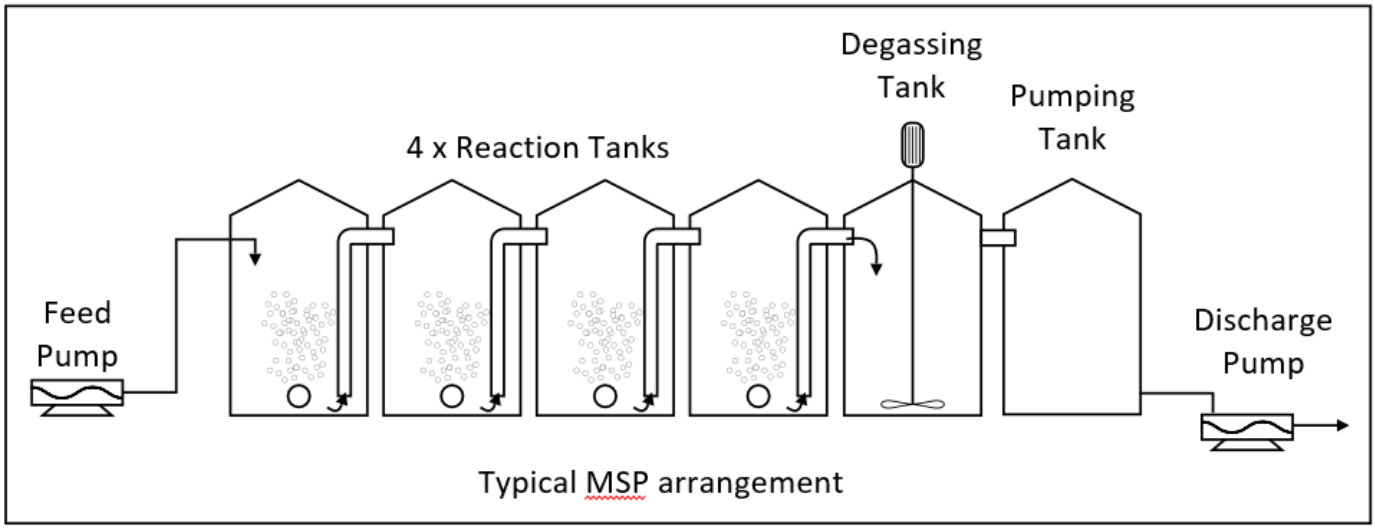
- Dosing pump enclosure housing a duty only antifoam and antiscalant dosing pumps. The dosing pump enclosure incorporates bunded storage for 1 x 25 litre drums of antifoam and antiscalant. The dosing pump enclosure is also mounted on the skid, externally to the bund for easy access to exchange 25 litre drums
- 210 litre carbon filter to capture odorous off-gas from each reaction tank and the de-gassing tank

The MSP for Wootton will be as described above except for the following:

- Prefabricated steel skid and bund arrangement, approximately 8.0m long x 2.5m wide, with a bund depth of 0.7m to provide CIRIA C736 compliant bunding in respect of hydraulic containment, jetting and surge. The bund will have a small sump, pump c/w level controls and a hi-hi float switch
- 4 x 0.7m^3 HDPE reaction tanks, 455mm diameter top access and vent, tanks connected in series at high level
- 1 x 0.7m^3 HDPE degassing tank fitted with a top-mounted agitator
- 1 x 0.7m^3 discharge pumping tank
- Each reaction tank will be fitted with two easy-to-remove Jaeger TD63 x 500mm long, fine-bubble tube diffusers, capable of accepting 1 - 6 m_N^3/hour of air
- Enclosure mounted at high level within the bund, housing duty/standby blowers capable of delivering 5.5 m^3/hour @ 200mBars

Note: As our proposed MSP's are skid-mounted, they could be placed onto a compacted stone base overlain with free-draining gravel, no concrete base needed.

3. Process description:



Typical MSP arrangement

Raw leachate will be pumped from the existing raw leachate tanks on each site via duty/standby progressing cavity (PC) feed pumps. PC pumps are more suited to this application because they can be readily speed controlled to achieve reliable flow rates and they are much less prone to calcification because they don't agitate the leachate to the same degree a centrifugal pump would. Raw leachate will enter each reaction tank at the top and flow downwards, exiting via a pipe carrying liquid up to the top of the next tank. This will provide counter-current flow to the aeration system which is by far the most efficient system for removing dissolved methane. In the third tank there will be a similar pipe exiting the tank at the liquid height of 1.6m. There will be removable lids on each tank to facilitate maintenance, de-scaling and de-sludging as required. The lids can also be used as an inspection point to enable the operator to check on foam level or aeration pattern.

Air to the diffusers will be supplied by duty/standby Elmo Rietschle, oil-free sliding vane blowers. The blower models will be as follows:

- Poole: V-DTN 41, capable of delivering 43 m_N^3/hour @ 200 mBars, 1.5 kW
- Yanley: V-DTN 26, capable of delivering 25 m_N^3/hour @ 200 mBars, 0.75 kW

- Beddingham: V-DTN 26, capable of delivering 25 m_N^3/hour @ 200 mBars, 0.75 kW
- Wootton: V-DTE 6 capable of delivering 5.5 m_N^3/hour @ 200 mBars, 0.25kW motor.

These blowers are energy efficient at the duty point. Air-flow measurement to each reaction tank will be via 4 variable area flowmeters.

On exiting the third reaction tank, leachate will enter a degassing tank which, like the aerated reaction tanks, remains constantly full and is stirred with an agitator to encourage liberation of residual micro-bubbles of gases.

From the degassing tank, leachate then passes to the pumping tank allowing treated leachate to be discharged to sewer by pump or gravity – we have assumed discharge to sewer by pump. Gravity discharge can be continuous, pumped discharged would be in batches to achieve self-cleansing velocity in the rising main.

Aeration and/or agitation of leachate will, in most cases, result in the formation of foam, we have therefore included for antifoam dosing.

Calcification:

Aeration or agitation of raw leachate can induce calcification; this is inevitable because dissolved carbon dioxide is also driven out of solution with methane, thus destabilising the calcium bicarbonate equilibrium which automatically readjusts by precipitating calcium carbonate. However, it is possible to reduce calcification by controlling the aeration rate to the minimum required whilst still achieving compliance with the methane tender limit of 0.11 mg/litre. There are a number of methods for achieving this. One of these is to use a methane monitor (typically a membrane device) to control the aeration rate. We have found such methane monitors to be unreliable and prohibitively expensive. Our preference is to adjust air flow rate manually and rely on regular laboratory methane analyses to ensure the optimum airflow rate is achieved.

We were recently commissioned by a client to carry out trials which included trialling antiscalants. The trials were successful. Calcification can be reduced markedly by dosing antiscalant at very low dosage rates, perhaps 5 – 50ml/m^3 of leachate. Operational experience with each plant will determine the need for and dosing rate of antiscalant. We have included for an antiscalant dosing system for each plant.

Discharge mains:

There is a risk that the existing discharge pipelines could become blocked with calcium carbonate scale over time. The beneficial effect of antiscalants can be time limited in any system. It may prove necessary or beneficial to dose antiscalant into the raw leachate feed to the MSP and into the degassing tank to help protect the discharge main.

Aeration:

Aeration in an MSP is a continuous process when the plant (flow present) is operational. The airflow is regulated via an airflow regulator situated on each separate air feed to the aeration vessels. This ensures an evenly distributed supply of air to each tank. The airline to each tank is then connected to the vessels via a sealed HDPE plate and the connected inside the vessel via threaded hose which in turn is connected to a manifold with two fine bubble diffusers.

We use fine bubble tube or disc diffusers because they are (a) more effective at methane stripping than course bubble diffusers and (b) they are significantly more energy efficient than course bubble diffusers. We have specified tube-type fine bubble diffusers for the following reasons: -

- They provide an excellent fine bubble stream
- When used in parallel in a circular vessel they provide excellent coverage of the vessel plan area, ensuring very efficient aeration and mixing.
- Despite being ballasted so that the manifold/diffuser assembly readily sinks in the reaction tank, they are light and easy to remove for servicing or cleaning.
- Long life-expectancy – we anticipate 5-10 years at least and they are inexpensive to replace.
- Air pressure can be increased for short periods to flex-off scale deposition.
- The micro slits do not allow water in.

- The rubber (EPDM) sleeve is easy and cheap to replace although the whole diffuser is also cheap to replace.

Bubble size and tank depth are very important factors:
As liquors flow through the aeration chambers the fine bubble diffusers release air in the form of micro-bubbles in each of the tanks. Despite being fine bubble diffusers, the upward flow of air is quite vigorous, causing the necessary agitation to drive the dissolved methane out of solution. The transit time to surface for a fine bubble is very much longer than that of a course bubble and therefore has more time to be effective. Bubble size and water depth are key factors in both the effectiveness of methane stripping and the efficient use of energy. The longer the bubbles are held within the liquor the more efficacious they will be in removing methane.
We believe the key factors to efficient, effective methane stripping are: -

- Fine bubbles
- Large aggregated surface area of bubbles
- Water depth
- Residence time in each aeration chamber; the plant we propose for all 4 sites provides in excess of 1 hour of residence time in the reaction tanks. Moreover, the operating cost of our MSP's is very low due to the relatively small blower sizes.

4. Civils, bunding & secondary containment

We have included for groundworks in preparation for placement of the MSP skid. As previously noted, as our plant is skid mounted and can be placed on a level, stable and free-draining surface.

We have included for a concrete plinth for transfer pumps, i.e. the pumps that would transfer raw leachate to the MSP at a controlled rate.

We have included for a suitable tanker bay to contain spillages and direct such spillage into a sump with a float-controlled pump, discharging into the raw leachate tank.

Bunding of the MSP will comply with CIRIA C736. The bund floor will incorporate a sump c/w sump pump for rainwater control. Rainwater to be discharged into the first reaction tank.

Secondary containment:

- Antifoam is not a hazardous chemical and does not need secondary containment.
- Antiscalant is an irritant, the delivery pipes will be double contained.
- Where appropriate, pipework will be trace-heated, lagged and clad with rodent/bird proof cladding.

5. Level control

All tanks will have Hi and Hi/Hi float switches to provide alarms in the first instance and to inhibit feed.

The bund sump pumps will have integral float switches.
The bund will have a float switch for alarm purposes and to inhibit the leachate feed pumps and the recycling pad sump pumps.

We will install Radar level sensors in the following tanks:

- Raw leachate tank – level indication and pump control
- Discharge pumping tank – pump control

6. Calcification

We have allowed for an antiscalant dosing system to inhibit formation of calcium carbon scale. This is because all leachates contain calcium bicarbonate - $Ca(HCO_3)_2$ which is a soluble equilibrium. The action of methane stripping by aeration causes agitation and it is the agitation that drives methane out of solution, but it should be noted that it also drives CO_2 out of solution. This destabilises the $Ca(HCO_3)_2$ equilibrium. The equilibrium must re-stabilise itself and does so by precipitation of calcium carbonate - $CaCO_3$ and this typically forms a hard scale. Scaling ions attach themselves to any particles (grit, fibres etc.) and surfaces (pipes, tank walls, diffusers), utilising them as crystal nucleation sites which then grow and aggregate. In an MSP Scaling is not caused by the presence of oxygen, it is simple agitation by aeration.

Minimal energy is required to achieve the agitation required to drive methane out of solution and it is important that aeration is not excessive as this could exacerbate scaling. Dosing the antiscalant which contains phosphonate, changes leachate chemistry very slightly and the resulting calcium phosphonate is much more soluble than calcium carbonate and should not precipitate out in MSP. However, with continuous dosing of the antiscalant at a controlled rate in the MSP, we think the effect of the antiscalant is unlikely to diminish in the discharge main to the Thames Water WwTW, provided self-cleansing velocity is maintained. Despite the addition of antiscalant, the effluent discharged to sewer will be fully compliant with the Trade Effluent Consent. The quality of effluent from the sewage works to controlled waters will not be affected by the antiscalant in our discharged effluent.

7. Sludge/solids

It is inevitable that solids will accumulate in all the tanks containing leachate and recycling pad water and in particular, the MSP and de-gassing tank. The tube diffusers are easy to remove by one person and are easy to clean and/or inexpensive to replace. The de-gassing tank will be fitted with an agitator which will be run continuously to prevent settling of solids and to actively disperse entrained gas. The access gantry provides a safe working platform for a vacuum tanker operator for suction and jetting to clean the tanks out.

We have also provided access to the de-gassing and discharge tanks for jetting and suction clean out.

8. Instrumentation

We have allowed for 2 MCERTS electromagnetic flow meters, one for the feed pump and one on the final effluent.

We have allowed for VEGAPULS WL S 61 Radar level monitoring and control sensors which are widely used for applications in the water and wastewater industry. They are particularly suitable for level measurement in water treatment, in pump stations as well as water overflow tanks. The flood-proof IP 68 housing ensures maintenance-free permanent operation. In addition to the normal hard-wired connection to our system, an integrated Bluetooth module enables the wireless communication with smartphone, tablet or PC.

9. Electrical and control systems

All design, factory assembly and installation shall conform to a relevant recognised British, European or US standard. All switchgear to be Schneider equipment, all outdoor enclosures are to be IP66 GRP Enclosures Built to EN 62208:2011. The installation will be tested in accordance with BS7671:2018. All of the electrical installation shall be in accordance with BS7671:2018 with the rated voltage of the installation being 415v/230v/50Hz.

The PLC will be a Siemens S7, the PLC program will be provided to VWM. It will require Siemens STEP 7 software which can be downloaded from the internet to read the program and SCADA will be "Point of View" (POV), Windows-based software which is a feature-rich industrial HMI with SCADA

The status of all electrical pumps, all level sensors in storage tank, flow meters, and float switches, limit switches can be viewed on the SCADA system. The SCADA system will be provided with the facilities for remote access to Viridor's "Voice" system and connection to Viridor's Monitoring Pro for the exporting of CSV. data files. The SCADA system will include screen mimic diagrams and means for adjusting parameters, the system will also record operational data and display historical data and trends and have the means of exporting the logged data by the means of USB.

The SCADA system will have the following Functions

- Graphical Overview of whole plant
- Individual Graphic Screens
- Information display for each of the plant items e.g. running status, flow rate, levels, motor run hours, faults status.
- Facility to change setpoints
- Process parameters
- Alarm History
- Historic Trends for each of the levels and Flow rates
- Data logging, Emailing of CSV reports and downloading
- Telecommunications Link
- All Software and Licencing keys along with drawings will be provided to Viridor to enable full independent access to all software.

10. Trace-heating and lagging

We have allowed for trace-heating, lagging and cladding of exposed pipework and pumps. Cladding to be rodent and bird proof.

11. CDM Principal Contractor

We have assumed that we would be Principal Contractor under the CDM regulations and have allowed for suitable welfare facilities and accommodation on site and that there is a suitable location on site for these facilities.

12. Testing & Commissioning

We have included for cold-commissioning, electrical testing & certification and biological commissioning. We have not allowed for laboratory analyses. We have allowed for first-fill chemicals. We have not allowed for supply of water to fill the tanks for hydrostatic testing and commissioning.

13. BAT Compliance

We realise the sector guidance note on MSP's has been withdrawn and we cannot readily find any guidance that replaces it. We still consider the old guidance to be relevant and so in order to demonstrate that our proposed treatment system constitutes the Best Available Technique (BAT) for the treatment of this wastewater we have used the BAT Reference Document (BREF) issued by the Environment Agency in February 2007 entitled "Sector Guidance Note IPPC S5.03.

This BREF refers to the use of a Methane Stripping Plant (MSP) for removal of methane in Section 2.1.3.1.1. The plant it suggests achieving "optimum performance":

- Is based on air stripping,
- recommends three or four reactors in series and
- suggests that a small non-aerated tank can provide additional methane removal.

Our proposed plant includes all of these factors and is based on four reactors.

The BREF also mentions potential concerns as discussed below together with our proposals to combat these.

The BREF refers to potential odour problems although it suggests that these are usually very minor. We agree that there is not likely to be any major odour problems but have included a Granular Activated Carbon (GAC) filter in our proposal which will adsorb any traces of odorous compounds in the off-gases.

It also mentions the possibility of foaming and we have included for an antifoam dosing system

Precipitation of inorganic scale is also a common problem with MSP's and we have included an antiscalant dosing system which we have developed successfully in previous plants.

14. Process Guarantees:

See schedules

Flexibility of process:

- The feed pumps for raw leachate are controllable between 0.4 and 1.7m^3/hour.
- The MSP has been sized to accommodate at least 40m^3/day as continuous flow and can operate in batch mode to accommodate discontinuous demand.
- Air flow rate is manually adjustable which can help to reduce over-aeration and hence calcification
- When sizing an MSP, we assume 4 reaction tanks providing ≥1 hours' residence time and 4 times air flow to leachate flow.

15. Commercial

[redacted]

[redacted].

16. Conditions and clarifications to offer

If we need to excavate soils and dispose of them on each site, we have assumed that we can do so at no cost to Viridian Systems Ltd.

Beddingham lagoon cover:

We are declining to offer a cover for the lagoon at Beddingham. We believe such a cover is a potential liability in several regards that we are not prepared to accept.

We have offered an auto-backwash filter on the discharge side of the MSP feed pumps but this will require very regular maintenance because it is likely to suffer from carbonate scaling.

We would like to suggest an alternative storage solution be considered that is not prone to wind borne debris entry, i.e. an enclosed tank. Depending on size, a new tank would obviously be more expensive than a lagoon cover or pump inlet strainer, but it would have considerably lower maintenance costs than a lagoon cover. We are keen to discuss options.

17. Maintenance

The need for maintenance will be very site specific and dependent on flows through each plant. We would be pleased to quote for a maintenance agreement for each plant but would suggest the plants be operated for a year before any such commitment is made by Viridor. We would be pleased to provide support on an ad-hoc basis in the interim.

We trust our offer is of interest to Viridor, if you have any questions or need clarification, please do not hesitate to contact us.

2.0 FORM OF TENDER

[redacted]

[redacted]

[redacted] [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

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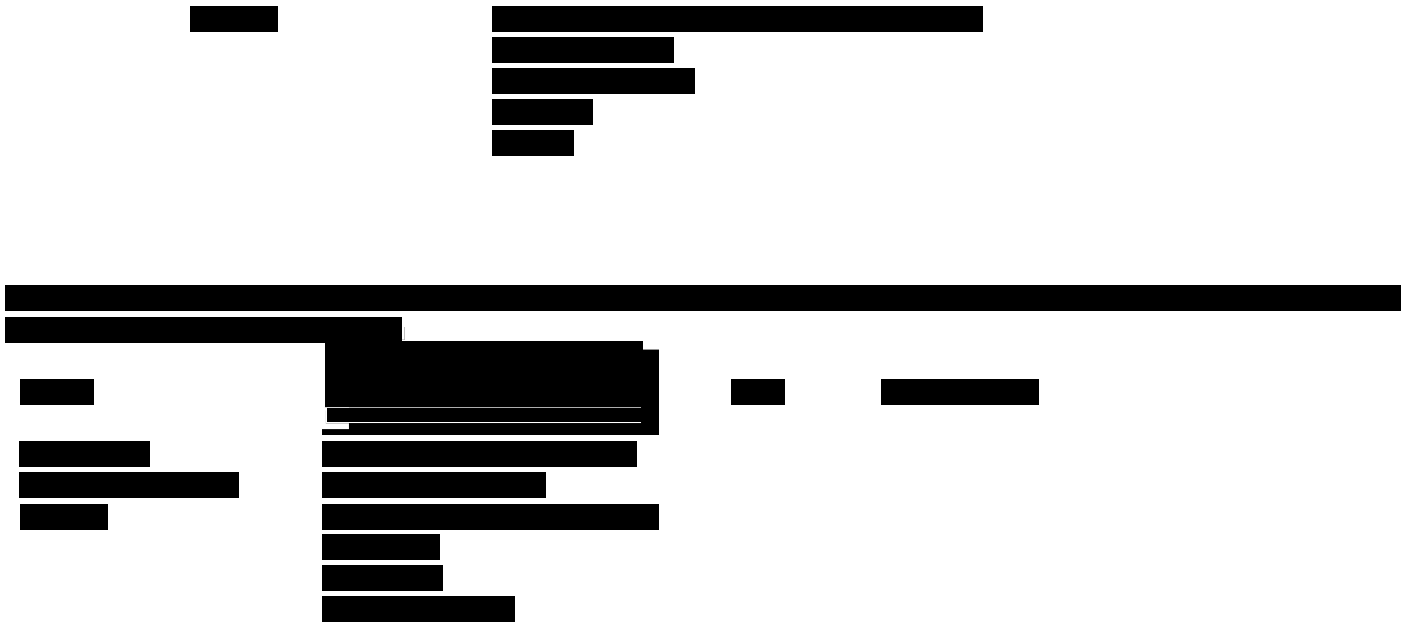

1. Has your company been prosecuted or been issued with an Improvement Notice or Enforcement Notice or Order, by Scottish Environmental Protection Agency, the Environment Agency, or any other enforcement body responsible for protecting the environment (including a Planning Authority in respect of a breach of Planning Control)?

   NO

   Please provide details of your company's environmental policy.

Viridian Systems Ltd Environmental Policy

Environmental management within Viridian Systems Ltd is operated in conjunction with our Health and Safety Policies. The Company undertakes continuous review of all environmental management procedures.

Viridian Systems Limited is committed to continual improvement of its environmental performance, including regulatory compliance, prevention of pollution and effective resource management and achieves this by setting clear environmental objectives and regularly monitoring progress against them by the implementation of environmental management programs, audits and reviews.

In particular, Viridian Systems Limited will:

- Consider the efficient use of energy, water and raw materials, the sustainable use of renewable resources and the reduction of adverse environmental impacts so far as is reasonably practicable.
- Contribute to the conservation and protection of the natural and built environment wherever possible in the course of our work.
- Wherever reasonably practicable, adopt pollution-reducing technologies, processes and practices, employing environmentally sound waste management techniques such as source reduction and improved specification, re-use, re-cycling and safe disposal.
- Ensure that we comply with all relevant European, national and local environmental regulations, working closely and positively with the regulatory agencies and other interested parties as appropriate.
- Identify areas of particular environmental risk and, in co-operation with our clients, the relevant external agencies and local community prepare measures to mitigate those risks and respond to any emergency.
- Regularly measure key aspects of our environmental performance.
- Have particular regard to this policy in the procurement, operation, maintenance and disposal of our vehicles, machinery and other plant.
- Promote environmental awareness among all our staff and encourage their involvement and suggestions regarding environmental performance.
- Provide staff with appropriate levels of environmental training, through staff induction procedures and environmental awareness training, in order to create an environmentally aware workforce with an interest in environmental issues and performance.
- Expect our business partners, sub-contractors and suppliers to share our concern for the environment and to work with us in identifying and applying best practice.
- Influence the environmental performance of our business partners, subcontractors and suppliers by working with them to achieve the same environmental standards as ours, and to exchange environmental concerns to our mutual benefits.

Responsibilities

Responsibility for implementation of this policy and the necessary resource allocation rests with the Managing Director supported by the Board of Directors. Further responsibilities are designated to environmental monitors through the company, who report to the Board.

Communication and Review of the Environmental Policy

The latest revision of this policy will be displayed on notice boards or otherwise brought to the attention of all employees. It will also be brought to the attention of other stakeholders, including business partners and major suppliers.

This policy is revised from time to time to reflect operational needs, regulatory issues, and to accommodate constructive input from members of our staff.

TENDER SCHEDULE 5: HEALTH AND SAFETY QUESTIONNAIRE

1. Who is the source of competent Health and Safety assistance or your organisation?

   Philip Dabner (Finance Director) is currently the acting H&S Manager. He has been in the industry for 19 years.

2. If your organisation employs 5 or more employees attach a copy of your most recent Health and Safety Policy Statement and details of the organisation which ensures this policy is implemented (e.g. an organisational chart).

   Attachment: VSL H&S Policy 2020
   Company Organisation Structure included within VSL H&S Policy 2020

3. What is your system for investigating, recording and reporting accidents, diseases, and dangerous occurrences?

   Accident reporting book together with a Line Manager incident report.

   A works Health and Safety committee is also in place to ensure all members of staff have the opportunity to discuss and H&S issues with Viridian Management. Viridian operates an open door policy on H&S and welcomes suggestions for improvement of H&S from all members of staff and others.

4. What use does your organisation male of accident records and reports?

   Any accident records and reports are reviewed by Senior Management and by the works Health and Safety committee. Information will be disseminated to members of staff via toolbox talks and employee notice boards.

   Details of the number and nature of annual accidents are tabulated and displayed on employee notice boards.

5. Do employees receive instruction and /or training before undertaking work tasks, with scheduled refreshers?

   YES

   All Viridian installation teams have the relevant training to carry out tasks efficiently and safely. Such training includes but is not limited to:

   - Abrasive Wheels
   - Breathing Apparatus
   - Butt Welding
   - CDM Duties (designer and main contractor)
   - CompEX training
   - Confined Spaces
   - Dumper
   - Electro-fusion welding
   - Excavator (CPCS)
   - Full First aid and Emergency First Aid
   - Harness Awareness
   - IEE 17th Edition Wiring Regulations
   - IPAF Training (safe use of MEWP's – mobile vertical and mobile boom)
   - Site Management Safety Training Scheme

   All construction staff have passed the Construction Skills Certificate Scheme (CSCS) Operative H&S test.
   We also undertake full inductions and on-going training for the dangers related to hazards specific for work on operational and closed landfill sites.

- Attachment: Folder- Training records

6. Has your organisation been awarded any safety performance awards?

   YES

   Member of SSIP – Alcumus SafeContractor Scheme

7. Has your organisation been served with an Improvement Notice or a Prohibition Notice or been prosecuted for any health and safety matter within the last 3 years?

   NO

8. As part of the evaluation process and at contract stage you will be required to provide site/project specific, risk assessments, method statements, COSHH assessments, etc. (as appropriate).
   Please confirm that you are able to provide these if so required.

   YES

Signed [redacted] Finance Director

For and on behalf of Viridian Systems Ltd

Date 01 June 2020

TENDER SCHEDULE 6: CONTRACTOR'S EXPERIENCE IN SIMILAR PROJECTS

[redacted]

TENDER SCHEDULE 7: MANAGEMENT STRUCTURE AND SUPERVISORY STAFF

The Contractor is to provide details of the management structure he proposes to use for the execution of the project and roles, resumes and CV's of the proposed staff on the contract:

- Attachment: VSL H&S Policy 2020 – Management Organisation Structure included
- Attachment: Folder – Staff CV's

TENDER SCHEDULE 8: METHOD STATEMENTS

The Contractor is to provide outline (site specific) Method Statements for the main items of work on the contract:

- Attachment: Folder – Outline Method Statements

TENDER SCHEDULE 9: CONTRACTOR'S QUALITY ASSURANCE STATEMENT

The Contractor is to supply details of all Quality Assurance Systems they operate:

- Viridian Systems Ltd operates under ISO9001 : 2015
- Attachment: VSL ISO9001 Certificate 2019 – 2020 (expired 30th May 2020, awaiting audit which has been delayed due to COVD-19)

Completed Contract Schedules

COMPLETED CONTRACT SCHEDULE 7: SUB-CONTRACTING

No Sub-Contractors are intended to be used for works that are of a critical nature, or are projected to account for more than 5% of the total Contract Value.

COMPLETED CONTRACT SCHEDULE 8: CONTRACTOR'S NAMED PERSONNEL

Schedule of Key Personnel:

Name	Title	Function/Responsibility
Roger Dixon	Project Designer	Overall responsibility for design
Dave Robinson-Todd	Treatment Manager	Design of treatment process
Alejandro Londoño	Project Manager	Implementation of Contract
Kevin Hannaway	Electrical Designer	Design and Implementation of electrical & control systems

COMPLETED CONTRACT SCHEDULE 10: PARTS WITH LIMITED WORKING LIFE

Key Components Mechanical Items – Anticipated Life Schedule

Item	Anticipated Life (years)	Estimated Replacement Cost (£)
Diffusers	5	[redacted]
Blowers x 2	5	[redacted]
Transfer pump	Subject to process	[redacted]
Dosing pumps x 2	5	[redacted]
MSP tank	25 (subject to process)	[redacted]

(a) Includes cost to empty tank, labour and parts.

Key Components Electrical Items – Anticipated Life Schedule

Item	Anticipated Life (years)	Estimated Replacement Cost (£)
Level control floats x 6	5	[redacted]
Level transducers x 3	5 (Subject to process)	[redacted]
Control panel	15	[redacted]

Key Components Process/Consumable Items – Anticipated Life Schedule

Item	Anticipated Life (years)	Estimated Replacement Cost (£)
Antifoam	Consumable	[redacted]
Antiscalant	Consumable	[redacted]
Vane Set	6 Months	[redacted]
Blower Air Filter	6 Months	[redacted]

COMPLETED CONTRACT SCHEDULE 17: PERFORMANCE GUARANTEES

The Contractor guarantees that the completed facility will process leachate as a minimum in accordance with the data contained in the tables below:

Performance Guarantees - Equipment

Item Description	Units	Guaranteed Figure
MSP Flow Volume Poole	m^3/day	200
MSP Flow Volume Wootton	m^3/day	50
MSP Flow Volume Yanley	m^3/day	150*
MSP Flow Volume Beddingham	m^3/day	150*
MSP Flow Volume Poole	l/s	2.3
MSP Flow Volume Wootton	l/s	0.58
MSP Flow Volume Yanley	l/s	1.74
MSP Flow Volume Beddingham	l/s	1.74
Maximum annual power consumption	MW/hr	30
Maximum instantaneous power consumption	kW	10
Maximum noise (internally located equipment)	(dB at 1 metre from outside of enclosure)	45
Maximum noise (externally located equipment)	(dB at 1 metre from equipment)	4

*can be increased if blower is upsized to same as Poole

Performance Guarantees – Maximum Treated Leachate Discharge Concentration Limits

Determinand	Unit	Value
COD	Kg/day	No greater than influent quality on same day
COD	mg/l	
pH	unit	
Suspended Solids at 105 °C	mg/l	
Copper (total)	mg/l	
Chromium (total)	mg/l	
Nickel (total)	mg/l	
Lead (total)	mg/l	
Zinc (total)	mg/l	
Dissolved Methane	mg/l	0.11

Table M – 1: Activity Schedule

Type	Item	Element	Number	Unit	Unit Cost	Total	Subtotal
Enabling, Design, Installation and Commissioning	1.1	Site Visits	4	#	[redacted]	[redacted]	[redacted]
	1.2	Process and M&E Design Costs	1	#	[redacted]	[redacted]	[redacted]
	1.3	Attendance at 1 day HAZOP meeting per site	4	#	[redacted]	[redacted]	[redacted]
	1.4	Project Management (Contractor) manpower	16	£/week	[redacted]	[redacted]	[redacted]
	1.5	Insurances	4	#	[redacted]	[redacted]	[redacted]
	1.6	O&M manual production (allow for 3 iterations) and as-built drawings	4	#	[redacted]	[redacted]	[redacted]
	1.7	Welfare Facilities	16	£/week	[redacted]	[redacted]	[redacted]
	1.8	Site establishment (Office, Store, Fencing, etc.)	16	£/week	[redacted]	[redacted]	[redacted]
							[redacted]
Poole	2.1	Mobilisation	1	#	[redacted]	[redacted]	[redacted]
	2.2	Mechanical materials **& Process Equipment**	1	#	[redacted]	[redacted]	[redacted]
	2.3	Electrical / comms materials	1	#	[redacted]	[redacted]	[redacted]
	2.4	Mains electrical connection	1	#	[redacted]	[redacted]	[redacted]
	2.5	Control systems and SCADA **+ Telemetry**	1	#	[redacted]	[redacted]	[redacted]

	2.6	Odour control systems - **Included in Process Equipment**	1	#	[redacted]	[redacted]	[redacted]
	2.7	Supply of tanker bay (all costs, including manpower)	1	#	[redacted]	[redacted]	[redacted]
	2.8	Installation manpower costs (excluding tanker bay)	1	#	[redacted]	[redacted]	[redacted]
	2.9	Commissioning and testing **(Including NICEIC and MEICA FATS)**	1	#	[redacted]	[redacted]	[redacted]
	2.10	Training	1	#	[redacted]	[redacted]	[redacted]
	2.11	Access and lifting equipment	1	#	[redacted]	[redacted]	[redacted]
	2.12	General site works, concreting etc.	1	#	[redacted]	[redacted]	[redacted]
							[redacted]
Wootton	3.1	Mobilisation	1	#	[redacted]	[redacted]	[redacted]
	3.2	Mechanical materials **& Process Equipment**	1	#	[redacted]	[redacted]	[redacted]
	3.3	Electrical / comms materials	1	#	[redacted]	[redacted]	[redacted]
	3.4	Mains electrical connection	1	#	[redacted]	[redacted]	[redacted]
	3.5	Control systems and SCADA **+ Telemetry**	1	#	[redacted]	[redacted]	[redacted]
	3.6	Odour control systems - **Included in Process Equipment**	1	#	[redacted]	[redacted]	[redacted]
	3.7	Supply of tanker bay (all costs, including manpower)	1	#	[redacted]	[redacted]	[redacted]
	3.8	Installation manpower costs (excluding tanker bay)	1	#	[redacted]	[redacted]	[redacted]

	3.9	Commissioning and testing **(Including NICEIC and MEICA FATS)**	1	#	[redacted]	[redacted]	[redacted]
	3.10	Training	1	#	[redacted]	[redacted]	[redacted]
	3.11	Access and lifting equipment	1	#	[redacted]	[redacted]	[redacted]
	3.12	General site works, concreting etc.	1	#	[redacted]	[redacted]	[redacted]
							[redacted]
Yanley	4.1	Mobilisation	1	#	[redacted]	[redacted]	[redacted]
	4.2	Mechanical materials **& Process Equipment**	1	#	[redacted]	[redacted]	[redacted]
	4.3	Electrical / comms materials	1	#	[redacted]	[redacted]	[redacted]
	4.4	Mains electrical connection	1	#	[redacted]	[redacted]	[redacted]
	4.5	Control systems and SCADA **+ Telemetry**	1	#	[redacted]	[redacted]	[redacted]
	4.6	Odour control systems - **Included in Process Equipment**	1	#	[redacted]	[redacted]	[redacted]
	4.7	Supply of tanker bay (all costs, including manpower)	1	#	[redacted]	[redacted]	[redacted]
	4.8	Installation manpower costs (excluding tanker bay)	1	#	[redacted]	[redacted]	[redacted]
	4.9	Commissioning and testing **(Including NICEIC and MEICA FATS)**	1	#	[redacted]	[redacted]	[redacted]
	4.10	Training	1	#	[redacted]	[redacted]	[redacted]
	4.11	Lagoon liner inspection and repair	1	#	[redacted]	[redacted]	[redacted]

	4.12	Access and lifting equipment	1	#	[redacted]	[redacted]	[redacted]
	4.13	General site works, concreting etc.	1	#	[redacted]	[redacted]	[redacted]
							[redacted]
Beddingham	5.1	Mobilisation	1	#	[redacted]	[redacted]	[redacted]
	5.2	Mechanical materials **& Process Equipment**	1	#	[redacted]	[redacted]	[redacted]
	5.3	Electrical / comms materials	1	#	[redacted]	[redacted]	[redacted]
	5.4	Mains electrical connection	1	#	[redacted]	[redacted]	[redacted]
	5.5	Control systems and SCADA **+ Telemetry**	1	#	[redacted]	[redacted]	[redacted]
	5.6	Odour control systems - **Included in Process Equipment**	1	#	[redacted]	[redacted]	[redacted]
	5.7	Supply of tanker bay (all costs, including manpower)	1	#	[redacted]	[redacted]	[redacted]
	5.8	Installation manpower costs (excluding tanker bay)	1	#	[redacted]	[redacted]	[redacted]
	5.9	Commissioning and testing **(Including NICEIC and MEICA FATS)**	1	#	[redacted]	[redacted]	[redacted]
	5.10	Training	1	#	[redacted]	[redacted]	[redacted]
	5.11	Cover system for Lagoon 2 (settlement) (all costs including installation manpower)	0	#	[redacted]	[redacted]	[redacted]
	5.12	Screen / filter system for **discharge** pumps (all costs including installation manpower)	1	#	[redacted]	[redacted]	[redacted]
	5.13	Lagoon liner inspection and repair	1	#	[redacted]	[redacted]	[redacted]

	5.14	Access and lifting equipment	1	#	[redacted]	[redacted]	[redacted]
	5.15	General site works, concreting etc.	1	#	[redacted]	[redacted]	[redacted]
							[redacted]
General	10.1	Other (please provide details) – add additional if necessary					
	10.2	Other (please provide details) – add additional if necessary					
Grand Total							[redacted]

Table M-2: Operating Budget Template

Notes:
We have allowed for an annual cost increase of 3.5% in the operating budget costs.
We have assumed the 95th%ile for daily flow rate in each case to calculate the operating budget costs.

Process Item	Element	Yr1	Yr2	Yr3	Yr4	Yr5	Total	Subtotal
Poole	Power (X.XkWh/m^3 @ £0.16/kWh),	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Chemicals (assume £0.06/m^3 of treated leachate for '**Antifoam**' and assume £0.03/m3 of treated leachate for '**Antiscalant**'	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Planned maintenance/calibration (blower service, flowmeters calibration, plant de-sludging)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Ad-hoc maintenance	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	
	Manpower (26 days per year share of salary @ £30k/yr)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Consumables such as PPE, cleaning chemicals, lab chemicals etc (please provide detail of main items)						[redacted]	
	Monitoring and off-site lab-analysis costs						[redacted]	
								[redacted]
Process Item	**Element**	**Yr1**	**Yr2**	**Yr3**	**Yr4**	**Yr5**	**Total**	**Subtotal**
Wootton	Power (X.XkWh/m^3 @ £0.16/kWh),	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Chemicals (assume £0.06/m^3 of treated leachate for '**Antifoam**' and assume £0.03/m3 of treated leachate for '**Antiscalant**'	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

	Planned maintenance/calibration (blower service, flowmeters calibration, plant de-sludging)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Ad-hoc maintenance	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	
	Manpower (26 days per year share of salary @ £30k/yr)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Consumables such as PPE, cleaning chemicals, lab chemicals etc (please provide detail of main items)						[redacted]	
	Monitoring and off-site lab-analysis costs						[redacted]	
								[redacted]
Process Item	**Element**	**Yr1**	**Yr2**	**Yr3**	**Yr4**	**Yr5**	**Total**	**Subtotal**
Yanley	Power (X.XkWh/m^3 @ £0.16/kWh),	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Chemicals (assume £0.06/m^3 of treated leachate for '**Antifoam**' and assume £0.03/m3 of treated leachate for '**Antiscalant**'	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Planned maintenance/calibration (blower service, flowmeters calibration, plant de-sludging)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Ad-hoc maintenance	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	
	Manpower (26 days per year share of salary @ £30k/yr)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Consumables such as PPE, cleaning chemicals, lab chemicals etc (please provide detail of main items)						[redacted]	
	Monitoring and off-site lab-analysis costs						[redacted]	
								[redacted]
Process Item	**Element**	**Yr1**	**Yr2**	**Yr3**	**Yr4**	**Yr5**	**Total**	**Subtotal**
Beddingham	Power (X.XkWh/m^3 @ £0.16/kWh),	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

	Chemicals (assume £0.06/m^3 of treated leachate for '**Antifoam**' and assume £0.03/m3 of treated leachate for '**Antiscalant**'	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Planned maintenance/calibration (blower service, flowmeters calibration, plant de-sludging)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Ad-hoc maintenance	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	
	Manpower (26 days per year share of salary @ £30k/yr)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Consumables such as PPE, cleaning chemicals, lab chemicals etc (please provide detail of main items)						[redacted]	
	Monitoring and off-site lab-analysis costs						[redacted]	
								[redacted]

ENVIRONMENTAL (Construction) – Site Specific Management Plans

Viridian will ensure that the project is designed and constructed to minimise its environmental impact and to ensure that wastes delivered to the Site can be dealt with in a safe and proper manner, having regard to all guidance relating to the management of waste.

Viridian will be responsible for the control of all emissions during the construction and commissioning stages of the project and will set out how these will be managed during the construction and commissioning stages of the project in the Site Environmental Management Plan.

Viridian will also be responsible for the management of all wastes arising from the project and the Site Environmental Management Plan will include a protocol for the removal and safe disposal of all construction waste products and/or materials resulting (including recycling/reuse where possible) from the construction of the project.

As part of the site induction, all site personnel will be instructed on appropriate separation, handling, recycling/reuse and disposal of waste materials.

The Viridian Site Manager will be responsible for the following:

- Ensuring the site is kept clean and safe
- The collection of waste from a central point
- Segregation of waste on site
- Ensuring that all access routes are kept clear of debris on a regular basis

Site Boundary:
The Construction (Design and Management) area will be cordoned off for the duration of the construction phase.

Final restoration:
On completion of the works, Viridian will clean the site and remove all debris, rubbish and accumulated materials relating to the works.
Viridian will maintain and protect any public roads and footpaths, including statutory services and similar undertakings, and will make good any damage thereto.

APPENDIX 3

Technical Ability Certificate

seracUK

9 Chalk Hill House, 19 Rosary Road, Norwich, Norfolk, NR1 1SZ
T 0844 800 8828 | E office@serac.co.uk | W www.serac.co.uk

Personal

Mr P Kitchener
66 Coxs End
Over
Cambridge
CB24 5TZ

Date: 26/08/16
Our Ref. 3851\AFC1345\JD

Dear Philip

Re: **Completion of your Qualification**

Congratulations on completing your **4MPTNH6 - WAMITAB OCC Non - Hazardous Treatment (QCF)** qualification.

Following your completion of all of the units please find enclosed your Certificate along with your Operator Competence Certificate (OCC) issued by the Awarding Organisation. These certificates are for you to keep.

Please note that the External Moderator may still require to see your evidence folder. Therefore you must keep your folder available for three years from the date on your certificate, and send it to SERAC UK if requested.

We hope that you have found your assessment for your qualification useful and rewarding. In order for us to try and improve our service in the future, we would be grateful if you would complete and return the enclosed questionnaire about your assessment in the prepaid envelope provided.

Best wishes for the future.

Yours sincerely

Jane Wardle
Operations Coordinator

Enc. Certificates
Completed Award, Questionnaire and Envelope

Certificate No. OCC66965

Operator Competence Certificate

Title:

Non Hazardous transfer/with or without treatment (not otherwise specified) (4MPTNH6)

This Certificate is awarded to

Philip Kitchener

Awarded: 10/06/2016

Authorised

WAMITAB Chief Executive Officer

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.

00089970

Credit certificate
This certificate determines credit awarded to:
Philip Kitchener

Units gained:

		Credit Value	Credit Level
M6009712	Manage the environmental impact of work activities	5	4
F6021671	Manage site operations for the treatment of non hazardous waste	14	4
L6021429	Manage the transfer of outputs and disposal of residues from non hazardous waste treatment and recovery operations	13	4
K1013867	Control the reception of hazardous waste		
M1013871	Control the movement, sorting and storage of hazardous wastes		
U1051769	Monitor procedures to control risks to health and safety (Employment NTO Unit B)		

Awarded: 10/06/2016

Serial No.: 13729/MSCE9/1

Authorised

Chris James
Chief Executive Officer, WAMITAB

Regulated by Ofqual

For more information see http://register.ofqual.gov.uk

Corff dyfarnu cydnabyddedig
CYMWYSTERAU CYMRU QUALIFICATIONS WALES
Recognised awarding body

The qualifications regulators logos on this certificate indicate that the qualification is accredited only for England, Wales and Northern Ireland.

00090000

Continuing Competence Certificate

This certificate confirms that

Philip Kitchener

Has met the relevant requirements of the Continuing Competence scheme for the following award(s) which will remain current for two years from 29/04/2019

LH	Landfill - Hazardous Waste
TMNH	Treatment - Non Hazardous Waste

Expiry Date: 29/04/2021

Verification date: 26/04/2019

Authorised:

WAMITAB Chief Executive Officer

Learner ID: 13729

Certificate No.: 5143262

Date of Issue: 29/04/2019

CIWM Executive Director

The Chartered Institution of Wastes Management

00141448

APPENDIX 4

ISO14001 Certificate

bsi.

By Royal Charter

Certificate of Registration

ENVIRONMENTAL MANAGEMENT SYSTEM - ISO 14001:2015

This is to certify that:

Viridor Waste Management Limited
Viridor House
Youngman Place
Priory Bridge Road
Taunton
TA1 1AP
United Kingdom

Holds Certificate Number: EMS 36550

and operates an Environmental Management System which complies with the requirements of ISO 14001:2015 for the following scope:

The management, operation and associated support services for recycling and resource activities; including composting, recycling of glass, electrical, paper, metals and plastic, recovery of energy from non-recyclable residual wastes (including anaerobic digestion, gas extraction and thermal technologies), the collection, transfer and transportation of recyclates, and safe disposal of residual wastes.

For and on behalf of BSI:

Andrew Launn, EMEA Systems Certification Director

Original Registration Date: 1997-03-25
Latest Revision Date: 2019-08-19

Effective Date: 2018-09-18
Expiry Date: 2021-09-17

...making excellence a habit.™

UKAS MANAGEMENT SYSTEMS 003

Certificate No: EMS 36550

Location	Registered Activities
Viridor Resource Management Ltd 1st Floor Riverside House Sir Thomas Longley Road Medway City Estate Rochester Kent ME2 4FN United Kingdom	The management, operation and associated support services for recycling and resource activities; including composting, recycling of glass, electrical, paper, metals and plastic, recovery of energy from non-recyclable residual wastes (including anaerobic digestion, gas extraction and thermal technologies), the collection, transfer and transportation of recyclates, and safe disposal of residual wastes.
Viridor Waste Management Limited Viridor House Youngman Place Priory Bridge Road Taunton TA1 1AP United Kingdom	The management, operation and associated support services for recycling and resource activities; including composting, recycling of glass, electrical, paper, metals and plastic, recovery of energy from non-recyclable residual wastes (including anaerobic digestion, gas extraction and thermal technologies), the collection, transfer and transportation of recyclates, and safe disposal of residual wastes.

Original Registration Date: 1997-03-25

Effective Date: 2018-09-18

Latest Revision Date: 2019-08-19

Expiry Date: 2021-09-17

APPENDIX 5

Letter of Authorisation

Viridor House, Priory Bridge Rd, Taunton TA1 1AP
T: 01823 721400 www.viridor.co.uk

28 October 2020

To whom it may concern,

Permit Applications, Variations, Transfers and Surrender

I confirm that:

Lisa Edmonds

Aleks Dragicevic

Ian John

who are employed by the company, are authorised to sign EA, NRW and SEPA application form declarations on behalf of Viridor companies.

Yours sincerely,

Kevin Bradshaw
Chief Executive Officer

Nicholas Maddock
Chief Financial Officer

APPENDIX 6

Date of Birth Information

PRIVATE AND CONFIDENTIAL INFORMATION

Relevant Persons Date of Birth

Philip Kitchener

[redacted]

Caulmert
engineering environmental planning

Registered Office: Intec, Parc Menai, Bangor, Gwynedd, LL57 4FG
Tel: 01248 672666
Fax: 01248 672601
Email: contact@caulmert.com
Web: www.caulmert.com