Standard Rules Re-Permitting

Environmental Permit Variation Application - Farmoor Water Treatment Works

TW_STC_EPR_06a | Revised

July 2022

Thames Water

EPR/PP3197EB/V002

Standard Rules Re-Permitting

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Document history and status

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Contents

1. Introduction

The purpose of this Application Support Document (ASD) is to provide supplementary information to support an environmental permit (EP) variation application for the physico-chemical treatment of indigenous and imported water treatment sludge at Farmoor Water Treatment Works (FWTW). This application is being made under the Environmental Permitting (England and Wales) Regulations 2016 (EPR 2016).

The address of the waste treatment operation is:

Farmoor Water Treatment Works,

Cumnor Road

Farmoor

Oxford

OX2 9NS

Thames Water Utilities Limited (TWUL) operates a non-hazardous waste sludge treatment facility at the Farmoor water treatment works (WTW). The treatment process comprises physio-chemical treatment of non-hazardous clean water (drinking water) clarification sludge by:

- sludge settlement & storage
- Sludge balancing;
- thickening (polymer dosing); and
- sludge dewatering (press or centrifuge).

Farmoor is a clean water treatment site, and the sludge handled at the works is related to the supply of clean water only. No sewage related wastes are handled or treated at the site.

The WTW currently holds a standard rules (SR2008 No. 19 250kte) environmental permit (reference EPR/ PP3197EB) waste operation permit for recovery of waste at a water treatment works. On 14th December 2021 the Environment Agency (EA) issued a letter (reference EPR/DP3090SF) to TWUL providing information of standard rules permits changes and actions to take.

This application is made due to unchanged physico-chemical waste sludge treatment operations for recovery at the WTW now requiring a bespoke waste operation environmental permit under the Environmental Permitting Regulations 2016 (as amended) (EPR). This is because standard rules permit SR2008 No. 19 250kte has been consolidated into SR2021No.10. The WTW does not meet qualifying criteria of the new consolidated SR permit. This includes (but not limited to) the WTW not described under EPR as a Part A(1) installation and that Anaerobic digestion of waste sludge is not undertaken at the facility. No other standard rules set is applicable for the WTW.

The process has not significantly changed since EA issue of environmental permit EPR/ PP3197EB in November 2010. Biological treatment is not undertaken at the facility.

In accordance with EA letter EPR/DP3090SF, pre-application advice (reference EPR/PP3197EB/V002) received from the EA on 29th March 2022 and under the EA fees and charging scheme; this application is for a substantial variation to change the permit into a bespoke waste operation permit.

The application covers the physico-chemical treatment of water treatment sludge, imported water treatment sludge from Swinford WTW and sludge by tankers.

Due to the non-flammable nature of wastes handled at the installation, the site falls outside the requirement to prepare and operate a fire prevention plan (FPP).

1.1 Non-Technical Summary

This application is to vary the extant standard rules permit (reference SR2008 No.19) to a new bespoke waste operation permit. SR2008 No.19 has been consolidated into SR2021 No.10 by the EA. An environmental permit is required for the physico-chemical treatment of non-hazardous clean water (drinking water) clarification sludge by:

- sludge settlement & storage
- Sludge balancing;
- Sludge rake thickening (compaction & polymer dosing); and
- Sludge dewatering (by press or backup centrifuge).
- temporary sludge cake storage for offsite land treatment resulting in benefit to agriculture or ecological improvement.

Farmoor is a clean water treatment site, and the sludge handled at the works is related to the supply of clean water only. No sewage related wastes are handled or treated at the site.

The facility is currently permitted to treat up to 250,000 tonnes of clean water clarification sludge per year. Waste sludge physico-chemical treatment is for the purposes of recovery only, which is not a listed activity under EPR Schedule 1 Part II Chapter 5. Therefore, the site requires a waste management level environmental permit.

The physico-chemical treatment of waste sludge includes treatment of imported water treatment sludge from Swinford WTW transferred via a pumping main and capability for sludge from by tanker. Indigenous sludge is received in the sludge balancing tank from the DAF & wastewater settlement tanks. In addition, imported sludge from by tankers and Swinford WTW sludge pumping main are also transferred into the balance tank. It is pumped from here, receiving in-line polymer dosing to thicken into the 2No. sludge thickening tanks. Here, additional connections for pre-thickened imported sludge from Swinford or lagoons is also pumped into the thickening tank. Two continuously raked thickeners, using dosed polymer as an aid promote sludge thickening and compaction whilst separated supernatant is discharged to the wastewater settlement tanks. The thickening tanks recirculate sludge filling to a set level before transferring to sludge holding tanks. The 2No. thickened sludge holding tanks provide storage between the thickening and pressing stages. 2No. Bucher sludge presses each have dedicated sludge feeds from one of the thickened sludge holding tanks, dynamic mixing, and polymer dosing. The sludge presses produce sludge cake which is stored in skips before being collected for recovery. Separated liquor from the Bucher presses is passed through a filtrate buffer tank before being collected into the filtrate sump and discharged to sewer.

Lined contingency sludge storage lagoons are available to store non-thickened sludge if the wastewater process and/or sludge plant becomes overloaded. The time sludge is stored in lagoons is minimised as far as possible to reduce the risk of anoxic conditions. The permit boundary is to be extended to include additional, existing, lagoons within the permit boundary.

The site is located approximately 80m South West of the village of Farmoor, Oxfordshire at its closest point. The WTW is approximately 27m from Farmoor reservoir and 25m from a Filchampstead brook (that flows into the river Thames) running adjacent to Cumnor Road. The WTW is approximately 620m from the River Thames at its closest point. The permitted sludge processing site is part of the wider Farmoor Water Treatment facility neighboured to the south by Oxford sailing club a trout fishery and a boat park associated with Farmoor reservoir.

All tanks are constructed of materials suitable for the containment of water treatment sludges/ treatment raw materials and the sludge treatment/storage areas are completely impermeably surfaced and drained via a private drainage system that eventually discharges into Farmoor reservoir and the River Thames (via sludge lagoons). The discharges are separately licenced by the EA.

There is 3 emission point to water from the permitted site. One emission point to water is from treated (settled and polymer dosed) supernatant to Farmoor reservoir. A second emission point is from treated supernatant and/or filtrate drainage in the wastewater treatment tanks to the River Thames (via settlement lagoons). Both discharges are permitted discharges by the EA. A third emission is into Filchampstead Brook, which is from surface water drainage (with capability for emergency DAF plant and wastewater treatment plant inlet interceptor overflow with isolation valve).

There is one emission point to foul sewer from filtrate drainage and sludge press supernatant in the wastewater treatment tanks failing monitoring targets. The foul sewer transfers liquid to the sewage sewer network for treatment at a TWUL sewage treatment works.

There are no point source emissions to air.

2. Technical Description

Scope

The purpose of this Application Support Document (ASD) is to provide supplementary information to support an environmental permit (EP) variation application for the physico-chemical treatment of indigenous and imported clean (drinking) water treatment sludge at the WTW. This application is being made under the Environmental Permitting (England and Wales) Regulations 2016 (EPR 2016).

The WTW currently holds a standard rules (SR2008 No. 19 250kte) environmental permit (reference EPR/PP3197EB) waste operation permit or recovery of waste at a water treatment works. On 14th December 2021 the Environment Agency (EA) issued a letter (reference EPR/DP3090SF - found within Appendix I) to TWUL providing information of standard rules permits changes and actions to take.

This application is made due to unchanged physico-chemical waste sludge treatment operations for recovery at the WTW now requiring a bespoke waste operation environmental permit under the Environmental Permitting Regulations 2016 (as amended) (EPR). This is because standard rules permit SR2008 No. 19 250kte has been consolidated into SR2021No.10. The WTW does not meet qualifying criteria of the new consolidated SR permit. This includes (but not limited) the WTW is not described under EPR as a Part A (1) installation and that Anaerobic digestion of waste sludge is not undertaken at the facility. No other standard rules set is applicable for the WTW.

The process has not significantly changed since EA issue of environmental permit EPR/ PP3197EB in November 2010. Biological treatment is not undertaken at the facility.

In accordance with EA letter EPR/DP3090SF, pre-application advice (reference EPR/ PP3197EB /V002) received from the EA on 30th March 2022 and under the EA fees and charging scheme; this application is for a substantial variation to change the permit into a bespoke waste operation permit.

The facility is currently permitted to treat up to 250,000m^3 of sludge per year. Physico-chemical treatment is undertaken at the site for recovery purposes only which is not a listed activity under Schedule 1 Part II Chapter 5 of EPR 2016. Therefore, the site requires a waste management level environmental permit. Due to a recalculation of site throughput, this value is to be increased to 650,000m^3 per annum

Location

A site location plan showing the WTW permitted area can be found in Appendix A.6. The permitted site is located approximately 80m South West of the village of Farmoor, Oxfordshire at its closest point near to the sludge lagoons. The permitted sludge processing site is part of the wider Farmoor Water Treatment facility neighboured to the south by Oxford sailing club, a trout fishery and a boat park associated with Farmoor reservoir.

The WTW is approximately 27m from Farmoor reservoir at its closest (lagoons) and 25m (near wastewater tanks) from a Filchampstead Brook. This brook runs adjacent to Cumnor Road and flows into the river Thames. The WTW is approximately 610m from the River Thames at its closest point (lagoons).

Basic pre-application advice has been provided by the EA (reference EPR/PP3197EB/V002) on 30 March 2022. This included a Nature and Heritage Conservation Screening Report generated by the EA. The screening report identifies a site of special scientific interest (SSSI) within 2km of the site and Farmoor Reservoir local wildlife site within 50m. Brown trout protected species are also found in Farmoor Reservoir. The nearest source protection zoned area is 21km.

The site is not within an air quality management area.

The site boundary can be found in Appendix A.1.

Table 1 – Designations near to Farmoor WTW

Site Type	Site Name	Distance from theWTW Boundary
Special area of Conservation	Oxford Meadows	~4.4km
	Cothill Fen	~5.2km
SSSI's	Wytham Woods	~560m
Local Wildlife Sites	Farmoor Reservoir	27m

Waste Treatment and Processing

A process block diagram for the sludge treatment process is included at Appendix A.5.

An environmental permit is required for the physico-chemical treatment of non-hazardous clean waste sludge, generated by the treatment of raw water for public supply by:

- sludge settlement & storage
- Sludge balancing;
- Sludge rake thickening (compaction & polymer dosing); and
- Sludge dewatering (press or centrifuge)
- temporary sludge cake storage for offsite land treatment resulting in benefit to agriculture or ecological improvement.

The facility is currently permitted to treat up to 250,000m^3 of sludge per year. Due to a recalculation of site throughput, this value is to be increased to 650,000m^3 per annum. The water treatment facility site is manned 24 hours a day. Imported Swinford WTW sludges are pumped to theWTW by pumping mains into the sludge balance tank. An additional Bauer connection on this tank is for imported tanker sludge from satellite TWUL sites by tankers. Indigenous sludge that is treated at the WTW is from a number of sources on the site. This includes:

- Wastewater settlement tank sludges – settlement of precipitated flocculated material from river abstraction treatment (rapid gravity filters – RGF). This is predominated by micro-organisms such as algae. Thickened sludge tank supernatant is also treated at this plant. Emergency overflows from the sludge balancing tank is also connected to the plant inlet for treatment.

- Sludge from dissolved air flotation (DAF) treatment settlement tank

- Lagoon sludges - containing mixtures of emergency contingency unthickened sludge, filtrate drainage from wastewater treatment, granulated activated Carbon (GAC) filtration wash water tank (& RFG wash water) as currently permitted and returned supernatant

At the wastewater treatment plant inlet, settlement of thickened sludge tank supernatant and RGF wash water settlement is aided by dedicated pumps dosing polymer. This pump dosing is interlocked with a time delay linked with the operation of the RGF backwash system. After mixing in the inlet pipework, wastewater is directed to the duty wastewater settling tank via a motor operated penstock vale. The system is designed to receive up to 1500m^3/hr flow from the RFGs plus 163m^3/hr flow from thickened sludge tank supernatant. The plant is operated on a cycle fill and draw basis with pumps and isolating valves automatically controlled in response to adjustable timings (filling, settling, desludging, decanting, standby). It can be operated in 'automatic' semi-automatic' (manual 'decant' and 'desludge') and manual modes. Flange connections are provided on sludge pumps to allow rodding and flushing (water) activities to be completed to prevent blockages. To desludge, a

sludge removal system transfers sludge to the sludge balancing tank. Supernatant from decanting operations within the wastewater treatment plant is discharged into the wastewater drainage network where it is discharged to Farmoor reservoir or the River Thames under EA permitted discharge consent. Under abnormal operations (such as turbidity testing failure), 2No. lagoons can also be used for settlement treatment of wastewater.

The wastewater treatment plant inlet channel has an emergency overflow which discharges to the surface water drainage system to Filchampstead Brook (wastewater treatment plant inlet interceptor overflow with isolation valve). Prior to discharge to the brook there is a weir chamber fitted with a level probe to raise an alarm on overflow. The overflow alarm stops RGF wash sequence and generates an alarm on filter panels.

Sludge is received at the sludge balancing tank from DAF plant generated sludge, wastewater treatment plant sludge and imported sludge (Swinford WTW and tanker imports). Filling, recirculation, and discharge of sludge within the tank is automatically controlled relative to tank level. At high level, sludge is transferred by 2No. submersible pumps operating on a duty/standby basis, to the sludge thickening tank. At low level, sludge is recirculated within the tank. This aids with mixing and avoids anoxic zones.

Prior to loading, in-line polymer dosing proportional to flow is pumped in from an orifice plate before the sludge thickening tanks. This is to aid with sludge thickening within the 2No. sludge thickening tanks. A separate connection from the Swinford WTW sludge main and sludge lagoon is also installed to one of the sludge thickening tanks. Two flat-bottomed continuously raked thickeners within the tanks promote sludge thickening and compaction whilst separated supernatant is discharged to the wastewater settlement tanks for treatment. The thickening tanks recirculate sludge filling to a set level before transferring to sludge holding tanks. Thickened sludge transfer is controlled by high level control. Transfer pumping is at a pre-set time cycle.

2No. sludge holding tanks provide storage of thickened sludge before pressing or backup centrifuge. The tanks' capacity allow contingency of a 3-day downtime based on average loading conditions. From the sludge holding tanks 2No. sludge feed pumps with associated dynamic mixer system, solids meter and polymer feed pumps each serve the 2No. Bucher sludge presses.

When a sludge press is activated to run, the feed pumping system transfers sludge for dewatering. The presses are arranged in a duty/assist configuration. They are designed to operate fully automatically. The cake conveyor system is also automatically operated to discharge cake into skips. There are cross-over valve configurations allowing capability of sludge feed pumps to feed sludge to either of the presses. The sludge cake conveyors move between filling the different skips. When a skip is full, it's position is deactivated from filling whilst it is replaced with an empty skip. Once replaced, the skip position is re-activated to resume its filling with the other two skips. Filled skips are collected by appropriately authorised waste carriers. HGV trucks carrying skips are covered and transported offsite for application to land as a recovery activity.

Dewatering filtrate from the presses is passed through a filtrate buffer tank before being collected into the filtrate sump and discharged to sewer. The foul sewer transfers liquid to a TWUL sewage treatment works for full treatment. There are 2No. submersible pumps operating on a duty/standby basis. Pump initiation is controlled by level switches. Filtrate flows to sewer are monitored and recorded via SCADA.

The sludge presses are periodically cleaned using a cleaning in place (CIP) system. The CIP tank is filled with water and if required cleaning chemical (transferred via lance pump from the chemical kiosk store). CIP tank water is heated to a set temperature for cleaning. CIP water is circulated around each press. Wash water is collected via the filtrate buffer tank and discharged to sewer.

A contingency centrifuge is available at the site if sludge presses are unavailable. It is located within a dedicated container to the south of the sludge press building. Permanent above ground level pipework is installed in the sludge press building to supply the centrifuge. Dewatering filtrate from the centrifuge is passed through a filtrate buffer tank before being collected into the filtrate sump and discharged to sewer.

Polymer make-up is prepared from dry polymer powder delivered to site by tanker into dedicated polymer powder tanks. The dry powder room contains dry powder handling equipment, loading powder through 2No.

screw feeders and blowers into the wet room mixing tanks. Powder polymer is mixed with water and is matured on a set timer. The polymer is then transferred into storage stanks prior to dosing. The contingency centrifuge feed uses liquid polymer.

Site Containment & Drainage Infrastructure

The site layout plan and drainage plan are shown in Appendix A.2 and Appendix A.4. The plan shows the locality of plant, equipment, and containment infrastructure at the site.

The site waste treatment areas are constructed of impermeable hardstanding and bordered by impermeable kerbing with sealed joints. The alarmed weir chamber acts as an additional layer of protection for surface water drainage discharge to Filchampstead Brook. The lagoon settlement treatment & storage can act as an additional layer of protection for both Farmoor and River Thames discharges if testing is above target levels.

Table 2 below summarises main containment vessels on site, their construction material and capacity.

Tank Purpose	Number of storage facilities	Design and material of tank construction	Capacity of each tank (m^3)
Wastewater treatment tanks	4	Concrete vessels, partly underground	350m^3 each
Sludge balance tank	1	Concrete vessel, partly underground	117m^3
Sludge thickening tank	2	Above ground tank	330m^3 each
Sludge holding tank	2	Concrete tank, above ground.	100m^3 each
Filtrate buffer tank	1	Above ground tank	50m^3
Contingency sludge storage lagoons	2	Concrete Lined lagoon	1 – 4,620m^3 2 – 4,580m^3
Contingency settlement lagoons	8	Lined earth lagoon	3 - 1,920m^3 4 = 2,613m^3 5 = 2,250m^3 6 = 1,302m^3 7 = 2,466m^3 8 = 2,793m^3 9 = 1,377m^3 10 = 4,965m^3
Polymer mixing tank	2	Bunded tank in a building	3m^3
Wet Polymer storage tank	2	Bunded tank in a building	3m^3

A site drainage plan is provided at Appendix A.4.

Pre-acceptance, Acceptance and Storage of Waste

The site is a dedicated treatment plant for a single waste stream (water treatment sludge) produced only by TWUL at the WTW andSwinford WTW (via piped main and delivered to the WTW by tankers).

TWUL's sludge streams are well known and have been previously chemically tested. Imported sludge arriving at the site via pipeline from Swinford WTW, transferred via a pumped main, has known sludge volumes pumped into tanks. Sludge cake is sampled for land spreading purposes.

Waste Codes

The maximum quantity of waste to be accepted at the site is 650,000 tonnes a year.

TWUL's environmental management system ensures waste is only treated if it conforms to the description in the documentation supplied by the waste producer and holder.

Process Controls

Many operations are monitored automatically from the MCC panels at the site. The WTW also uses a SCADA system for instantaneous process display. Processes included in the system include (but are not limited to):

- Supernatant flow
- Supernatant turbidity

Sample points for supernatant and sludge are installed on the plant. Target set levels from analysis trigger measures (e.g., discharge to water).

Level controls, sensors, trips, actuated valves, and alarms are employed across the sludge process to minimise the risk of pollution. The plant is operated in accordance with Thames Water's management system, including the preventative maintenance programme for the site.

Site Boundary

This variation makes a change in permitted area to what is already listed in the extant permit. There is a series of lagoons at the site, of which two, lagoons 1 and 2, are within the existing permit boundary. All 10 lagoons in this series are now to be included. The WTW remains a waste operation with the same waste treatment undertaken as already assessed by the EA for the extant permit. Consequently, there is no requirement to provide a site condition report with this application.

Odour

The facility has an odour management plan which is supplied as Appendix F.

Bioaerosols

Sludge cake at the WTW site is stored in sealed roll-on-roll-off skips, placed on impermeable surfacing and located away from sensitive receptors. See Appendix G for the site specific bioaerosol risk assessment.

Other Risk Assessments

There is no requirement for a fire prevention plan, due to the nature of the wastes treated at the site and the processes utilised, in accordance with Environment Agency guidance.

2.1 Regulatory listing

The WTW site is currently permitted as a waste operation under EPR. Regulated activities are listed in the table 4 below:

Table 4 – WTW Regulated Activities

Reference	Description of Activities	Limits of Activities
1	R03: Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes)	Treatment consisting only of settlement, blending, mixing, separation, thickening and/or compaction of waste for recovery.
2	R13 - Storage of wastes pending any of the operations numbered R01 to R12 (excluding temporary storage pending collection on the site where it is produced).	
3	D15: Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where it is produced)	

Regulated activities include:

- Imports of waste sludge, including sludge from other water treatment works.
- Settlement, blending and balancing of sludges
- Mixing compacting and polymer dosing to aid thickening
- Dewatering of sludge by filter press or centrifuge.
- Discharge of treated supernatant to water
- Discharge of surface water run-off
- Storage of dewatered sludge cake prior to offsite recovery.
- Storage of waste
- Storage of raw materials

3. Form A1 Questions

Application for an environmental permit Part A – About you

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

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

Apply online for an environmental permit.

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

The form can be:

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

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

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

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

Contents

1 About you

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

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

2 Applications from an individual

2a Please give us the following details

Name

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

First name _____

Last name _____

Now go to section 6

3 Applications from an organisation of individuals or charity

3a Type of organisation

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

3b Details of the organisation or charity

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

Contact name

Title (Mr, Mrs, Miss and so on)

First name

Last name

Now go to question 3c or section 6

3c Details of charity

Full name of charity

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

3d Company registration number

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

3e Charity Commission number

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

Now go to section 6

4 Applications from public bodies

4a Type of public body

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

4b Name of the public body

4c Please give us the following details of the executive

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

Name

Title (Mr, Mrs, Miss and so on)

First name

Last name

Position

Now go to section 6

5 Applications from companies or corporate bodies

5a Name of the company

Thames Water Utilities Limited

5b Company registration number

02366661

Date of registration (DD/MM/YYYY)

01/04/1989

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

Document reference

n/a

5 Applications from companies or corporate bodies, continued

5c Please give details of the directors

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

Document reference: Please see application support document section 3

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

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

First name:

Last name:

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

First name:

Last name:

Now go to section 6

6 Your address

6a Your main (registered office) address

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

Contact name

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

First name: Nick

Last name: Lutt

Address: Clearwater Court
3rd Floor - East
Vastern Road
Reading

Postcode: RG1 8DB

Contact numbers, including the area code

Phone: 07747640438

Fax:

Mobile: 07747640438

Email: nick.lutt@thameswater.co.uk

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

Document reference:

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

Contact name

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

First name:

Last name:

Address:

Postcode:

6 Your address, continued

Contact numbers, including the area code

Phone

Fax

Mobile

Email

Now go to section 7

7 Contact details

7a Who can we contact about your application?

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

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

Document reference of this separate sheet

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

Contact name

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

First name: Alex

Last name: Wilson

Address: Jacobs UK
First Street
Manchester

Postcode: M15 4GU

Contact numbers, including the area code

Phone: 07805604167

Fax

Mobile: 07805604167

Email: alexander.wilson@jacobs.com

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

Contact name

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

First name: Nick

Last name: Lutt

Address: Clearwater Court
3rd Floor - East
Vastern Road
Reading

Postcode: RG1 8DB

Contact numbers, including the area code

Phone: 07747640438

Fax

Mobile: 07747640438

Email: nick.lutt@thameswater.co.uk

7 Contact details, continued

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

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

As in question 7a ☐

As in question 7b ☑

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

Contact name

Title (Mr, Mrs, Miss and so on)

First name

Last name

Address

Postcode

Contact numbers, including the area code

Phone

Fax

Mobile

Email

8 How to contact us

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

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

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

Email: enquiries@environment-agency.gov.uk

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

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

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

9 Where to send your application

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

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

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

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

Or

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

Feedback

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

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

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

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

Would you like a reply to your feedback?

Yes please ☐

No thank you ☐

Crystal Mark 19101
Clarity approved by Plain English Campaign

For Environment Agency use only

Date received (DD/MM/YYYY)

Our reference number

Payment received?

No ☐

Yes ☐ Amount received

£

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

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

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

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

2 Applications from an individual

Please give us the following details

Name

Date of birth (DD/MM/YY)

3 Applications from an organisation of individuals or charity

Details of the organisation or charity

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

Name

Date of birth (DD/MM/YY)

Document reference

4 Applications from companies or corporate bodies

Name of the company: Thames Water Utilities Limited

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

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

Name: See Information provided directly to the Environment Agency

Date of birth (DD/MM/YY)

Name

Date of birth (DD/MM/YY)

Name

Date of birth (DD/MM/YY)

Document reference

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

Environment Agency

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

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

Waste operation changing to installation or vice versa?

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

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

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

The form can be:

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

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

Contents

1 About the permit

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

1a Discussions before your application

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

Permit or document reference: EPR/PP3197EB/V002

1b Permit number

What is the permit number that this application relates to? EPR/PP3197EB

1c Site details

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

Site name: Farmoor Water Treatment Works

Address: Cumnor Road
Farmoor
Oxford

Postcode: OX2 9NS

2 About your proposed changes

2a Type of variation

What type of variation are you applying for?

Minor technical ☐
Normal variation ☐
Substantial ☑

2 About your proposed changes, continued

2b Changes or additions to existing activities

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

Please see application support document 'Environmental Permit Variation Application - Farmoor Water Treatment Works'
This is a change of permit type from standard rules permit to a bespoke waste operation permit. FWTW does not meet qualifying criteria of the new consolidated SR 2021 No.10 permit. This includes (but not limited) FWTW is not described under EPR as a Part A (1) installation and that Anaerobic digestion of waste sludge is not undertaken at the facility. No other standard rules set is now applicable for FWTW. The process has not significantly changed since EA issue of environmental permit EPR/ PP3197EB in November 2010. Biological treatment is not undertaken at the facility.

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

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

Document reference: Please see application support document, Chapter 4

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

2c Consolidating (combining) or updating existing permits

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

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

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

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

No ☐

Yes ☑

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

Table 2 – Permit numbers

EPR/PP3197EB

2d Treating batteries

2d Are you proposing to treat batteries?

No ☑

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

Document reference for the explanation

2e Ship recycling

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

No ☑

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

Document reference for the explanation

Document reference for the facility recycling plan

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

No ☑

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

2 About your proposed changes, continued

Table 1 – Changes to existing activities

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

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

2 About your proposed changes, continued

2f Low impact installations (installations only)

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

No ☐ Now go to section 3

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

Document reference

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

3 Your ability as an operator

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

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

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

3a Relevant offences

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

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

No ☐ Now go to question 3b

Yes ☑ Please give details below

Name of the relevant person

Title (Mr, Mrs, Miss and so on)

First name: Please see Application Support Document Chapter 4 Qu 3a1

Last name

Position held at the time of the offence

Name of the court where the case was dealt with

Date of the conviction (DD/MM/YY)

Offence and penalty set

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

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

Document reference: Please see Application Support Document Chapter 4 Qu 3a1

Now go to question 3b

Please also complete the details in Appendix 2.

3b Technical ability

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

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

ESA/EU skills

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

CIWM/WAMITAB scheme

Please select **one** of the following:

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

  or
  - evidence of deemed competence ☐

  or

3 Your ability as an operator, continued

- Environment Agency assessment ☐

or

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

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

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

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

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

First name Graham

Last name Hills

Phone

Mobile

Email

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

Permit number	Site address	Postcode

Document reference

Now go to question 3c

Please also complete the details in Appendix 2.

3c Finances

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

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

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

No ☑

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

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

3 Your ability as an operator, continued

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

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

Renewable bonds ☐

Cash deposits with the Environment Agency ☐

Other – provide comprehensive details ☐

Document reference

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

Document plan reference

Now go to question 3d

3d Management systems

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

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

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

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

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

What management system will you provide for your regulated facility?

ISO 14001 ☐

BS 8555 (Phases 1–5) ☐

Acorn ☐

Green dragon ☐

Own management system ☑

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

Document reference/s: Please see Application Support Document Chapter 4

4 Consultation

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

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

4a A sewer managed by a sewerage undertaker?

No ☐

Yes ☑ Please name the sewerage undertaker: Controlled and operated by Thames Water Utilities Limited

4b A harbour managed by a harbour authority?

No ☑

Yes ☐ Please name the harbour authority

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

No ☑

Yes ☐ Please name the fisheries committee

4 Consultation, continued

4d Is the installation on a site for which:

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

No ☑

Yes ☐

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

No ☑

Yes ☐

5 Supporting information

5a Provide a plan or plans for the site

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

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

Document reference/s of the plans: Please see Application Support Document Appendix A

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

No ☑

Yes ☐ Please provide a site report for the extra land

Document report reference/s:

5c Provide a non-technical summary of your application

Document reference of the summary: Please see Application Support Document Chapter 1

5d Risk of fire from sites storing combustible waste

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

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

No ☑ Go to question 5f

Yes ☐ Go to question 5e

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

See the guidance notes on part C2.

No ☐

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

Document reference of the plan:

5f Adding an installation

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

Document reference of the report:

6 Environmental risk assessment

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

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

Document reference for the assessment: Please see Application Support Document Chapter 4

7 How to contact us

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

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

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

Email: enquiries@environment-agency.gov.uk

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

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

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

Feedback

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

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

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

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

Would you like a reply to your feedback?

Yes please ☐

No thank you ☐

Crystal Mark 19110 Clarity approved by Plain English Campaign

For Environment Agency use only

Date received (DD/MM/YYYY)

Our reference number

Payment received?

No ☐

Yes ☐ Amount received

£

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

Appendix 1 – Low impact installation checklist

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

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

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

Have you filled in the Relevant Offences question?

Yes ☑

No ☐

Have you filled in the Technical ability question?

Yes ☑

No ☐

2 Relevant Offences - date of birth information

Please give us the following details

Name: n/a

Date of birth (DD/MM/YY):

3 Technical ability - date of birth information

Name: Michael Nelms

Date of birth (DD/MM/YY): [redacted]

Application for an environmental permit Part C4 – Varying a bespoke waste operation permit

Fill in this part of the form, together with parts A, C2 and F1, if you are applying to vary (change) the conditions or any other part of the permit. Please check that this is the latest version of the form available from our website.

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

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

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

The form can be:

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

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

Contents

1 What waste operations are you applying to vary?

Fill in Table 1a with details of what you are applying to vary.

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

Document reference: Please see Application Support Doc. Chapter 5

Types of waste accepted

For each line in Table 1a, fill in a separate document to list those wastes you will accept on the site for that operation, giving the List of Wastes catalogue code (search for 'Technical guidance on how to assess and classify waste' at www.gov.uk/government/organisations/environment-agency). If you need to exclude waste from your activity or facility by restricting the description, quantity, physical nature, hazardous properties, composition or characteristic of the waste, include these in the document. Send it to us with your application form.

1 What waste operations are you applying to vary?, continued

Table 1a – Waste operations which do not form part of an installation

Name of the waste operation	Description of the waste operation	Annex I (D codes) and Annex II (R codes) and descriptions	Hazardous waste treatment capacity (if this applies) (See note 1)	Non-hazardous waste treatment capacity (if this applies) (See note 1)
Add extra rows if you need them. If you do not have enough room, go to the line below or send a separate document and give us the document reference here	Use the description from the guidance. Include any extra detail that you think would help to accurately describe what you want to do			
Please see Application Support Document, Chapter 5 and table C3-1a				
For all waste operations	Total storage capacity (see note 2)			
	New total if varying to increase			
	Annual throughput (tonnes each year)			
	New total if varying to increase			

1 What waste operations are you applying to vary?, continued

Notes

1 By 'capacity', we mean:

- the total landfill capacity (cubic metres) for landfills
- the total treatment capacity (tonnes each day) for waste treatment
- the total storage capacity (tonnes) for waste-storage operations

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

Please provide the document reference. You can use Table 1b as a template.

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

Document reference: Please see Application Support Doc. Chapter 5

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

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

1c Deposit for recovery purposes (see the guidance notes on part C4)

Are you applying for a waste recovery activity involving the permanent deposit on waste on land for construction or land reclamation (including landfill restoration)?

No ☑ Go to section 2

Yes ☐

Are you applying for an inert landfill permit that includes a restoration activity using waste?

No ☐ Go to section 2

Yes ☐ Please send us a copy of your restoration plan in accordance with our guidance at https://www.gov.uk/guidance/landfill-operators-environmental-permits/restore-your-landfill-site

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

No ☐ Go to section 2

Yes ☐

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

No ☐

Yes ☐

Please send us a copy of your waste recovery plan that complies with our guidance at https://www.gov.uk/guidance/waste-recovery-plans-and-permits. You need to highlight any changes you have made since your pre-application discussions. Also give us the reference number of the document with your justification.

Please note that there is an additional charge for the assessment of a waste recovery plan that must be submitted as part of this application. For the charge see https://www.gov.uk/topic/environmental-management/environmental-permits.

Document reference

2 Point source emissions to air, water and land

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

Fill in one table for each waste facility.

Table 2 – Emissions

Name of the waste operation				
Point source emissions to air				
Emission point reference and location	Source	Parameter	Quantity	Unit
n/a				
Point source emissions to water (other than sewers)				
Emission point reference and location	Source	Parameter	Quantity	Unit
Please see Application Support Document, Ch				
Point source emissions to sewers, effluent treatment plants or other transfers off site				
Emission point reference and location	Source	Parameter	Quantity	Unit
Please see Application Support Document, Ch				
Point source emissions to land				
Emission point reference and location	Source	Parameter	Quantity	Unit

Supporting information

3 Operating techniques

3a Technical standards

Fill in Table 3a for each waste operation you refer to in Table 1a above and list the 'appropriate measures' you are planning to use. If you are using the standards set out in the relevant technical guidance(s) (TGN) there is no need to justify using them within your documents in Table 3a.

You must justify your decisions in a separate document if:

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

This justification could include a reference to the Environmental Risk Assessment provided in part C2 of the application form.

Table 3a should summarise:

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

Table 3a – Technical standards

Fill in a separate table for each waste operation.

Waste operation		
Description of the waste operation Add extra rows if you need them	Appropriate measure (TGN reference)	Document reference (if appropriate)
Please see Application Support Document, Ch		

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

Document reference: Please see Application Support Document, Appendix A

3b General requirements

Fill in a separate table for each waste operation.

Table 3b – General requirements

Name of the waste operation	
If the technical guidance or your risk assessment shows that emissions of substances not controlled by emission limits are an important issue, send us your plan for managing them	Document reference or references Please see Application Support Document, Ch
If the technical guidance or your risk assessment shows that odours are an important issue, send us your odour management plan. **If your activity type is listed in the guidance document 'Control and monitor emissions for your environmental permit' as needing an odour management plan, or your risk assessment shows that odours are an important issue, you need to send us your odour management plan.**	Document reference or references Please see Application Support Document, Chapter 5 3b and Appendix C Odour Management Plan
If the technical guidance or your risk assessment shows that noise or vibration are important issues, send us your noise or vibration management plan (or both)	Document reference or references Please see Application Support Document, Ch

3 Operating techniques, continued

We may need to ask for management plans or risk assessments in other circumstances based on our regulatory experience. If you are unsure as to whether you need to submit a management plan with your application, please discuss this with the Environment Agency prior to submission.

Search for 'Risk assessment for your environmental permit' at www.gov.uk/government/organisations/environment-agency.

3c Information for specific sectors

For some of the sectors, we need more information to be able to set appropriate conditions in the permit. This is as well as the information you may provide in sections 5, 6 and 7. For those activities listed in Table 3c, you must answer the questions in the related document.

Table 3c – Questions for specific sectors

Sector	Appendix
Recovery to land for agricultural benefit of compost like outputs from the treatment of mixed municipal solid wastes	See the questions in appendix 1
Inert landfill and deposit of waste on land for construction, land reclamation, restoration or improvement	See the questions in appendix 2

General information

4 Monitoring

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

You should also describe any environmental monitoring. Tell us:

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

Document reference: Please see Application Support Document, Chapter 5 Qu 4

4b Point source emissions to air only

Provide an assessment of the sampling locations used to measure point source emissions to air. The assessment must use M1 (search for 'M1 sampling requirements for stack emission monitoring' at www.gov.uk/government/organisations/environment-agency).

Document reference of the assessment: n/a

5 How to contact us

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

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

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

Email: enquiries@environment-agency.gov.uk

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

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

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

Feedback

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

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

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

Would you like a reply to your feedback?

Yes please ☐

No thank you ☐

For Environment Agency use only

Date received (DD/MM/YYYY)

Our reference number

Payment received?

No ☐

Yes ☐ Amount received

£

Plain English Campaign's Crystal Mark does not apply to appendices 1 to 2.

Appendix 1 – Specific questions for the recovery to land for agricultural benefit of compost like outputs from the treatment of mixed municipal solid wastes

1 Please provide an accurate and reliable characterisation of your compost like outputs (CLO). This should be based on sampling and analysis of the CLO produced by the treatment (MBT) process over a 12-month period and in accordance with section 2 of TGN 6.15

Document reference

2 Please provide an agricultural benefit assessment for the use of your CLO. This should be based on section 2 of TGN 6.15 and should be signed and dated by an appropriate technical expert

Document reference

3 Please provide a site-specific risk assessment of risks to soil and food chain receptors. This should be based on Schedule 2 of TGN 6.15 and include a map with a green outline showing the boundary of the area being treated and include:

- locations where the waste will be stored and spread
- any spring, well or borehole used to supply water for domestic or food production purposes that is within 250 metres of the area being treated
- any spring, well or borehole not being used for domestic or food production purposes that is within 50 metres of the area being treated
- any European designated sites (candidate or Special Area of Conservation, proposed or Special Protections Area in England and Wales or Ramsar Site) or Sites of Special Scientific Interest (SSSI) which are within 500 metres of the place where waste is to be stored or spread
- the location of public rights of way
- any Groundwater Source Protection Zones
- surface watercourses
- any buildings or houses within 250 metres of the area being treated
- land drains within the boundary

Document reference

4 Are the technical standards and measures fully in line with those set out in section 3 of TGN 6.15?

No ☐ Provide justification for departure from TGN 6.15 and a copy of the proposed technical standards, measures or procedures

Document reference

Yes ☐

Appendix 2 – Specific questions for inert waste landfill and deposit for recovery operations

1 Please provide your Environmental Setting and Site Design (ESSD) report

Document reference

Note: You should use the Environment Agency template to help you develop an environmental setting and site design (ESSD) report.

2 Please provide your Waste Acceptance Procedures (including Waste Acceptance Criteria)

Document reference

3 Have you provided a hydrogeological risk assessment (HRA) for the site?

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

Yes ☐ Document reference

4 Have you completed an outline engineering plan for the site?

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

Yes ☐ Document reference

5 Have you provided a stability risk assessment (SRA) for your site?

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

Yes ☐ Document reference

Appendix 2 – Specific questions for inert waste landfill and deposit for recovery operations, continued

6 Have you completed a monitoring plan for the site?

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

Yes ☐ Document reference

7 Have you completed a plan for closing the site and procedures for looking after the site once it has closed?

No ☐ If no for deposit for recovery activities please refer to the section of your ESSD that explains why this is unnecessary for your site

Yes ☐ For inert waste landfill you must provide a closure plan

Document reference

Spreading waste to support plant growth

8a Does the activity involve the deposit of waste to create or treat a growing medium (R10 for land treatment)?

No ☐

Yes ☐

8b If you answered 'yes' to question 8a, does the R10 activity include the spreading of waste to improve the quality of the growing medium (e.g. soil conditioner to improve existing soil profile)?

No ☐

Yes ☐ Go to question 8c

8c If you have answered 'Yes' to question 8b, have you completed a benefit statement?

No ☐ Please explain why

Document reference

Yes ☐

Note: Refer to our guidance when completing your statement (including EPR 8.01, section 6).

Application for an environmental permit
Part F1 – Charges and declarations

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

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

The form can be:

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

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

Contents

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

1 Working out charges

You must fill in this section.

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

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

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

Installation	Waste	Mining waste	Medium Combustion Plant (MCP)/Specified Generator (SG)	Water discharge/point source discharge to groundwater	Groundwater spreading onto land
	1				

Table 2 – Charge type (A)

Charge activity reference	Charge activity description	What are you applying to do? E.g. new, minor variation, normal variation, substantial variation, surrender, low risk surrender, transfer	Amount
e.g. 1.17.3	e.g. Sect 5.2 landfill for hazardous waste	e.g. transfer	e.g. £5,561
1.16.14	Physical and chemical treatment of waste	substantial variation	£ 7,137.00
Total A			£ 7,137.00

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

Table 3 – Additional assessment charges (B)

Part 1.19 Charges for plans and assessments			Tick appropriate
Reference	Plan or assessment	Charge	
1.19.1	Waste recovery plan	£1,231	☐
1.19.2	Habitats assessment (except where the application activity is a flood risk activity)	£779	☑
1.19.3	Fire prevention plan (except where the application activity is a farming installation)	£1,241	☐
1.19.4	Pests management plan (except where the application activity is a farming installation)	£1,241	☐
1.19.5	Emissions management plan (except where the application activity is a farming installation)	£1,241	☐
1.19.6	Odour management plan (except where the application activity is a farming installation)	£1,246	☑
1.19.7	Noise and vibration management plan (except where the application activity is a farming installation)	£1,246	☐
1.19.8	Ammonia emissions risk assessment (intensive farming applications only)	£620	☐
1.19.9	Dust and bio-aerosol management plan (intensive farming applications only)	£620	☐
	Advertising	£500	☐
Total B			£ 2,025.00

Total charges

Total A plus total B £ 9,162.00

2 Payment

Tick below to show how you have paid.

Cheque ☐

Postal order ☐

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

Credit or debit card ☐

Electronic transfer (for example, BACS) ☑

Remittance number PSCAPPTHAMES112

Date paid (DD/MM/YYYY)

How to pay

Paying by cheque, postal order or cash

Cheque details

Cheque made payable to

Cheque number

Amount £

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

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

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

I have enclosed cash with my application ☐

2 Payment, continued

Paying by credit or debit card

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

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

Paying by electronic transfer BACS reference

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

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

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

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

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

Provide a unique reference number for the application, i.e. do not only use the company name only: PSCAPPTHAMES112

State who is paying (full name and whether this is the agent/ applicant/other):

Fee paid: £

Date payment sent (DD/MM/YYYY):

Now read section 3 below

You should also email your payment details and reference number to ea_fsc_ar@gov.sscl.com.

3 Privacy notice

The Environment Agency runs the environmental permit application service.

We are the data controller for this service. A data controller determines how and why personal information is processed.

Our personal information charter explains:

- your rights
- what we do with your personal information

We're allowed to process your personal information because we have official authority as the environmental regulator. We need this information to carry out a task in the public interest that is set out in law. As the data controller, when you apply for an environmental permit, we have a legal obligation to process your personal data under the Environmental Permitting Regulations. The second lawful basis for processing your personal data is to comply with this legal obligation.

We need your personal information to process your environmental permit application. If you do not give us this information we cannot issue a permit to you. After we've issued a permit to you, we use your personal information:

- to check that you're complying with your permit
- during any potential enforcement action

What personal information we collect

If you're the individual applicant, director or company secretary of a company applying or a technically competent manager we need your:

- name
- date of birth

3 Privacy notice, continued

- address
- email address

If you're the agent, consultant, employee responsible for the activity or the employee responsible for billing and invoicing we need your:

- name
- address
- email address

If you're the applicant we need details of any:

- convictions
- bankruptcy

We also collect any questions or feedback you leave, including your email address if you contact us.

Your responsibility with other people's personal information

If you've included personal information about other people on your application, you must tell them. You must provide them with a copy of this privacy notice so that they know how their personal information will be used.

What we do with your personal information

We use your personal information to help us decide whether to issue you with a permit.

The information (except dates of birth) is available online on our consultation website during the consultation period. This website is available to everyone so your information may be seen outside the European Economic Area.

After consultation we put all the information (except dates of birth) you give us in your application on our public register.

If you can demonstrate that any information you send us is commercially or industrially confidential, we'll consider withholding that information from our public register.

If you think that the information you'll send us may be a threat to national security you must contact the Secretary Of State before you apply. You must still send us that information with your application. We will not include this information on our public register unless the Secretary of State decides it can be included.

See the environmental permitting guidance for guidance on national security.

We may use your email address to contact you for user research to improve our service. You don't have to take part in the research.

Where your personal information is processed and stored

We store and process your personal information on servers in the UK. We will not host your personal information outside the European Economic Area.

We do not use your personal information to make an automated decision or for automated profiling.

How long we keep your personal information

We keep your personal information while your permit is in use and for 7 years after you surrender your permit. If the permit is for a landfill site, we keep the data for 10 years after surrender.

Removing personal information from the public register

We will remove your personal information from the public register if:

- you withdraw your application
- we refuse your application and the time limit for appealing the decision has expired or an appeal is dismissed
- the information is no longer relevant for public participation purposes under the Environmental Permitting Regulations

Contact

Our Data Protection Team gives independent advice. They monitor how the Environment Agency uses your personal information.

If you have questions or concerns about how we process personal information, or to make a complaint or request relating to data protection, please contact:

Address: Data Protection Team
Environment Agency
Horizon House
Deanery Road
Bristol
BS1 5AH

3 Privacy notice, continued

Email: dataprotection@environment-agency.gov.uk

You can also make a complaint to the Information Commissioner's Office (ICO).

The ICO is the supervisory authority for data protection legislation. The ICO website has a full list of your rights under data protection legislation.

Now read section 4 below

4 Confidentiality and national security

Confidentiality

We will normally put all the information in your application on a public register of environmental information. However, we may not include certain information in the public register if this is in the interests of national security, or because the information is confidential.

You can ask for information to be made confidential by enclosing a letter with your application giving your reasons. If we agree with your request, we will tell you and not include the information in the public register. If we do not agree with your request, we will let you know how to appeal against our decision, or you can withdraw your application. You can find guidance on confidentiality in 'Environmental permitting guidance: core guidance', published by Defra and available via our website at www.gov.uk/government/organisations/environment-agency.

Only tick the box below if you wish to claim confidentiality for your application

Please treat the information in my application as confidential ☐

National security

You can tell the Secretary of State that you believe including information on a public register would not be in the interests of national security. You must enclose a letter with your application telling us that you have told the Secretary of State and you must still include the information in your application. We will not include the information in the public register unless the Secretary of State decides that it should be included.

You can find guidance on national security in 'Environmental permitting guidance: core guidance', published by Defra and available via our website at www.gov.uk/government/organisations/environment-agency.

You cannot apply for national security via this application.

Now fill in section 5

5 Declaration

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

A relevant person should make the declaration (see the guidance notes on part F1). An agent acting on behalf of an applicant is NOT a relevant person.

Each individual (or individual trustee) who is applying for their name to appear on the permit must complete this declaration. You will have to print a separate copy of this page for each additional individual to complete.

If you are transferring all or part of your permit, both you and the person receiving the permit must make the declaration. You must fill in the declaration directly below; the person receiving the permit must fill in the declaration under the heading 'For transfers only'.

Note: we will issue a letter to both current and new holders to confirm the transfer. If you are changing address we will need to send this letter to your new address; therefore please tell us your new address in a separate letter.

If you are unable to trace one or more of the current permit holders please see below under the transfers declaration.

I declare that the information in this application is true to the best of my knowledge and belief. I understand that this application may be refused or approval withdrawn if I give false or incomplete information.

If you deliberately make a statement that is false or misleading in order to get approval you may be prosecuted.

I confirm that my standard facility will fully meet the rules that I have applied for (this only applies if the application includes standard facilities) ☐

Tick this box to confirm that you understand and agree with the declaration above, then fill in the details below (you do not have to provide a signature as well) ☑

Tick this box if you do not want us to use information from any ecological survey that you have supplied with your application (for further information please see the guidance notes on part F1) ☐

5 Declaration, continued

Name

Title (Mr, Mrs, Miss and so on)	Mr
First name	Nick
Last name	Lutt
on behalf of (if relevant; for example, a company or organisation and so on)	Thames Water Utilities Limited
Position (if relevant; for example, in a company or organisation and so on)	See letter of authorisation
Today's date (DD/MM/YYYY)	10/07/2022

For transfers only – declaration for person receiving the permit

A relevant person should make the declaration (see the guidance notes on part F1). An agent acting on behalf of an applicant is NOT a relevant person.

I declare that the information in this application to transfer an environmental permit to me is true to the best of my knowledge and belief. I understand that this application may be refused or approval withdrawn if I give false or incomplete information.

Note: If you cannot trace a person or persons holding the permit you may be able to transfer the permit without their declaration as above. Please contact us to discuss this and supply evidence in your application to confirm you are unable to trace one or all of the permit holders.

If you deliberately make a statement that is false or misleading in order to get approval you may be prosecuted.

Tick this box to confirm that you understand and agree with the declaration above, then fill in the details below (you do not have to provide a signature as well)	☑

Name

Title (Mr, Mrs, Miss and so on)	Mr
First name	Nick
Last name	Lutt
on behalf of (if relevant; for example, a company or organisation and so on)	Thames Water
Position (if relevant; for example, in a company or organisation and so on)	Environmental Consultant (Permitting)
Today's date (DD/MM/YYYY)	01/08/2022

Now go to section 6

6 Application checklist

You must fill in this section.

If your application is not complete we will return it to you. If you aren't sure about what you need to send, speak to us before you submit your application.

You must do the following:

Complete legibly all parts of this form that are relevant to you and your activities	☑
Identify relevant supporting information in the form and send it with the application	☑
List all the documents you are sending in the table below. If necessary, continue on a separate sheet. This separate sheet also needs to have a reference number and you should include it in the table below	☑
For new permits or any changes to the site plan, provide a plan that meets the standards given in the guidance note on part F1	☑
Provide a supporting letter for any claim that information is confidential	☐
Get the declaration completed by a relevant person (not an agent)	☑
Send the correct fee	☑

6 Application checklist, continued

Question reference	Document title	Document reference
2	Payment Reference	Payment via BACS ref: PSCAPPTHAMES112
Form A	Part A - Farmoor WTW	
Form C2	Part C2 - Farmoor WTW	
Form C4	Part C4 - Farmoor WTW	
Form F1	Part F1 - Farmoor WTW	
Non-technical Summary	Environmental Permit Variation Application - Farmc	Chapter 1
Site information	as above	Appendix A
Odour Management Plan	as above	Appendix C
Bioaerosol Risk Assessment	as above	Appendix D
CoTC	as above	Appendix B

7 How to contact us

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

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

Textphone: 03702 422549 (Monday to Friday, 8am to 6pm)

Email: enquiries@environment-agency.gov.uk

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

If you are happy with our service, please tell us. It helps us to identify good practice and encourages our staff. If you're not happy with our service, or you would like us to review a decision we have made, please let us know. More information on how to do this is available at: https://www.gov.uk/government/organisations/environment-agency/about/complaints-procedure.

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

8 Where to send your application

For how many copies to send see the guidance note on part F1.

Please send your filled in application form to:

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

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

Or

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

Do you want all information to be sent to you by email?

Please tick this box if you wish to have all communication about this application sent via email (we will use the details provided in part A) ☐

Feedback

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

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

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

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

Would you like a reply to your feedback?

Yes please ☐

No thank you ☐

For Environment Agency use only

Date received (DD/MM/YYYY)

Our reference number

Payment received?

No ☐

Yes ☐ Amount received

£

4. Form C2 Questions

1 About the permit

1a Discussions before your application

The EA's pre-application process has been utilised for this application - reference EPR/PP3197EB/V002. A nature and heritage conservation screening report was also requested and received via email from the pre-application advice service.

1b Permit number

What is the permit number that this application relates to?

EPR/ PP3197EB – issued 23/11/2010

1c What is the site name, address, postcode and national grid reference?

Farmoor Water Treatment Works,

Cumnor Road

Farmoor

Oxford

OX2 9NS

2 About your proposed changes

2a Type of variation

This is a substantial variation.

2b Changes or additions to existing activities

This is a change of permit type from standard rules permit to a bespoke waste operation permit. The WTW does not meet qualifying criteria of the new consolidated SR 2021 No.10 permit. This includes (but not limited) the WTW is not described under EPR as a Part A (1) installation and that Anaerobic digestion of waste sludge is not undertaken at the facility. No other standard rules set is now applicable for the WTW. The process has not significantly changed since EA issue of environmental permit EPR/ PP3197EB in November 2010. Biological treatment is not undertaken at the facility.

2c Consolidating (combining) or updating existing permits

Yes, modernise.

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

Yes.

2d Treating batteries

The waste operation is not treating batteries.

2d1 Are you planning to treat batteries?

No, this application is not for the treatment of batteries.

2e Ship recycling

2e1 Is your activity covered by the Ship Recycling Regulations 2015?

No, this application is not covered by the Ship Recycling Regulations 2015.

2f Low impact installations (installations only)

2f1 Are any of the regulated facilities low impact installations?

N/A, this application is not for an installation.

3 Your ability as an operator

3a Relevant offences

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

Yes. The applicant has been convicted of a relevant offence within the last 12 months.

Event Name	Court	Date of hearing	Fine	Summary
EA v TWUL - Henley STW	Aylesbury Crown Court	26-Feb-21	£2,300,000.00 £87,944.00 (costs)	TWUL pleaded guilty to one charge (Count 2) and one charge (Count 1) lay on the file after a not guilty plea. Count 1: Between the 17th day of April 2016 and 26th April 2016 at Henley Sewage Treatment Works, Fawley, Henley-On-Thames, Oxfordshire, you failed to comply with or contravened an environmental permit, namely CNTD.D61 Schedule 01 Condition 1 (1), in that the works was not operated, and effluent was not treated in a manner which so far as reasonably practicable minimised the polluting effects of the discharge made from the works on controlled waters. Contrary to Regulation 38(2) of the Environmental Permitting (England and Wales) Regulations 2016 Count 2: On the 23rd day of April 2016 at Henley Sewage Treatment Works, Fawley, Henley-On-Thames, Oxfordshire you contravened Regulation 12 (1) (b)

Event Name	Court	Date of hearing	Fine	Summary
				of the Environmental Permitting (England and Wales) Regulations 2016 by causing a water discharge activity, namely the discharge of partially treated effluent consisting of ammoniacal nitrogen into the Fawley Court Ditch and Fawley Court Stream except under and to the extent authorised by an environmental permit. Contrary to Regulations 38(1) (a) and 12 (1) (b) of the Environmental Permitting (England and Wales) Regulations 2016.
EA v TWUL	Aylesbury Crown Court	21 & 26 May 2021	£4,000,000 £84,669 (costs)	Three charges as follows: (i) Depositing of controlled waste on land contrary to section 33(1)(a) and section 33(6) of the Environmental Protection Act 1990 – on 8 February 2016; (ii) Causing a water discharge activity, contrary to Regulation 12(1)(b) and Regulation 38(1)(a) of the Environmental Permitting (England Wales) Regulations 2019 – on 8 February 2016 & (iii) Failure to comply with an environmental permit condition, contrary to Regulation 38(2) of the Environmental Permitting (England and Wales) Regulations 2016 – on or about 8 February 2016. Plus, four subsequent charges taken into consideration (TICs), with the first (TIC 1) considered alongside the third charge.
EA v Thames Water - Hinksey/Seacourt Stream	Aylesbury Crown Court	19-Nov-21	£4,000,000.00 £90,713.52 (costs) and victim's surcharge of £170	TWUL pleaded guilty to one charge: Between 23 – 27 July 2016, in breach of Condition 2 of permit CAWM.0064 for an emergency overflow, TW failed to have a documented maintenance programme covering maintenance of the syphon/downstream sewer, resulting in a discharge due to its own act or default and undue delay identifying the asset and source of

Event Name	Court	Date of hearing	Fine	Summary
				pollution, in contravention of Reg 38(2) of the EPR 2016.

3b Technical ability

Thames Water uses WAMITAB qualified staff at their waste facilities. The name of the relevant person for the site has been named below and full details have been provided separately on a spreadsheet:

Please see Appendix B for evidence of competency.

3c Finances

Installations, waste operations and mining waste operations only.

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

No.

3d Management systems

What management system will you provide for your regulated facility?

Identify the form of the management system from the list:

• Own management system

Thames Water has a SharePoint based Environmental Management System, with site specific elements and procedures linked from across the organisation Thames Water also has an Asset Management System accredited to ISO 55001 and an Energy Management System accredited to ISO 50001.

Scope

Thames Water has an EMS in place for its permitted assets.

Environmental Policy

Implementation of Thames Water's Environmental Policy is approved by the Thames Water Executive Committee of the Thames Water Board and is the responsibility of all employees, with the Chief Executive being accountable for its implementation. The policy covers all company activities, including this installation, and applies to all individuals who are employed by, or carry out work on behalf of, any Thames Water company including contractors, temporary staff, and agency workers. The Management Systems Team is responsible for the implementation and assurance of the EMS, the site operations teams will be responsible for maintaining ongoing compliance with the EMS and managing the site.

Management and Responsibilities

The Management Systems Team (EMS specialists) have responsibility for the management and upkeep of the EMS. Compliance with specific elements of environmental legislation is managed by the relevant Business Areas

across the Company. The Environmental Assurance Team maintain a Legal Register and, in consultation with Operations Teams, the environmental permitting team and other specialists, assess environmental risks for in-scope areas using a significance scoring method under normal, abnormal and emergency conditions. Significant environmental aspects and impacts consider legal and other requirements, cost to the business, scale of impact and interested parties.

Management Systems Team are responsible for setting internal environmental standards which are then implemented by the relevant business areas. The Standards and other relevant information are communicated through several routes. Incident and corrective action routes exist to promote continual improvement. The team run a programme of Management System Audits to determined adherence to the environmental policy and environmental standards.

Local operating procedures are the responsibility of the operational teams that operate the WTW.

The defined roles and responsibilities are allocated to relevant personnel, depending on their job description, qualifications, knowledge, experience and training. Training and competency are based on specific roles.

Operational Control

Procedures are in place within the EMS to identify and control environmental issues arising from company activities. Each department is required to achieve operational control of its activities using standardised systems.

Routine treatment operations and activities are recorded within the corporate management database, SAP. These include routine inspections, monitoring and maintenance tasks.

Non-routine activities, such as major overhauls/refurbishments, which involve the use of sub-contractors are assessed for health & safety concerns; relevant environmental risks and with accompanying method statements to respond to these. Contractors who are required to carry out major services are closely managed by operational or other staff to ensure that compliance with Thames Water's H&S and environmental policies is achieved. No contractors may work on site without having undergone a full site induction and being issued with a Thames Water Operational Safety Authorisation (TWOSA) for the task(s) they intend to complete.

Processes on site operate continuously, 24-hours per day, 7-days per week, apart from maintenance periods. The plant is designed to operate unattended with process parameters being monitored continuously. Operating logs are stored electronically.

Maintenance and Monitoring

Management will have the ultimate responsibility for the effective maintenance of plant throughout the company. The facility has named staff that are responsible for day-to-day maintenance operations and contractors are also used as required. All maintenance is logged on SAP. The following basic inspections and maintenance activities are indicative of those carried out on site:

- Daily operation of plant (24/7) involves visual inspection of operational assets;
- Daily inspection of temporary pipe work installed;
- Routine maintenance programme for plant; and
- Routine lubrication programme.

Personnel responsible for the inspection, testing and maintenance of pollution prevention infrastructure are trained to an appropriate level.

All regular maintenance of all plant and equipment will be completed on the time scale specified by the equipment manufacturer including routine inspections.

Environmental Improvement

Thames Water is committed to environmental improvements and has established environmental targets and plans relating to materials and waste management, transport, climate change mitigation and adaptation (energy efficiency and renewable energy generation), water resources, biodiversity, river water quality, and drainage asset performance. TWUL's Environmental Governance Board meets on a regular basis to provide strategic direction, and interrogative review, attached to any environmental issue of substantive concern including emerging risks as well as current topics.

Competence, Training and Training Records

Thames Water aims to ensure that all employees are in possession of the knowledge, skills and experience necessary to perform their role in accordance with the company's operating procedures and in full compliance with the law. Training needs are identified by the employee's immediate supervisor or line manager.

For those sites treating 'waste' as defined by the Waste Regulations 2011, coverage at all permitted sites by staff who hold the appropriate level of WAMITAB 'Certificate of technical Competence' is monitored centrally. This aspect of the staff training is currently being reviewed in light of the change in permitting requirements for sludge treatment centres.

For each internal training course held a Training Record is issued.

Induction training is carried out by the responsible line manager and consists of an introduction to the Company's Environmental Health and Safety Policy and description of emergency response and spill prevention procedures.

Staff receive specific training in the plant's operation and the environmental impact of the process as well as health and safety. The operators will have a detailed understanding of the operational procedures for the site for both normal and abnormal operation. As part of the training, operators will receive specific instructions relating to those aspects of plant operation that have the potential for a negative impact on the environment. This training will be provided by the equipment manufacturers or in-house staff as appropriate.

Contractors

There are several procedures to ensure contractors have the required skills and environmental competencies to carry out works at the site.

Initially, contractors are assessed by the procurement department for inclusion on the approved supplier list, which includes health and safety and environmental criteria for example, waste documentation such as waste carrier's licence/training certificates. Even when the contractors are on the approved supplier list, they are still further assessed for each specific contracted activity.

The contactor is required to submit a method statement prior to any commencement of work, identifying how work is to be undertaken and the associated risks. The method statement must be approved by the Site Manager, who will also identify any site hazards and issue an Authorisation to Work/Enter the site, following a site induction. When on-site, the contractor must carry this Authorisation to Work at all times.

Incidents, Non-Compliances and Complaints

Thames Water has procedures for incidents, non-compliances and environmental complaints.

Incidents are managed through corporate and site-specific procedures which ensure that all incidents are logged and that necessary preventative and/or corrective actions are taken.

Customer complaints are made via the Customer Centre which will log all complaints electronically and pass the details of the complaint onto the local Operations (Process Manager and Team Manager), either directly or via the Operational Management Centre. The Operations team will investigate the details of the complaint and take appropriate action. Where complaints relate to odour/noise/amenity, typical follow up action would include physical checks onsite of the operation of plant; offsite checks where needed; with all the actions taken being logged. Where appropriate, site management may contact the customer to discuss the outcome of the complaint,

otherwise, there is a customer communication plan that identifies how and when contact will be made with customers and other stakeholders.

Information regarding complaints is recorded to allow determination of an appropriate response (corrective action) and identify what measures need to be taken in the future to prevent its reoccurrence (preventive action).

Communication

There are regular meetings held on site to discuss all aspects of the treatment works and performance against targets. These meetings include the operation and performance of the installation. Other communication methods to promote environmental management issues and continual improvement include: toolbox talks, environmental alerts, OSC portal forums, formalised event learning processes following an operational incident and compliance audits.

4 Consultation

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

4a A sewer managed by a sewerage undertaker?

Yes. The site discharges into a surface water drainage system that connects to the wider Water Treatment Works, controlled, and operated by the applicant.

4b A harbour managed by a harbour authority?

No.

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

No.

4d Is the installation on a site for which:

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

N/A

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

N/A. The WTW is not a notified COMAH establishment.

5 Supporting information

5a Provide a plan or plans for the site

Please see Appendix A for:

- Site location plan;

- Site layout plan;
- Site drainage plan; and,
- Block Flow Diagram of site operations.

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

Yes. The existing permit includes two lagoons at the site. These are the western most two lagoons of a series of ten lagoons which are already present at the site. The other eight lagoons are also to be included within the permit boundary. This does not require an update to the site condition report at the site, as the lagoons were built at the same time as the existing permitted assets and the underlying geology and features are the same.

5c Provide a non-technical summary of your application

Please see earlier text in Section 1.

5d Risk of fire from sites storing combustible waste

No

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

No. The WTW does not store, use, or treat highly combustible waste. The facility stores dewatered sludge prior to removal offsite for recovery. Dewatered sludge is not a highly combustible material. UK dewatered sludge incineration takes place at high temperature and can also require pre-blending with high combustible material (e.g., coal). The site meets the 3 objectives without using any of the measures in EA guidance document *Fire prevention plans: environmental permits* (Updated 11 January 2021). No FPP has been provided with this permit application. Extant site risk management controls allow TWUL to:

- minimise the likelihood of a fire happening
- aim for a fire to be extinguished within 4 hours
- minimise the spread of fire within the site and to neighbouring sites

5f Adding an installation

N/A

6 Environmental risk assessment

An environmental risk assessment of the site changes has been carried out in line with the requirements of the Horizontal Guidance Note H1 and Guidance given on gov.uk. This guidance specifies the following approach to carrying out an environmental risk assessment for a proposed activity:

- Identify potential risks that your activity may present to the environment;
- Screen out those that are insignificant and don't need detailed assessment;
- Assess potentially significant risks in more detail if needed;
- Choose the right control measures, if needed; and,
- Report your assessment.

Site tank inventory

The table below summarises main containment vessels on site, their construction material and capacity.

Tank Purpose	Number of storage facilities	Design and material of tank construction	Capacity of each tank (m^3)
Wastewater treatment tanks	4	Concrete vessels, partly underground	350m^3 each
Sludge balance tank	1	Concrete vessel, partly underground	117m^3
Sludge thickening tank	2	Above ground tank	330m^3 each
Sludge holding tank	2	Concrete tank, above ground.	100m^3 each
Filtrate buffer tank	1	Above ground tank	50m^3
Contingency sludge storage lagoons	2	Concrete Lined lagoon	1 = 4,620m^3 2 = 4,580m^3
Contingency settlement lagoons	8	Lined earth lagoon	3 = 1,920m^3 4 = 2,613m^3 5 = 2,250m^3 6 = 1,302m^3 7 = 2,466m^3 8 = 2,793m^3 9 = 1,377m^3 10 = 4,965m^3
Polymer mixing tank	2	Bunded tank in a building	3m^3
Wet Polymer storage tank	2	Bunded tank in a building	3m^3

Designated Site Review

A Nature and Heritage Conservation Screening Report (March 2022) for the site generated by the EA identifies a site of special scientific interest (SSSI) within 2km of the site and Farmoor Reservoir local wildlife site within 50m. Brown trout protected species are also found in Farmoor Reservoir. The nearest source protection zoned area is 21km.

The site is not within an air quality management area.

Site Type	Site Name	Distance from the WTW Boundary
	Oxford Meadows	~4.4km

Special area of Conservation (SAC)	Cothill Fen	~5.2km
SSSI's	Wytham Woods	~560m
Local Wildlife Sites	Farmoor Reservoir	27m

An SAC is within 10 km of the site and there are no LNRs or NNRs sites within 2 km of the site.

The WTW is approximately 27m from Farmoor reservoir at its closest (lagoons) and 25m (near wastewater tanks) from a Filchampstead Brook. This brook runs adjacent to Cumnor Road and flows into the river Thames. The WTW is approximately 620m from the River Thames at its closest point (lagoons). The site sits outside the boundaries of a Source Protection Zone (SPZ).

The site is not located within an AQMA; however, there is one in proximity of the site, 3.5km east, Oxford Council AQMA, which is declared for Nitrogen Dioxide (NO_2) – Annual Mean.

Consideration	Receptors	Discussion	Detailed Environmental Risk Assessment?
Amenity issues: Litter, vermin and pests	Human health receptors: Single houses or groups of houses (estates, villages etc.). Schools and hospitals. Footpaths, amenity, and recreation areas such as playing fields and playgrounds. Industrial estates and rail stations. The permitted site is located approximately 80m Southwest of the village of Farmoor, Oxfordshire at its closest point near to the sludge lagoons. The permitted sludge processing site is part of the wider Farmoor Water Treatment facility neighboured to the south by Oxford sailing club, a trout fishery and a boat park associated with Farmoor reservoir. Ecological receptors: There is a SAC within 10 km of the site and SSSI within 2km, there are no LNRs or NNRs sites within 2 km of the site. There is one non-statutory designated LWS within 200m of the site, namely the Farmoor Reservoir LWS, located approximately 27m to the West of the WTW.	The wastes handled at the site are primarily liquids and sludges delivered by mains pipe or tanker. As such, there is no source of litter within the materials handled at the site. In the unlikely event pests or vermin are observed on site a suitable contractor is called in as soon as practicable.	X
Dust and Bioaerosol	Human health receptors: Single houses or groups of houses (estates, villages etc.). Schools and hospitals. Footpaths, recreation areas such as playing fields and playgrounds. Industrial estates and rail stations. For human health and ecological receptors, see notes for Litter above. The impact of dust on human health will depend on the distance and wind direction. For bioaerosols this is 250 m.	The wastes handled at the site are liquids, sludges, and sludge cake. The site will not be handling inherently dusty or powdery wastes. Sludge cake retains a high moisture content and is not dusty and is stored within 3No. dedicated skips, and therefore dust and bioaerosols will not impact on nearby receptors. Roads will be maintained to avoid the production of dust. Produced sludge cake has sufficient moisture content to ensure it does not give rise to dust. Please see Appendix G for the site specific bioaerosol risk assessment.	√
Assessment of point source emissions to air Emissions deposited from air to land	Human health receptors: Single houses or groups of houses (estates, villages etc.). Schools and hospitals. Footpaths, recreation areas such as playing fields and playgrounds. Industrial estates and rail stations. For human health and ecological receptors, see notes for Amenity issues above.	There are no air emission points to are on the permitted site. Fugitive emissions to air are assessed in Table C4-3b(i).	X

Consideration	Receptors	Discussion	Detailed Environmental Risk Assessment?
	The impact of emissions from air on human health will depend on the distance and wind direction.		
Assessment of point source and fugitive emissions to water	The WTW is approximately 27m from Farmoor reservoir at its closest (lagoons) and 25m (near wastewater tanks) from a Filchampstead Brook. This brook runs adjacent to Cumnor Road and flows into the river Thames. The WTW is approximately 620m from the River Thames at its closest point (lagoons). The vast majority of surface water drainage from within the permitted site is controlled in an alarmed level chamber prior to discharge to the brook.	The main product of the process is a sludge cake, which is stored in above ground level secure skips on impermeably surfacing Other aqueous discharges generated by waste treatment are limited (comprising treated supernatant & filtrate and surface water run off). These sources are subject to regular monitoring with lagoon settlement treatment prior to discharge. These discharges are already covered by EA environmental discharge permits. Discharged to Filchampstead Brook of clean surface water drainage is protected by an alarmed collection chamber prior to discharge. This is regularly monitored. Due to the nature and small quantity of these emissions no further assessment of point source emissions is not deemed necessary.	X
Assessment of odour	Human health receptors: Single houses or groups of houses (estates, villages etc.). Schools and hospitals. Footpaths, recreation areas such as playing fields and playgrounds. Industrial estates and rail stations. For human health and ecological receptors, see notes for Amenity issues above. The impact of emissions from odour on human receptors will depend on the distance and wind direction.	The WTW has processes in place to minimise odour which includes physical containment, management systems, procedures and monitoring to control fugitive emissions of odour at the plant. The WTW has an Odour Management Plan which is appended as Appendix C. Odour emissions are assessed in Table C4-3b (ii).	X
Energy	Global atmosphere (direct and indirect emissions).	Good maintenance procedures will help the plant to run efficiently and reduce site energy consumption. Use of LED lighting reduces site electricity consumption. Insulated hot water pipes minimises heat losses during transmission.	X

Consideration	Receptors	Discussion	Detailed Environmental Risk Assessment?
Land and disposal of waste to other processes	Rivers and streams – see Assessment of point source and fugitive emissions to water above. Drainage systems/sewers. The site lies outside the boundaries of any Groundwater source protection zones (SPZ). Aquifers are classified as Principal (superficial deposits).	All waste streams are taken off-site for recovery or disposal and will continue to be transferred (and consigned where hazardous) to appropriately permitted facilities.	X
Noise and vibration	Human health receptors: Single houses or groups of houses (estates, villages etc.). Schools and hospitals. Footpaths, amenity and recreation areas such as playing fields and playgrounds. Industrial estates and rail stations. The permitted site is located approximately 80m Southwest of the village of Farmoor, Oxfordshire at its closest point near to the sludge lagoons. The permitted sludge processing site is part of the wider Farmoor Water Treatment facility neighboured to the south by Oxford sailing club, a trout fishery and a boat park associated with Farmoor reservoir. Ecological receptors: There is a SAC within 10 km of the site and SSSI within 2km, there are no LNRs or NNRs sites within 2 km of the site. There is one non-statutory designated LWS within 200m of the site, namely the Farmoor Reservoir LWS, located approximately 27m to the West of the WTW.	Site design minimises the impact of noise on offsite receptors through building orientation, finishes and location of openings. Noise from plant and equipment will be minimised through purchasing decisions and a robust preventative maintenance programme. There will be no sources of vibration within the facility. Noise and vibration emissions are assessed in Table C4-3b(iii). The site has not been subject to a large number or frequent noise complaints.	X
Other issues (including visual impact)	Protected Species & Habitats	There are records of protected fish located within the specified screening distance (within 500m) of the site associated with Farmoor Reservoir. The site has a robust water emissions monitoring programme and settlement lagoon treatment tom limit environmental impact on receiving watercourses. Discharges to Farmoor Reservoir and the River Thames are controlled by EA Environmental discharge permits which also considers designations.	X

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

This information has been supplied separately for the ease of exclusion from the public register.

5. Form C4 Questions

1 About the permit

1a What waste operations are you applying to vary?

Treatment of waste: physico-chemical

Waste operations which do not form part of an installation

This is a change of permit type from standard rules permit to a bespoke waste operation permit. The WTW does not meet qualifying criteria of the new consolidated SR 2021 No.10 permit. This includes (but not limited) The WTW is not described under EPR as a Part A (1) installation and that Anaerobic digestion of waste sludge is not undertaken at the facility. No other standard rules set is now applicable for the WTW. The process has not significantly changed since EA issue of environmental permit EPR/ PP3197EB in November 2010. Biological treatment is not undertaken at the facility.

Table 1a – Waste Operations which do not form part of an installation

Name of the waste operation	Description of the waste operation	Annex I (D Codes and Annex II (R codes) and descriptions	Hazardous waste treatment capacity	Non-hazardous waste treatment capacity
Water Treatment Sludge Dewatering	Treatment consisting only of settlement, blending, mixing, separation, compaction, and thickening waste for recovery.	R03: Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes)	N/A	
Sludge Cake Storage	Storage of dewatered sludge cake in dedicated skips prior to offsite recovery by Land treatment resulting in benefit to agriculture or ecological improvement	R13 - Storage of wastes pending any of the operations numbered R01 to R12 (excluding temporary storage pending collection on the site where it is produced).	N/A	
Supernatant & Filtrate Storage	Supernatant storage prior to discharge disposal	D15: Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where it is produced)	N/A	
For all waste operations	Total waste storage capacity		N/A	Waste sludge max capacity – <2000m³ Sludge Cake max capacity - <90 tonnes
	Annual throughput (t/yr)		N/A	650,000 m³

1b –Types of waste accepted and restrictions

16 WASTES NOT OTHERWISE SPECIFIED IN THE LIST	
16 10	16 10 aqueous liquid wastes destined for off-site treatment
16 10 02	aqueous liquid wastes other than those mentioned in 16 10 01
19 WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION/INDUSTRIAL USE	
19 09	wastes from the preparation of water intended for consumption or water for industrial use
19 09 02	sludges from water clarification
19 09 03	sludges from decarbonation
19 09 06	solutions and sludges from regeneration of ion exchangers

1c Deposit for recovery purposes

This is not a deposit for recovery application.

2 Point source emissions to air, water, and land

Table 2 – Emissions

Point source emissions to Water				
Emission point reference and location	**Source**	**Parameter**	**Quantity**	**Unit**
W1 – Northern boundary discharge into Farmoor Reservoir	Treated supernatant and filtrate from settlement lagoon.	Already covered by EA Discharge Consent Permit		
W2 - Northern boundary discharge into River Thames	Treated supernatant and filtrate from settlement lagoon.	Already covered by EA Discharge Consent Permit		
W3 – South-eastern boundary discharge into Filchampstead Brook	Uncontaminated surface water run off	No parameters set		No limit set
Point source emission to sewer				

Point source emissions to Water				
Emission point reference and location	**Source**	**Parameter**	**Quantity**	**Unit**
S1 – wastewater settlement tanks	Supernatant and Filtrate drainage	Flow	1000	m^3/day

3 Operating techniques

3a Technical standards

Description of the waste operation activity	Relevant technical guidance note	Document Reference
Sludge Dewatering (R03)	EA guidance – S5.06 Guidance for the Recovery and Disposal of Hazardous and Non-Hazardous Waste	
Sludge Cake Storage (R13)	EA Guidance - Non-hazardous and inert waste: appropriate measures for permitted facilities	https://www.gov.uk/guidance/non-hazardous-and-inert-waste-appropriate-measures-for-permitted-facilities/6-emissions-control
Supernatant storage (D15)	EA Guidance - Non-hazardous and inert waste: appropriate measures for permitted facilities	https://www.gov.uk/guidance/non-hazardous-and-inert-waste-appropriate-measures-for-permitted-facilities/6-emissions-control

3b General requirements

If the TGN or H1 assessment shows that emissions of substances not controlled by emission limits are an important issue, send us your plan for managing them.

Although screened out of the detailed Risk Assessment (Question C2 Q6), due to the nature of the process the waste operation has the potential to generate fugitive emissions to air and water, which are subject to a number of process controls.

Risk Matrix and Terminology for Accident for Risk Assessment

Likelihood ↓	Consequence		
	Low	Medium	High
Low	Low	Low	Medium
Medium	Low	Medium	High

High	Medium	High	High

Classification of Likelihood

Classification	Definition
Low	Probability of an event is low and likely only to occur in the long-term (a yearly basis or less frequent).
Medium	It is probable that an event will occur periodically in the medium-term (twice yearly basis).
High	An event is very likely to occur in the short-term (monthly or weekly basis) and is almost inevitable over the long-term OR there is evidence at the receptor of harm or pollution.

Classification of Consequences

Classification	Definition
Low	Impact is low or a minor, short-term nuisance. Minor release to a non-sensitive receptor or pollution of water course. Non-permanent health effects to human health (easily prevented by appropriate use of PPE). Minor surface damage to a building, structure, service or the environment which can be repaired immediately.
Medium	Impact is noticeable in the short to medium-term. Large release impacting on the receiving media which kills flora and fauna and requires remediation. Nuisance causing non-permanent health effects to human health. Damage to buildings, structures and services which prevents use in the short-term and/or requires a specialist repair.
High	Impact is significant, wide-ranging, and long-lasting effect. Has either a chronic or acute impact on human health. Very large release that has a major impact on flora and fauna which may be very difficult to remediate. Significant damage to a single or multiple building, structure and service which prevents use over a long term and may require complete replacement. May cause a long-term impact or contribute towards a global issue due to releases of greenhouse gases.

The following categorisation of risk has been developed and the terminology adopted as follows:

Term	Definition
Low	A level of harm is possible although this may not be noticeable to a receptor and would be a short-term event without lasting effects. Level of harm can be reduced using industry best practice and appropriate measures and techniques.
Medium	A level of harm may arise to a receptor which is noticeable although not long-lasting and may require some remedial actions in order to prevent re-occurrences.
High	A level of harm is likely to arise to a receptor that is severe causing significant harm to human health or the environment without appropriate remedial and mitigation measures being implemented. Remedial works to infrastructure and processes is required in the long-term.

Although screened out of the detailed Risk Assessment (Question C2 Q6), due to the nature of the processes, the anaerobic digestion operations and digested sludge cake storage, along with biogas utilisation have the potential to generate fugitive emissions to air and water, which are subject to a number of process controls.

Table C4-3b(i) Fugitive emissions risk assessment

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
Release of bioaerosols and dust	Normal	Emissions to air and dispersion leading to inhalation by local human and animal receptors. Odour impact of	Low	Low	Low	The risk of bioaerosol and dust is largely minimised by storing the sludge cake within dedicated skips with regular removal off site. The nearest commercial properties are located approx. 50m to the south of the cake skips, and	Low

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
		bioaerosols. Nuisance impact of dust.				nearest residential site is located approx. 75 m to the North from the sludge lagoons Sludge cake retains a high moisture content and is not prone to windblown dispersion leading to the generation of dust. Mitigation options available in the unlikely event of dust generated including water spraying. Internal site roads are made from concrete/asphalt and not prone to the generation of dust. Please see Appendix G for the site specific bioaerosol risk assessment.	
Release of bioaerosols and dust from spillages	Abnormal	Emissions to air and dispersion leading to inhalation by local human and animal receptors with potential harm to health. Odour impact of bioaerosols. Nuisance impact of dust.	Low	Medium	Low	The risk of bioaerosol and dust is largely minimised by storing the sludge cake within a secure skips The nearest commercial properties are located approx. 50m to the south of the cake skips, and nearest residential site is located approx. 75 m to the North from the sludge lagoons Roads are made from concrete/asphalt and not prone to the generation of dust.	Low

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
						Mitigation options available in the unlikely event of dust generated including water spraying. Staff responsible for site housekeeping and cleaning of spillages in a timely manner.	
Spillage of liquids, including chemicals, diesel and oils.	Abnormal	Emissions to surface waters close to and downstream of site. Acute effect resulting in loss of flora and fauna. Chronic effect resulting in deterioration of water quality Emissions to ground and ground water.	Low	Medium	Medium	The closest surface waters are adjacent to the site's Eastern and western boundary, Farmoor reservoir and Filchampstead Brook. The site lies outside any groundwater Source Protection Zones (SPZ). Chemicals, fuels, and oils are all stored within suitably bunded tanks and IBCs with rainwater removed as required to maintain 110% capacities. There is impermeable surfacing concrete pad in waste treatment & processing areas with directional kerbing. Handling and use of chemicals and oils is carried out by trained personnel. COSHH data sheets available. Spill kits are available on site.	Medium

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
						X2 point source emissions to water have capacity for settlement treatment in lagoons and subject to EA discharge consent permits. X1 emission point to Filchampstead Brook is for surface water drainage and has an alarmed collection chamber to minimise risk of pollution. Filtrate drainage from the wastewater treatment plant and supernatant from the filter presses is discharged to sewer for full treatment at a sewage treatment works	
Spillage from storage and overtopping of tanks, leakage from same tanks and from buried pipes	Abnormal	Emissions to surface waters close to and downstream of site. Acute effect resulting in loss of flora and fauna. Chronic effect resulting in deterioration of water quality Emissions to ground and ground water.	Low	Low	Low	The closest surface waters are adjacent to the site's Eastern and western boundary, Farmoor reservoir and Filchampstead Brook. The site lies outside any groundwater Source Protection Zones (SPZ). Provision of suitably structurally integral tanks constructed from concrete and steel and glass reinforced plastic/insulation (where needed). All tanks are subject to asset inspection and proactive maintenance programme including regular visual inspection for cracks or weeping. Visual checks during regular day-to-day operations and scheduled preventative	Low

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
						maintenance of equipment, such as pumps, pipes, joins etc Spill kits available on site. X3 point source emissions to water are located away from waste treatment and processing areas. There is impermeable surfacing concrete pad in waste treatment & processing areas with directional kerbing. Filtrate drainage from the wastewater treatment plant and supernatant from the filter presses is discharged to sewer flowing to Swinford WTW for full treatment.	
Generation of solid waste resulting in litter	Normal	Releases of litter to the environment. Visual nuisance and local loss of amenity	Low	Low	Low	Site operations do not give rise to large amounts of solid wastes and litter that would be prone to dispersion by wind. Solid waste within sludge is treated through Bucher press. Sludge cake waste is stored securely for collection by appropriately licensed approved contractors. Litter picking activities can be completed as required.	Low

Where the TGN or H1 assessment shows that odours are an important issue, send us your odour management plan.

Due to the nature of the process, the waste operation has the potential to generate odorous emissions resulting from the permitted activities. Odour management is a key operational objective, as summarised in the risk assessment table below. A copy of the site-specific Odour Management Plan has been appended to this application as Appendix F.

Table C4-3b(ii) Odour risk assessment

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
H_2S emissions from uncovered tanks	Normal	Emissions to air and dispersion leading to inhalation by local human receptors Loss of amenity from odour nuisance	Low	Low	Low	The nearest commercial properties are located approx. 50m to the south of the cake skips, and nearest residential site is located approx. 75 m to the North from the sludge lagoons. Sludge treatment process controls for the uncovered sludge balance tank and sludge thickening tanks minimise the risk of anaerobic conditions. The TWUL asset management standards site operating manual sets action to address anaerobic sludge that can also generate high ammonia. Action includes sludge disposal off-site by tanker to illuminate the risk of pollution. Odour may be generated within uncovered contingency sludge storage lagoons if anoxic conditions are generated. This is minimised as far as practicable through process control and minimising use of the lagoons where possible. Lagoons are emptied as quickly as possible including using additional hired equipment.	Low

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
						H_2S production is controlled through the sludge mixing process in tanks which reduces risk of anoxic zones and H_2S production increase. The site operates to minimise risk of odour pollution through an odour management plan.	
Storage of treated sludge cake	Normal	Emissions to air and dispersion leading to inhalation by local human receptors Loss of amenity from odour nuisance	Medium	Low	Low	Sludge cake is stored within dedicated 3No. cake skips and is inherently lower odour material. As soon as skips are filled, they are removed Should any odorous sludge cake be produced, this will be subject to process checks undertaken to identify root cause of production and removed from site expediently. The nearest commercial properties are located approx. 50m to the south of the cake skips, and nearest residential site is located approx. 150 m to the Northeast from the skips.	Low
Storage of site generated wastes	Normal	Emissions to air and dispersion leading to inhalation by local human receptors	Low	Low	Low	Wastes generated on site are not inherently odorous and stored securely for collection by appropriately licensed approved contractors.	Low

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
		Loss of amenity from odour nuisance					

If the TGN or H1 assessment shows that noise or vibration are important issues, send us your noise or vibration management plan (or both)

The requirement for a noise and vibration management plan has been screened out. The waste operation has the potential to generate noise as a result of the permitted activities. Potentially noisy activities are subject to a number of process controls and noise management is a key operational objective, as summarised in the risk assessment table below.

Table C4-3b(iii)Noise risk assessment

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
Operation of site vehicles	Normal	Generation of noise with air transportation, causing loss of amenity to local human receptors. Generation of vibration with ground transmission, causing loss of amenity to local human receptors.	Medium	Medium	Medium	Vehicle movements across the site are subject to speed limit rules to reduce generation of noise. Majority of vehicle movements (including for bulk collections) normally take place during daytime only. Most large vehicles (e.g., HGV, vac tankers) will be delivering/collecting in the waste processing area.	Low

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
Vehicle movements - tanker deliveries of sludge and bulk collections of sludge cake	Normal	Generation of noise with air transportation, causing loss of amenity to local human receptors. Generation of vibration with ground transmission, causing loss of amenity to local human receptors.	High	Medium	High	Vehicle movements across the site are subject to speed limit rules to reduce generation of noise. Nearest sensitive residential receptors to the cake skips are 150m Northeast. The nearest commercial properties are located approx. 50m to the south of the cake skips. Sludge cake as it is delivered by controlled conveyor into dedicated skips. It's location on site (away from sensitive residential dwellings and near to the site entrance) and process (intermittent skip collections) reduces risk of prolonged noise impacts. Majority of vehicle movements (including for bulk collections) normally take place during daytime only.	Low
Vehicle movements - tanker deliveries of chemicals and raw materials	Normal	Generation of noise with air transportation, causing loss of amenity to local human receptors. Generation of vibration with ground transmission, causing loss of amenity to local human receptors.	High	Low	Medium	Deliveries likely to take place during daytime hours to delivery areas are mostly within the central area of the site. Vehicle movements across the site subject to speed limit to reduce generation of noise.	Low

Activity/Hazard	Normal or Abnormal	Environmental Impact (Pathway-Receptor)	Likelihood	Consequence	Risk	Risk Management	Residual Risk
						Storage capacity of chemicals and raw materials does not require significant tanker deliveries.	

3c Information for specific sectors

The waste operation does not undertake activities within sectors described in table 3c.

4 Monitoring

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

For emission point W1 and W2, these are subject to control from EA discharge consent permits requiring environmental monitoring (e.g., H/TEMP.3053, TH/CAWM.0559) to specified limits. This includes:

River Thames - MCERTS flow monitoring (limit 7500 m3/d) suspended solids (max 90mg/l), oil & grease (max 20mg/l) and Aluminium (max 5000µg/l),

Farmoor Reservoir - MCERTS flow monitoring (limit 10,000 m3/d) suspended solids (max 90mg/l) and Aluminium (max 5000µg/l),

For emission point W3 surface water drainage discharge into Filchampstead Brook, the weir chamber is fitted with a level probe that alarms on liquid overflow and stops the RGF wash sequence to prevent pollution to the brook.

For emission point S1, filtrate and supernatant flows to sewer are monitored and data recorded via SCADA. The sewer flows to TWUL sewage treatment works for full treatment.

4b Point source emissions to air only

N/A there are no point source emissions to air from the permitted site.

Appendix A. Figures

A.1 Site Boundary Plan

KEY:

Site Location

P01	APR. 2022	FOR INFORMATION	AR	MM	JK	MM
Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd

Jacobs
1180 Eskdale Road, Winnersh, Wokingham, RG 1 5TU
Tel: 0118 6 7000
www.jacobs.com

Client

Thames Water

Project

STC IED PERMIT
FARMOOR STW

Drawing title

FIGURE 1
SITE LOCATION PLAN

Drawing status

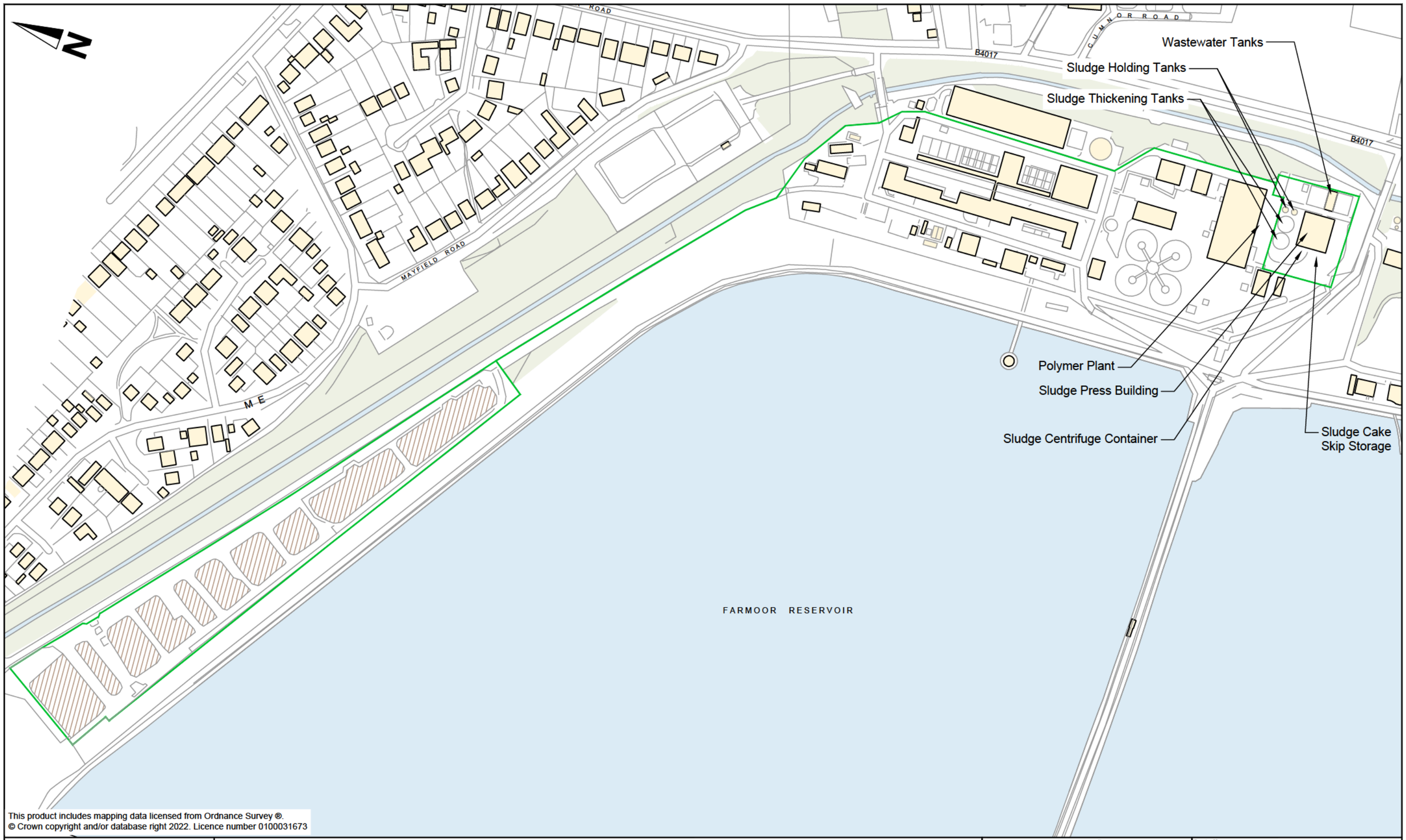
PERMITTING

Scale	1:25,000	DO NOT SCALE
Jacobs No.	B22849AM	Rev P01
Client no.		

Drawing number

B22849AM-JAC-FMR-DR-0001

A.2 Site Layout



KEY:

Installation Boundary

Sludge Lagoon

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
P01	APR. 2022	FOR PERMITTING	AR	AW	JK	MM

Jacobs
1180 Eskdale Road, Winnersh, Reading, RG 1 5TU
Tel: (0)118 9 6 7000
www.jacobs.com

Client: Thames Water

Project: STC IED PERMIT APPLICATION
FARMOOR STW

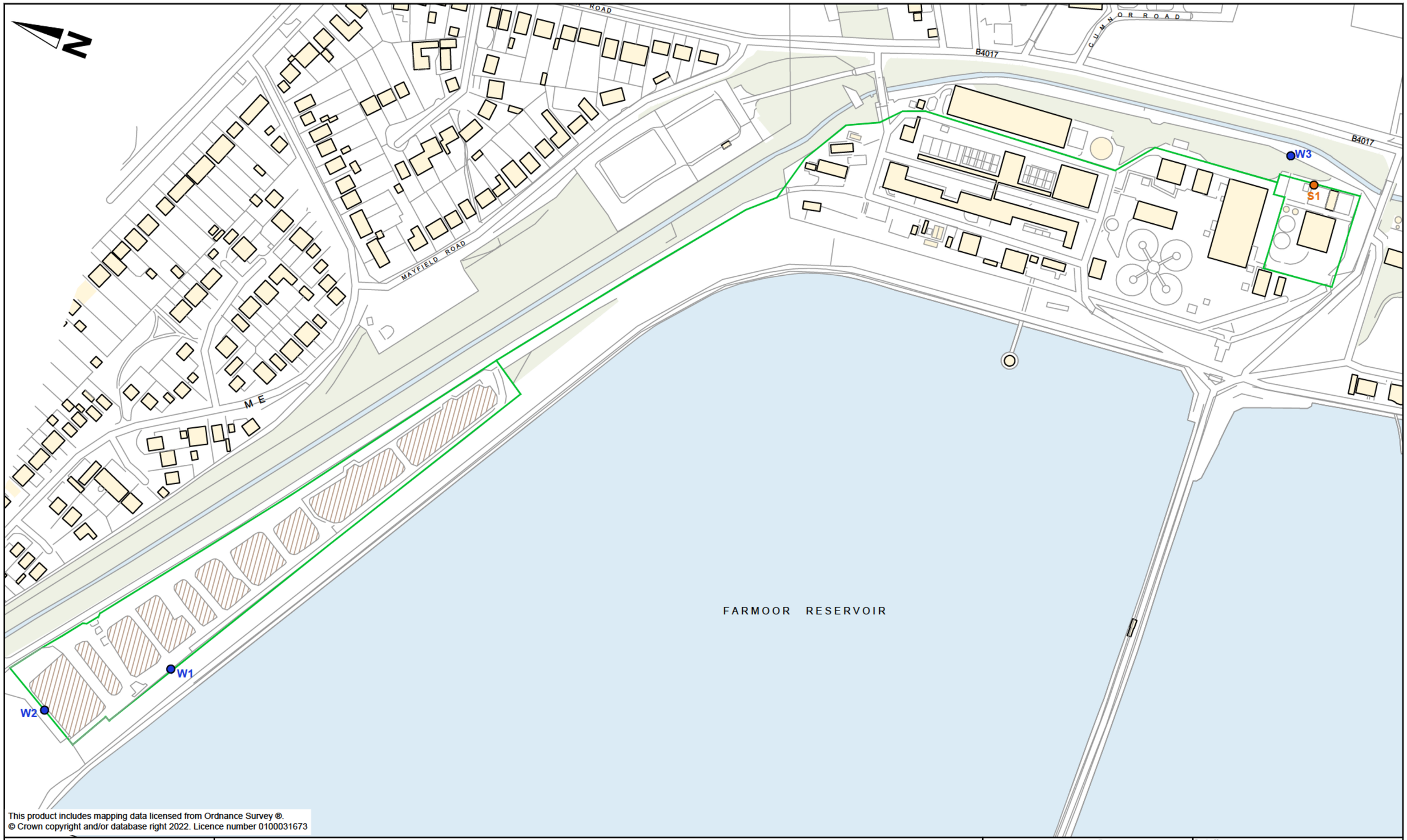
Drawing title: FIGURE 2
SITE LAYOUT

Drawing status: PERMITTING

Scale	1:2,500 @A3	DO NOT SCALE
Jacobs No.	B22849AM	Rev P01
Client no.		

Drawing number: B22849AM-JAC-FMR-0002

A.3 Site Emissions Plan



KEY:

- Installation Boundary
- Sludge Lagoon
- Water Release Point
- Sewer Release Point

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
P01	APR. 2022	FOR PERMITTING	AR	AW	JK	MM

Jacobs
1180 Eskdale Road, Winnersh, Reading, RG 1 5TU
Tel: (0)118 9 6 7000
www.jacobs.com

Client: Thames Water

Project: STC IED PERMIT APPLICATION
FARMOOR STW

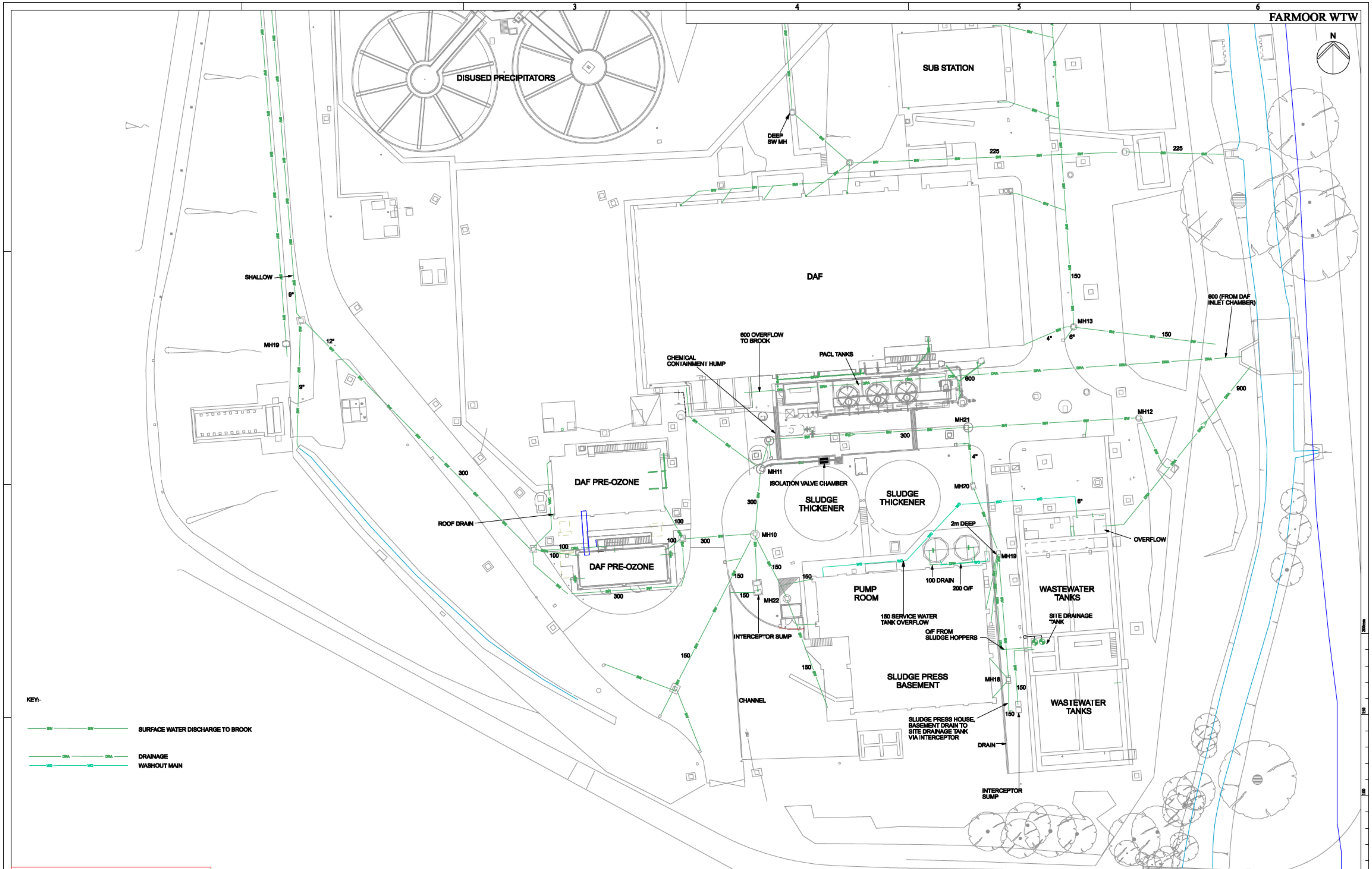
Drawing title: FIGURE 3
WATER AND SEWER
RELEASE POINTS

Drawing status: PERMITTING

Scale	1:2,500 @A3	DO NOT SCALE
Jacobs No.	B22849AM	Rev P01
Client no.		

Drawing number: B22849AM-JAC-FMR-0003

A.4 Site Drainage Plan



DRAWING UNAPPROVED BY OPERATIONS

UNCONTROLLED WHEN PRINTED

THE LOCATION OF ALL BURIED APPARATUS NEEDS TO BE CONFIRMED BEFORE CARRYING OUT ANY WORK ON SITE

NOTE - ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE

PLOTTED ON $$$$sytime$$$$$$$$$ BY $$$USER$$$ LOCATION : $$$$$$SITENAME$$$$$$

$$$$dgnspec$$$

Iss	Description	Drawn	Chkd	Appd	Date
C	UPDATED FROM PROJECT B462	CVJ	FP	CM	09/12/2014
B	UPDATED DAF AREA TO ACD 7LQG-A1-20010, JUNE 2009	IMP	CNW	CNW	20/11/2012
A	TAKEN FROM SURVEY 0312, DEC 2000 & PROJ 10WB	IMP	MJV	MJV	29/09/2008

Thames Water

TECHNICAL INFORMATION
Clearwater Court
Vastern Road
Reading RG1 8DB

Drawing Title: DRAINAGE PLAN SHEET 6 DAF AREA

Location / Town: FARMOOR

Location Code: FARMW1ZZ

OS Reference: SP451067

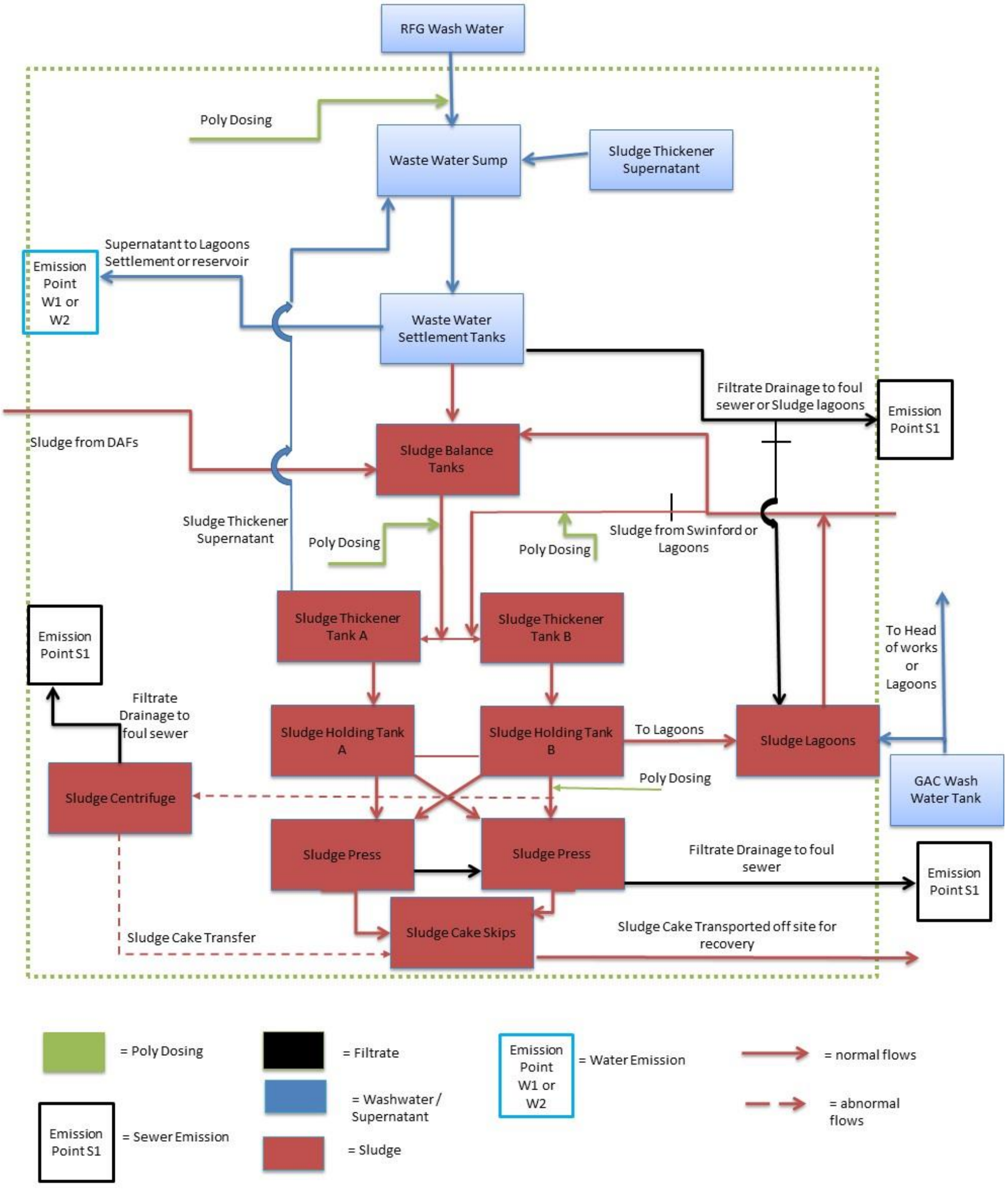
Drawing No.: FARMW1ZZ-DPL-006

Scale: 1:250

Sheet Size: A1

Rev: C

A.5 Block flow diagram



A.6 Location Plan


Swinford WTW
Lagoons
Farmoor WTW
Stroud Copse
B4044
Woodcroft Copse
Guy's Copse
Rough Copse
Songer's Copse
Nealing's Copse
River Thames
Oxford Rd
FARMOOR
Eynsham Rd
B4017
Bean Wood
Cumnor Rd
Farmoor Reservoir

Appendix B. CoTC

Appendix C. Odour Management Plan

Asset Management
Asset Standard
Odour Management Plan

Farmoor WTW

FARMW1ZZ

Document Reference	AM-OMP Farmoor WTW	
Issue Date/Version	Date: June 2022	Version: 6.0
Data Owner	Asset Standards Manager	
Technical Lead(S)	Waste Process Optimisation Manager	
Document Author	Melissa Marsin	
Approved By	Wastewater Treatment Governance Group	
Document Location	Asset Doc	
Reason for Issue	Review of document before permit application	
Next Review	June 2024	

0 Document Control & Procedures

0.1 Contents

Figures and Tables:

0.2 Document Confidentiality

This document and its associated sections will only be disclosed to those of the recipient's employees and contractors who have a need to see it as part of their duties.

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Copying is permitted, provided any copy made is clearly marked as 'Uncontrolled Copy'.

0.3 Document Control

0.3.1 Document Change Request

Whilst Standards are mandatory, it is recognised that one process may not cover every eventuality and a document user may identify an improvement that does not compromise the objectives of the procedure; in this instance a change request against the Standard should be raised.

Information exchange is essential in supporting continuous improvement of the Standards, and a common document and data change request process is provided via the "TEC Help" application available via the TW Portal. Within the TEC Help "Service Catalogue" menu option there are links and instructions for raising change requests for a variety of subjects.

Change requests are automatically sent to the Standards Process Team, and will be approved by the team, or escalated to the relevant governance group and/or standards board for approval depending upon the potential impact and complexity of the request.

It is a business requirement to comply with standards. Compliance issues will be escalated to the relevant governance group for further action as appropriate.

For further information/advice, please e-mail: am.standards@thameswater.co.uk.

Owner Review Requirements

Document to be reviewed when any changes are made to the site or processes.

Local Review Requirements

Site Manager should be informed when handwritten amendments are made to this document.

Revision No	Reason for Revision	Prepared by	Approved by	Date
0	First version for file			Oct 2012
1	Additional items added following EA EPR visit on 8/11/2012		Ian Luckman	Dec 2012
2	Annual review of document		Ian Luckman & Andrew Rogers	Oct 2013
3	Amendments to 1.3 & 1.4		Nick Lutt & Rachel Myers	Aug 2014

Revision No	Reason for Revision	Prepared by	Approved by	Date
4	Conversion and validation of OMP into new Standard Format	Melissa Marsin / Matthew Austin		October 2014
5	Update of document following EA inspection	William Lawrence		October 2019
6	Review of document before Application of bespoke permit	Dominic Williams	Mike Nelms	June 2022

0.4 Sign Off

Technical Lead	Waste Process Optimisation Manager	Date: June 2022
Regional Production Manager	Natalie Doran	Date: June 2022
Site Manager	Mike Nelms	Date: June 2022

0.5 Glossary of Terms

TERM	DESCRIPTION
AWTW	Advanced Water Treatment Works
DEFRA	Department for Environment, Food and Rural Affairs
EA	Environment Agency
EHO	Environmental Health Officer
EPR	Environmental Permitting Regulations
ICA	Instrumentation Control & Automation
OMC	Operational Management Centre
OMP	Odour Management Plan
Receptors	Sensitive receptors are any fixed buildings or installations where odour annoyance may occur, such as residential homes, schools, hospital, offices, shops or garden centres. Open areas such as playgrounds and public footpaths should also be listed where these are known to have been affected by odour.
SAP	SAP is the Thames Water IT system for all finance and HR electronic processes
SCADA	Supervisory Control And Data Acquisition

TERM	DESCRIPTION
SOM	Site Operating Manual
STW	Sewage Treatment Works
TM	Team Manager
TW	Thames Water
WQ	Water Quality
WTW	Water Treatment Works

1 Introduction

This Odour Management Plan (OMP) forms part of the Best Operating Practice for Farmoor Water Treatment Works (WTW) and is a constituent part of the Environmental Management System (EMS) for a Standard Rules non-hazardous sludge, waste management operation, environmental permit, revised September 2012. A key related document is the Site Operating Manual (SOM); this document can be found on Thames Water's asset record database known as "Asset Doc". Other key related documents are the Environmental Management System itself and associated Accident Management Plan.

The purpose of this OMP is to define how the potential and actual sources of odour from Farmoor WTW are identified, and how, as far as is reasonably practicable, they are controlled and recorded. It is primarily a management guide; detailed procedures are contained within the SOM referred to above.

This OMP is an operational document that has been developed following a review of the potential risk areas for odour release. It details operational and control measures appropriate to the reduction or elimination of the impact of odours from wastewater treatment works. It provides detail to allow operators and maintenance staff to understand the operational procedures for both normal and abnormal conditions.

The format used is in line with that adopted for other Thames Water sites. This OMP was updated in 2012 to take account of the Environment Agency's H4[1] Odour Management Guidance for those activities under Environmental Permit EPR/PP3197EB (also identified as permit EAWML102087) which is a "Standard Rules SR2008No19_250kte-non-hazardous sludge biological, chemical and physical treatment site.

The Environmental Permit covers the sludge settlement, the sludge storage and the reception of imported sludge. The Odour Management plan has been structured to distinguish between the permitted activities stated in the permit drawing and the non-permitted activities, which are fully described in the Site Information chapter.

An OMP is a standard requirement for such Permitted activities, irrespective of whether these specific activities are likely to give rise to odorous emissions – the process is intended to demonstrate that such risks are in any case managed appropriately. Site activities are managed with high regard to environmental compliance and responsibility; accordingly, Farmoor AWTW's site Environmental Management Systems are accredited to the ISO 14001 standard.

The Permitted activities at the Farmoor AWTW are unlikely to give rise to significant detectable odour beyond the site boundary, except in exceptional circumstances relating to the management of the lagoons. The measures described in this OMP are considered appropriate at the time of this review but subject to the ongoing attention of the site management team in respect to preventing, minimising and managing odour risk.

For known Odour Risk and Environmental Permitted sites (environmental permit under the Environmental Permitting Regulations 2010 relating to the import of non-hazardous sludges, any other permitted activity, with the potential to increase odour) this OMP will be reviewed if any of the following occur:

[1] Horizontal Guidance Note H4: Odour Management Guidance, Environment Agency, March 2011; http://publications.environment-agency.gov.uk/PDF/GEHO0411BTQM-E-E.pdf

- When significant changes are made to the site which may affect odour, e.g. capital spend, changes to the permitted activities.
- As a result of a change in pattern of odour complaints, increase in public concern and as soon as possible after a significant incident.
- When the site Process Manager changes.
- If there is a material change in relevant regulations or guidance.

Operationally, changes to local practices are captured in the SOM as part of the periodic reviews of this document. Changes following review of this Odour Management Plan may also impact on the SOM and will likewise be addressed at SOM reviews.

This OMP is stored electronically within Asset Doc.

A hard copy is kept on site within the Site Operating Manual.

Regulatory Framework

This Odour Management Plan relates to certain activities on the WTW that are regulated under the Environmental Permitting Regulations (EPR) 2010. The EA's H4 Odour Guidance has been used to assist the preparation of this OMP where it relates to activities regulated under EPR. As this guidance does not apply to non-permitted activities, where any wider reference to H4 is made within this document, including use of the guidance's recommended forms, this should not be inferred as H4 being applicable to non-permitted activities.

Copies of the Odour Risk Assessment, Odour Improvement Plan, Customer Communications Plan and Site Drawings are included in Appendices 1-5.

Hard copies of the SOM and key related documents are held on site.

2 Site Information

2.1 Location and Receptors

Site Address:

Farmoor WTW
Cumnor Road
Oxford
Oxon
OX2 9NS

Farmoor WTW is situated on Cumnor Road, close to the junction with Mayfield Road near the village of Farmoor.

Receptors

The nearest receptors are given in Table 2.1:

Table 2.1 - Location of potentially sensitive odour receptors.

Receptor Address	**Receptor type**	**Approximate distance to the nearest site boundary (m)**	**Direction from the site.**
Valley Farm Cumnor Road	Agricultural	100m	To the east
Farmoor Court	Residential properties	100m	To the north
Oakes Lane	Residential properties	100m	To the north

2.2 Site Layout and Treatment Processes

Details of the site layout and treatment processes are given in the following sections of the Site Operating Manual and are therefore only given summary attention in this OMP:

Section	Description
1	Governance & Control
2	Location, key layout plans and diagrams. Site services, including power, water, drainage, SCADA and ICA. Consent details, process overview, chemical and waste handling.
3	Detailed description of each treatment process, including sludge and odour control.
4	Maintenance
5	Plant control, monitoring, and logging.

Process Description

2.2.1 Non-permitted activities plus description

Farmoor AWTW is an advanced works which abstracts water from the River Thames via the Farmoor reservoirs and treats to reach drinking water standards. The treatment processes are detailed in the Site Operating Manual for Farmoor WTW.

2.2.2 Permitted activities plus description

Part of the treatment process includes the settlement of precipitated flocculated material from the river, in the form of a dilute sludge, in the wastewater settlement tanks. This is not process sludge but predominated by micro-organisms such as algae. The flocculated material is automatically and regularly transferred into the sludge balance tank to be processed in the sludge thickening plant.

The sludge thickening process does also receive imports of process sludge from the nearby Swinford WTW. If the sludge treatment plant cannot cope with the sludge volume due to a failure, the nine emergency sludge lagoons at Farmoor WTW may be used to temporarily store the sludge for treatment at a later date.

The indigenous and imported sludges are thickened on site, and pressed and dried into sludge cake in the main Bucher press building, with the liquid arising being transferred back to Swinford. The solid cake is then conveyed to waiting skips, which are regularly removed off-site by a specialist contractor.

Confirmation was received from the Environment Agency in November 2012 that the wastewater settlement tanks and the sludge lagoons do form part of the permitted process.

The permitted areas and activities can therefore be summarised as follows:

- Sludge settlement in the wastewater settlement tanks
- Sludge imports via the pumping main from Swinford WTW
- Sludge treatment: thickening and pressing
- Emergency sludge storage in the lagoons

(For Site Plan and Process Block Diagram see Appendix 4)

3 Site Management Responsibilities and Procedures

3.1 Site Roles

Figure 3.1 - Site Roles

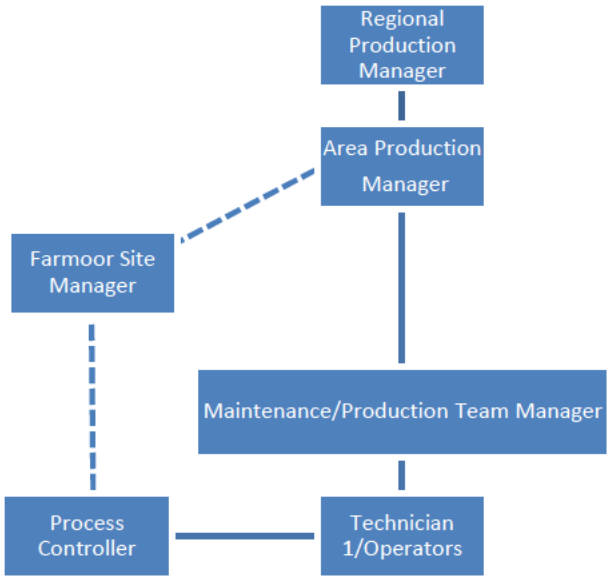


Table 3.1 - Tasks and Responsibilities

Role	Tasks and Responsibilities
Regional Production Manager	Accountable for the overall performance of the WTW and catchments areas.
Area Production Manager	Responsible for overall performance of the WTW and will be responsible for • odour control and management at the site • day to day implementation of the OMP • dealing with customer complaints • assessing the scope of, and updating, the OMP as it is implemented.
Farmoor Site Manager	Responsible for day-to-day operation of the WTW.
Technician 1/Operator	Day to day duties include maintaining and operating process equipment.
Process Controller	Monitoring and recording of site data and operating process plant.
Site TCM	Assisting Area Production Manager
Duty Manager	The duty manager is centrally based (off-site) and is responsible for event management across the business.

Role	Tasks and Responsibilities
Customer Centre	Responsible for receiving all customer calls, logging them and passing them to the appropriate operational departments.

The site is manned 24 hours per day and 7 days per week.

3.2 Key Contacts

Thames Water Website – www.thameswater.co.uk

Role	Name	Email address	Phone Number
Regional Production Manager	Natalie Doran	natalie.doran@thameswater.co.uk	-
Area Production Manager	Mike Nelms	mike.nelms@thameswater.co.uk	-
Site TCM	Dominic Williams	dominic.williams@thameswater.co.uk	-
Customer Centre	Farmoor WTW	customer.feedback@thameswater.co.uk	0800 316 9800

3.3 Operator Training

There is no formal training related to the control of odour on site but the Process Manager will provide appropriate advice on site, and at team briefing meetings, attached to the importance of effective odour control.

The permitted activity at this site requires the site management team to hold a Level 4 WAMITAB qualification, and meet a weekly site attendance requirement, to demonstrate technical competence. The site manager holds a Level 4 WAMITAB qualification.

4 Odour Critical Plant Operation, Monitoring and Management Procedures

4.1 Odour Sources, Critical Issues and History

A very few number of complaints were received in the past. They were related to odour emanating from the lagoons during the stirring up of septic sludge when pumping back to Farmoor WTW for treatment. These complaints are documented in the EMS for ISO. See Appendix 3 for customer complaints procedure relating to this EPR.

As of August 2014, no further odour complaints for the permitted activity have been received since the previous version update. The approach to odour management and control at this location will reflect any changes to the underlying permitted activities (or any other sources of odour) and will be informed by any contacts from the Environment Agency.

An air quality specialist inspected the site in August 2012 to identify any actual and potential sources of odour.

The principal sources of odour from the Permitted processes include:

- Fugitive sludge odours from the main sludge press building
- Odours from the skips
- Odours from any spillages, particularly during the transfer of imported sludge.
- Odours from wastewater settlement tanks adjacent to Sludge Plant building
- Odour issues from stagnation of the contents of the sludge lagoons stagnate upon prolonged storage, when sludge plant is over-loaded.

An Odour Risk Assessment is included as Appendix 1.

An Odour Improvement Plan is included (where applicable) as Appendix 2.

Critical Odour Issues, Emergency Response and Mitigation Measures are summarised in Table 4.1.

4.2 Identification of Odour Critical Plant

4.2.1 Odour Risk Assessment

An Odour Risk Assessment has been carried out on 15/06/2022 and a copy is included in Appendix 1.

The Odour Risk Assessment is not a ‘one-off’ exercise but an on-going process. The Odour Risk Assessment should be reviewed whenever the site undergoes an operational or capital change which could significantly affect odour.

It is constructed in the following manner:

- Each part of the treatment process is considered under different operating modes – e.g. normal, failure, abnormal: system overload, summer conditions, maintenance etc.
- The nearest customers to the particular odour source are identified.
- The likely frequency and duration of occurrence for each eventuality is identified.
- A score is assigned to the severity (0 – 5) of odour under each operating mode.
- A score is assigned to the probability (0 – 5) of causing an odour nuisance for each operating mode.
- Multiplying the severity of odour and probability of causing an odour nuisance generates a 'Current Odour Emission Risk' score. Between 0 (zero risk) and 25 (maximum risk), this is used to decide where mitigation should be applied in the short term, and determine where in the longer term enhanced improvement measures are required. Where improvements are identified as necessary (i.e., where suitable mitigation measures are not already in place), entries are made onto the Odour Improvement Plan.
- The need for operational mitigation, enhanced measures and customer communication is stated and brief details given.

4.2.2 Odour Critical Plant

The following list of odour critical plant[1] has been identified during the odour risk assessment:

- Sludge lagoons

4.3 Odour Control Measures

The SOM referred to above complies with Thames Water's Asset Standards – Operating Standards. It states the operational procedures to be followed in order to maintain and operate plant to agreed company standards. These standards include, where appropriate, procedures for ensuring that generation of odour is kept to a minimum.

The routine operational tasks carried out at Farmoor WTW to specifically mitigate against generation of odour are listed in the above SOM.

Refer to risk assessment in Appendix 1 where these measures are summarised as:-
"Normal Mitigation"

4.3.1 Site Specific Measures

The specific tasks associated with the control of odours on this site are as follows:-

[1] Odour critical plant is equipment that may cause off-site odour if not operating correctly

Main processing building

Fugitive emissions from the sludge building are possible since there are no odour controls, but not considered likely to be detected as far away as the site boundary. The operation of the process is substantially enclosed. The residual risk of odour which affects nearby properties is considered negligible.

Skips

Odours from the skips are unlikely given the nature of the material stored, which possesses only a faint odour; hence mitigation through covering is not necessary. Skips are in any case removed every two to three days under normal throughput conditions. The residual risk of odour which affects nearby properties is considered negligible.

Spillages

Odour from spillages onto the hardstanding area are possible but can be readily mitigated by the prompt wash-down of the affected area in the event of a spill to transfer the spillage into the main works drain. It is unlikely that spilled material would remain in situ long enough to give rise to detectable odour as such a spillage would be reported by the tanker driver to the Thames Water team. The residual risk of odour which affects nearby properties is considered negligible.

Wastewater Settlement Tanks

Odours from the wastewater settlement tanks adjacent to the sludge plant are possible, and although these are external and closer to the site boundary it is not considered likely to be detected off site. There are also no local residents in the vicinity. The residual risk to members of the public walking along the road or Countryside Walk is considered negligible.

Sludge Lagoons

This is an area where complaints from local residents have arisen in the past. The lagoons are used to temporarily store non-thickened sludge, in a contingency, as and when the wastewater process and/or sludge plant requires. This is particularly likely towards the end of the summer during the blue-green algal bloom risk period. The procedure is to store the non-thickened sludge in the lagoons until such a time that it can be pumped back to Farmoor sludge plant to be treated. The site team make every attempt to minimise the time that it is stored in the lagoons due to the risk of septicity which is the main source of odour.

4.3.2 Odour Control Units

There is no Odour Control Unit on site.

4.3.3 Spillages

Spillages significant enough to cause odorous emissions will be cleared as soon as practicable. The person discovering the spillage will inform site management, who will utilise resources as required to clear it.

4.4 Routine Monitoring

Details of routine monitoring tasks are included in the Site Operating Manual.

4.4.1 Performance Checks and Testing

There is no regular odour-specific testing carried out at Farmoor WTW. The Process Manager would, however, appraise the need for odour monitoring if it was considered essential as an investigative tool, for example, after a repeat pattern of complaints.

4.5 Record Keeping

A hard copy of the records related to the skips movements is available on site at Farmoor WTW.

4.6 Emergency Response and Incident Response Procedures

Emergencies such as fire, flood and severe weather are managed by Thames Water's Business Resilience and Security team. The processes employed can be found on Thames Water's portal intranet site and are entitled: 'Security and Emergency Risk Management Process' and 'Event Management Procedure'. These are company confidential documents and therefore, are not included in the Appendices of this document.

Hazard reporting and accidents are all recorded on the Health and Safety software database Rivo Safeguard (http://www.rivosafeguard.com) and monitored by Thames Water's Health, Safety & Environment team.

In the event of power failure, the site will run on island mode for critical plant. One press would be able to run.

Absence of key staff does not affect the running of Farmoor WTW, as Tech 1s from other sites can be called upon to cover, if required.

Table 4.1 - Summary of Critical Odour Issues, Emergency Response and Mitigation Measures

The purpose of Table 4.1 shall be to identify site specific emergency response procedures and mitigation measures relating to site odour generation and release. It shall include:

- Generic odour issues and mitigation measures relating to site-specific process stages; and,
- Additional site-specific odour issues and mitigation measures associated with process stages identified under the site Odour Risk Assessment.

		Normal		Abnormal											
Process Stage	Process Unit	Odour Description	Constant/ Intermittent/ Occasional/ Rare	Event Description	Likelihood of Event Frequent/ Rare/ Planned	Length of Time of Release	Nearest Customer/ Receptor	Offensive-ness (0-5)	Likelihood of Impact (0-5)	Odour Risk (<5 Low, >15 High)	Odour Impact	Mitigation Measures	Residual Odour Impact (L/M/H)	Responsibility for Mitigation Measures	Customer Communication Needed?
Sludge Treatment	Sludge Lagoons	Septic sludge, H2S		Emptying lagoons following prolonged storage	R	Weeks	Farmoor village and Farmoor Reservoir users and countryside walk	4	3	12	Medium	Empty lagoons as quickly as possible using hired in equipment	L	Site Manager	N

4.7 Odour Improvement Plan

Items scored in the Odour Risk Assessment with a risk score greater than 10, and where existing operational mitigation measures are not sufficiently robust, will have Improvement Plans generated to address the odour issues. There is no current Odour Improvement Plan for Farmoor WTW.

5 Maintenance and Inspection of Plant and Processes

5.1 Routine Maintenance

5.1.1 General Requirements

Site staff has a schedule to ensure routine maintenance for key mechanical items. In addition, a dedicated maintenance team provide additional support for more specialised equipment, e.g. regular calibration of Dissolved Oxygen probes.

In addition to the routine operational tasks, planned preventative and defect maintenance of plant is carried out. Plant which may have an impact on odour release is assigned an appropriate criticality rating to ensure effective performance is maintained. Plant assessed to be odour critical is listed in Section 4.1 above.

All maintenance is captured on the corporate system SAP, which generates work requests for the various activities for the treatment process assets.

5.1.2 Maintenance of Odour Control Units

There is no odour control unit at Farmoor WTW which is a reflection of the low level of risk attached to the main clean water treatment process.

5.1.3 Records

Maintenance history records are kept in the company's asset register.

5.2 Fault Reporting

Faults identified during routine inspections are reported to the Team Manager or Process Controller who assesses criticality before entering the task into the job scheduling system for allocation to an appropriate person and to a timescale appropriate to the criticality.

5.3 Emergency Repairs

24-hour maintenance cover is available at the discretion of the Team Manager with planned follow up.

Less urgent repairs are assessed for criticality and dealt with during normal working hours.

6 Customer Communications

6.1 Customer Odour Complaints Process

Customers / residents are encouraged to communicate with local Thames Water Operations via the Customer Centre to report if they are noticing odour from Farmoor WTW, to ensure that all contacts are recorded and actioned.

Thames Water Website – www.thameswater.co.uk

customer.feedback@thameswater.co.uk with the subject 'Farmoor Water Treatment Works'

Thames Water Customer Services
Telephone: 0800 316 9800

Customer contacts regarding Farmoor WTW will be made via the Customer Centre, logged, and passed (directly, or via the OMC) to local Operations (Process Manager and Team Manager) via e-mail. Operations will investigate and take appropriate action.

If the customer / resident would prefer to contact either Vale of White Horse District Council or the Environment Agency instead, their contact details are as follows:

Vale of White Horse District Council – Environmental Services
Telephone: 01235 540555

For permitted sites:
Environment Agency – EA officer for Farmoor WTW: Jackie Outhwaite
Incident hotline: 0800 80 70 60
Email: incident_communications_service@environment-agency.gov.uk

6.2 Customer Communication Plan

The Customer Communication Plan in Appendix 3 identifies how and when contact will be made with customers and stakeholders in relation to stable, abnormal and emergency site operation.

6.3 Notification of Operations with Potential to Cause an Odour Problem

Where operations may impact on local residents, notification will be made to the Customer Centre who will log the details on their Bulletin Board. This will be used to provide information directly to customers who call with queries. Letter drops may also be used.

The Environmental Health Officer of Vale of White Horse District Council will be contacted directly if there are risks of odour generation (e.g. tank cleaning or process issues).

Appendices

Appendix 1. Odour Risk Assessment

AM-OMP - RA - Farmoor STW - Odou

Appendix 2. Odour Improvement Plan

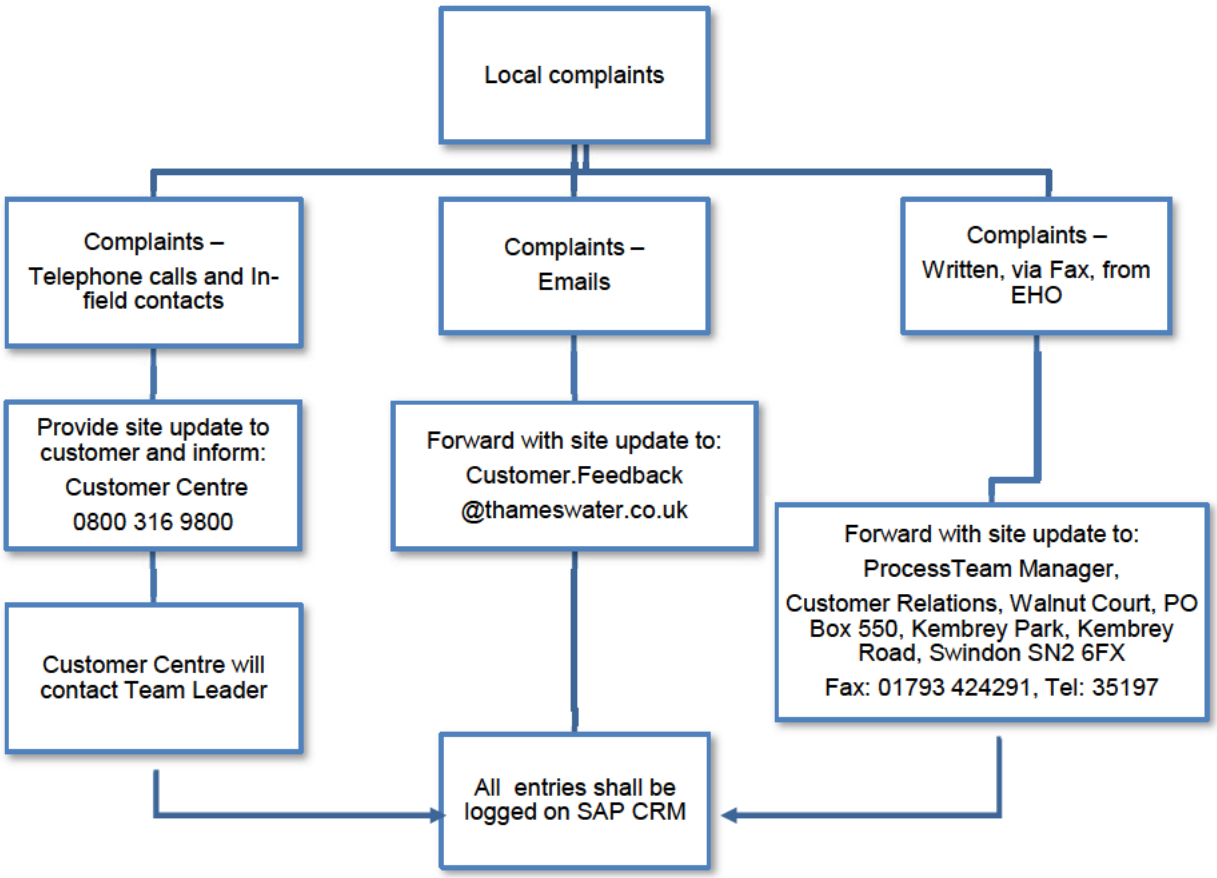
Project number	Project outline	Project Leader	Project milestones	Date	Current status/ actions	Review date	Complete?

There is no current odour improvement plan for Farmoor WTW

Appendix 3. Customer Communications Plan

Complaints Process

All locally received complaints are re-directed to the Customer Centre. Please see below for details.



IMPORTANT NOTE:
Any communications received from the local Member of Parliament or senior council officers need to be forwarded to the Local/Regional Government Liaison person: Name: Clare Collard Telephone: 07747 644164

Communications

Level 1	Stable operations: Compliant with Operational Asset Standards.			
Communications Approach	Standard regular proactive contact with key stakeholders.			
Stakeholders External	**Frequency of Contact**	**Method of Contact**	**Aim of Contact**	**TW Contact/Level**
Local council(s) Environmental Health Department	As required but at least quarterly	Telephone / email / meeting	Update on operational activity on site	Site Manager
Local Environment Agency officer *(if site is permitted)*	As required but at least quarterly	Telephone / email / meeting	Update on operational activity on site	Site Manager
Local residents associations *(if applicable)*	As required but at least annually	Telephone / email / meeting	Update on operational activity on site	Site Manager
Stakeholders Internal	**Frequency of Contact**	**Method & Level of Contact**	**Aim of Contact**	**TW Contact/Level**
Press Office	As required	Report sent out by operations to the business	Update the business on operational activity on site	Duty Manager
Customer Centre (Swindon)	As required	Report sent out by operations to the business	Update the business on operational activity on site	Duty Manager

Level 2	Unstable operations: • Non-compliant with Operational Asset Standards on one or more sub-processes leading to increased odour risk.			
Communications Approach	As Level 1 plus: • Use of Contact Centre Bulletin Boards / Briefing Contact Centre agents / Briefing statement with Q&A prepared for the press office (to use reactively). • Monthly discussions with, and quarterly visits from, the EHO. • Commence proactive communications with other stakeholders.			
Stakeholders External	**Frequency of Contact**	**Method & Level of Contact**	**Aim of Contact**	**TW Contact/Level**
Local council(s) Environmental Health Department	Immediately then monthly	Telephone / email / meeting	Report unstable operation with action plan	Site Manager
Local Environment Agency officer *(if site is permitted)*	Immediately then monthly	Telephone / email / meeting	Update on operational activity on site	Site Manager
Local residents associations *(if applicable)*	Immediately then monthly	Telephone / email / meeting	Report unstable operation with action plan	Site Manager
Stakeholders Internal	**Frequency of Contact**	**Method of Contact**	**Aim of Contact**	**TW Contact/Level**
Press Office	Immediately then weekly	Q&A prepared for press office by Operations	To enable the press office to deal with queries from the press (reactive only).	Duty Manager
Customer Centre (Swindon)	Immediately then weekly	Telephone / email	To enable the Customer Centre to deal with queries from the press (reactive only).	Duty Manager
Other areas/stakeholders outside Farmoor WTW potentially impacted				
Stakeholder	**Frequency of Contact**	**Method of Contact**	**Aim of Contact**	**TW Contact/Level**
Local businesses	Immediately then monthly	Telephone / email / meeting	Report unstable operation with action plan	Site Manager

Level 3	Emergency • Temporary or transient activities not deemed to be compliant with Operational Asset Standards. High risk of odour emitting plant.			
Communications Approach	As level 2 plus: • Odour event set up internally (including OOH's cover from OMC (Kemble Court)). • Weekly discussions with EHO. • Monthly Stakeholder meetings, (internal and external – include MPs, Councillors, schools, businesses etc.). • Press release may be required.			
Stakeholder External	**Frequency of Contact**	**Method of Contact**	**Aim of Contact**	**TW Contact/Level**
Local council(s) Environmental Health Department	Immediately then weekly	Telephone / email / meeting	Report emergency event with action plan and update with progress	Level 5/4 Manager
Local Environment Agency officer	Immediately then weekly	Telephone / email / meeting	Report emergency event with action plan and update with progress	Level 5/4 Manager
Local residents associations *(if applicable)*	Immediately then monthly	Telephone / email / meeting	Report emergency event with action plan and update with progress	Site Manager
Councillors / MPs for local areas	Immediately then monthly	Telephone / email / meeting	Report emergency event with action plan and update with progress	Level 5/4 Manager
Stakeholders Internal	**Frequency of Contact**	**Method of Contact**	**Aim of Contact**	**TW Contact/Level**
Press Office	Immediately then daily	Q&A and press release prepared by press office	To enable the press office to deal with reactive queries from the press and prepare a media strategy if required.	Duty Manager
Customer Centre (Swindon)	Immediately then daily	Telephone / email	To enable the Customer Centre to deal with queries from customers (reactive only)	Duty Manager

Other areas/stakeholders outside Farmoor WTW potentially impacted				
Stakeholder	**Frequency of Contact**	**Method of Contact**	**Aim of Contact**	**TW Contact/Level**
Local businesses	Immediately then monthly	Telephone / email / meeting	Report emergency event with action plan and update with progress	Site Manager

Appendix 4. Site Drawings

Figure A - Site Location Map

Figure B - Site Plan

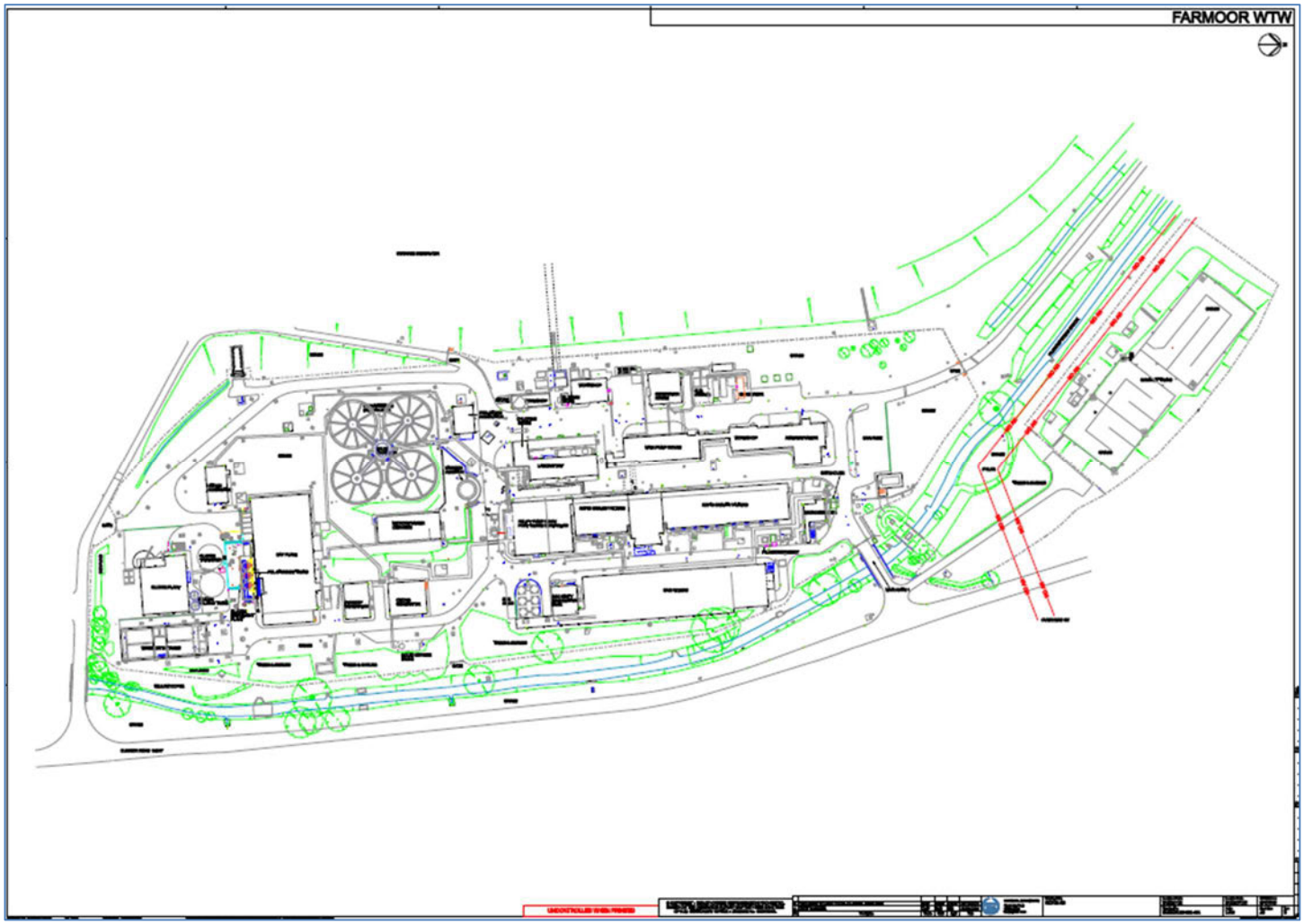
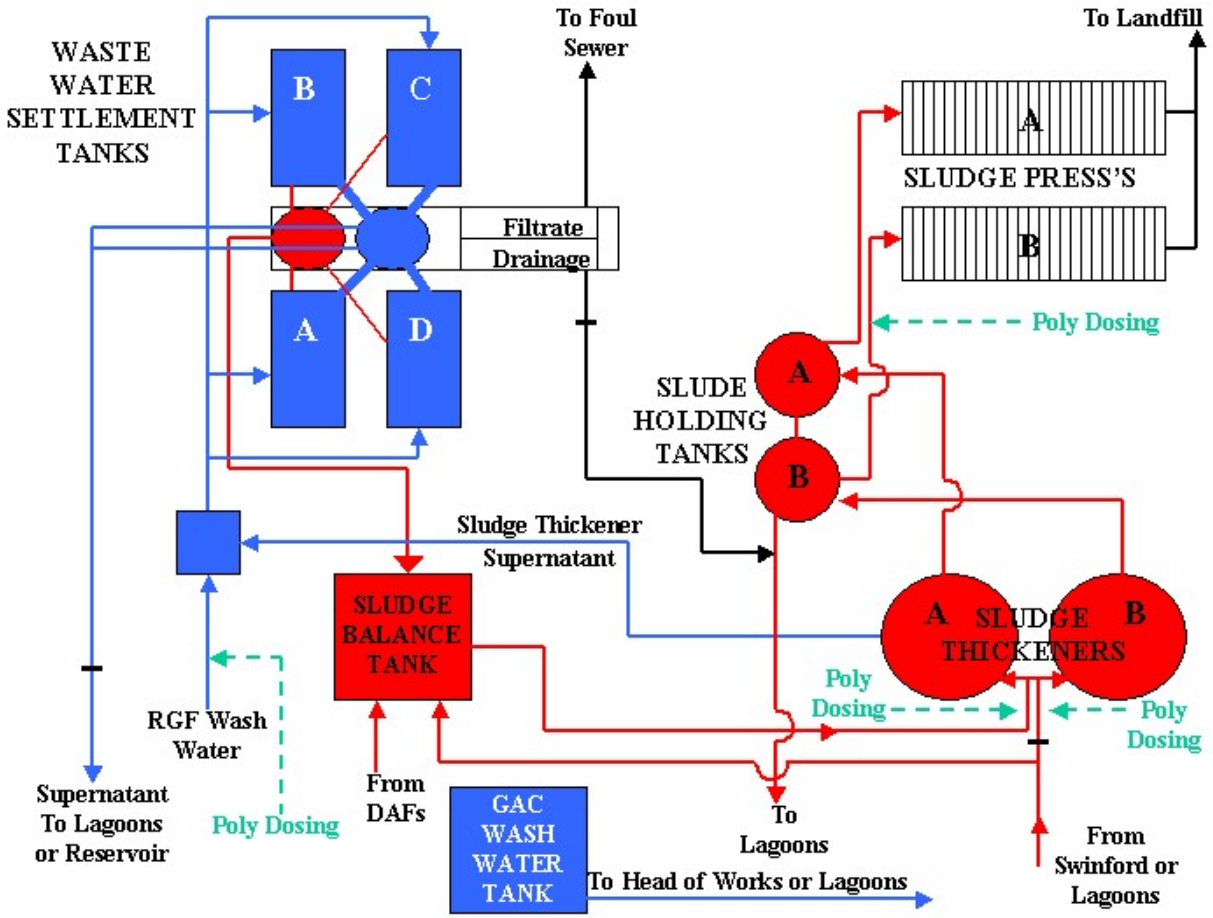


Figure C - Process Block Diagram: wastewater and sludge processes only



---- End of OMP ----

Appendix D. Bioaerosol Risk Assessment

Farmoor Water Treatment Works Bioaerosol Risk Assessment

Document no: *[Document number]*
Revision no: *[Revision number]*

Thames Water Utilities Ltd
EPR/PP3197EB

IED STC Permitting
15 June 2022

Farmoor Water Treatment Works Bioaerosol Risk Assessment

Client name:	Thames Water Utilities Ltd		
Project name:	IED STC Permitting		
Client reference:	EPR/PP3197EB	**Project no:**	B22849AM
Document no:	*[Document number]*	**Project manager:**	Harindra HG Gunasinghe
Revision no:	*[Revision number]*	**Prepared by:**	Alex Wilson
Date:	15 June 2022	**File name:**	FWTW Bioaerosol RA
Doc status:			

Document history and status

Revision	Date	Description	Author	Checked	Reviewed	Approved
0	15/06/2022	FWTW Bioaerosol RA	Alex Wilson			

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Revision	Issue approved	Date issued	Issued to	Comments

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Appendices

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1. Introduction

The purpose of this Bioaerosols risk assessment is to provide supplementary information to support the permit variation application for a bespoke waste operation permit for the Farmoor Water Treatment Works (WTW), EPR/PP3197EB.

1.1 Site description

The permitted site is located approximately 80m South West of the village of Farmoor, Oxfordshire at its closest point near to the sludge lagoons. The permitted sludge processing site is part of the wider Farmoor Water Treatment facility neighboured to the south by Oxford sailing club, a trout fishery and a boat park associated with Farmoor reservoir.

The site sits outside any source protection zones and is outside of an Air Quality Management Area (AQMA). There are a number of deignation sites within the appropriate distance of the site, including a SAC and SSSI. A LWS is within 200m of the site (Farmoor Reservoir).

The address of the waste treatment operation is:

Farmoor Water Treatment Works,

Cumnor Road

Farmoor

Oxford

OX2 9NS

1.2 Site Activities

Farmoor WTW is operated by Thames Water Utilities Ltd (Thames Water). The site undertakes physico-chemical treatment of water treatment sludge, both indigenous and imported from other wastewater treatment sites, by dewatering with Bucher presses, with a capacity above the relevant thresholds for requiring an environmental permit.

The site includes:

- sludge settlement & storage
- Sludge balancing;
- Sludge rake thickening (compaction & polymer dosing); and
- Sludge dewatering (press or centrifuge).
- temporary sludge cake storage for offsite land treatment resulting in benefit to agriculture or ecological improvement.
- Storage of raw materials;

The facility is currently permitted to treat up to 250,000m^3 of sludge per year.

1.3 Regulatory requirements

The sludge treatment activity has previously held an environmental permit.

For permits, if the site is within 250m of sensitive receptors then there is a requirement to monitor bioaerosols in accordance with the EA technical guidance note[1] '*M9: environmental monitoring of bioaerosols at regulated facilities*'. M9 describes bioaerosols and the risks that they pose, as well as identifying potential sources within biological treatment facilities.

Farmoor WTW is within 250m of sensitive receptors, as defined by M9. These are detailed in Section 2.5 of this report.

1.4 Bioaerosols

Bioaerosols are found naturally within the environment. They consist of airborne particles that contain living organisms, such as bacteria, fungi and viruses or parts of living organisms, such as plant pollen, spores and endotoxins from bacterial cells or mycotoxins from fungi. The components of a bioaerosol range in size from around 0.02 to 100 micrometres (µm) in diameter. The size, density and shape of a bioaerosol will affect its behaviour, survivability and ultimately its dispersion in the atmosphere.

Bioaerosols are easily breathed into the human respiratory system, potentially causing allergic responses and inflammation. They also have the potential to cause eye irritation, gastrointestinal illness and dermatitis.

Bioaerosols are associated with composting, anaerobic digestion and mechanical biological treatment, which are the main processes used to treat organic wastes in the UK. As organic waste material breaks down it goes through different temperature dependent stages that are dominated by certain groups of bacteria and fungi. Bacteria are the most numerous group of microorganisms. Aspergillus fumigatus is a mesophilic fungus that is thermotolerant and is present throughout the different stages of the organic breakdown process. This fungus can cause severe respiratory infection if inhaled.

The dependence on microorganisms to degrade organic material and the way in which the material is processed make biological treatment facilities a potential source of bioaerosols. However, we note that the 2012 EA guidance note[2] for developments requiring planning permission and environmental permits states that the EA do not consider bioaerosols from anaerobic digestion to be a serious concern. This is due to the fact, that anaerobic digestion is generally a wet process undertaken in enclosed tanks and equipment, whereas composting is often undertaken using open systems such as windrows and static piles.

The WTW Facility does not undertake any aerobic composting activities or anaerobic digestion process on site.

1.4.1 High Risk Activities

The M17 guidance document, in section 3.3.3, outlines a number of potential sources of particulate matter, including bioaerosols from waste management facilities. Although these potential sources are not graded for importance within M17, it should be noted that only two of the potential sources are present at the WTW facility that is storage of waste (under certain conditions) and wind scouring of wind surfaces. No movement of solid waste to the facility is undertaken due to the nature of the site, and no shredding of waste or turning of stockpiles is undertaken.

1.4.2 Relevant Thresholds

Based on the Environment Agency M17 guidance[3] '*M17 Monitoring of particulate matter in ambient air around waste facilities*', and RPS 209[4] guideline levels for the two key identified potential bioaerosols have been set for acceptable levels at sensitive receptors, above background concentrations, as the following:

- Total bacteria: 1000 cfu/m^3
- Aspergillus Fumigatus: 500 cfu/m^3

[1] Environment Agency. July 2019. M9: Environmental monitoring of bioaerosols at regulated facilities

[2] Environment Agency. October 2012. Guidance for developments requiring planning permission and environmental permits

[3] Environment Agency April 2014 M17 monitoring of particulate matter in ambient air around waste facilities https://www.gov.uk/government/publications/m17-monitoring-of-particulate-matter-in-ambient-air-around-waste-facilities

[4] Environment Agency. Guidance: Bioaerosol monitoring at regulated facilities - use of M9: RPS 209

2. Bio aerosol risk assessment

2.1 Introduction

A source-pathway-receptor risk assessment has been undertaken to appraise the potential for risk to human health at sensitive receptors within the relevant distance from operations at the Farmoor WTW Facility. This risk assessment follows a standardised approach, namely:

- Hazard identification: what sources of bioaerosols are present on site.
- Exposure assessment: what are the mechanisms or pathways allowing bioaerosols to migrate off site and reach a sensitive receptor; and
- Risk evaluation: who is potentially exposed to bioaerosols; what is the probability, magnitude, and duration of that exposure.

The assessment describes:

- The processing techniques and equipment used within the installation.
- Feedstock, tonnages processed and any seasonal variations.
- Potential sources of bioaerosols.
- The site layout, including any screens, bunds, or trees around the site.
- What is beyond the site boundaries and the location of sensitive receptors.
- Local wind direction data; and
- Other sources of bioaerosols in the vicinity.

2.2 Processing equipment and techniques

2.2.1 Waste Reception

Imported sludge is delivered directly into the works by a dedicated below ground pipeline straight into tanks. Indigenous and imported sludge, is subjected to preliminary treatment through settlement, polymer dosing mixing and balancing, before dewatering

Sludge may also enter the process, via tanker transfer from other TWUL water treatment works. These imports are transferred by sealed pipeline from tankers into a sludge balance tank within the process.

2.2.2 Waste Treatment

The water treatment facility site is manned 24 hours a day. Imported Swinford WTW sludges are pumped to Farmoor WTW by pumping mains into the sludge balance tank. An additional connection on this tank is for imported tanker sludge from satellite TWUL sites by tankers. Indigenous sludge that is treated at Farmoor WTW is from a number of sources on the site. This includes:

- Wastewater settlement tank sludges – settlement of precipitated flocculated material from river abstraction treatment (rapid gravity filters – RGF). This is predominated by micro-organisms such as algae. Thickened sludge tank supernatant is also treated at this plant. Emergency overflows from either the sludge balancing tank, site drainage tank and drainage water from the wastewater pumping station are also connected to the plant inlet for treatment.
- Sludge from dissolved air flotation (DAF) treatment settlement tank
- Lagoon sludges - containing mixtures of emergency contingency unthickened sludge, filtrate drainage from wastewater treatment, granulated activated Carbon (GAC) filtration wash water tank (& RFG wash water), returned supernatant

At the wastewater treatment plant inlet, settlement of thickened sludge tank supernatant and RGF wash water settlement is aided by dedicated pumps dosing polymer. This pump dosing is interlocked with a time delay linked with the operation of the RGF backwash system. After mixing in the inlet pipework, wastewater is directed to the duty wastewater settling tank via a motor operated penstock vale. The system is designed to receive up to 1500m3/hr flow from the RFGs plus 163m3/hr flow from thickened sludge tank supernatant. The plant is operated on a cycle fill and draw basis with pumps and isolating valves automatically controlled in response to adjustable timings (filling, settling, desludging, decanting, standby). It can be operated in 'automatic' semi-automatic' (manual 'decant' and 'desludge') and manual modes. Flange connections are provided on sludge pumps to allow rodding and flushing (water) activities to be completed to prevent

blockages. To desludge, a sludge removal system transfers sludge to the sludge balancing tank. Supernatant from decanting operations within the wastewater treatment plant is discharged into the wastewater drainage network where it is discharged to Farmoor reservoir or the River Thames under EA permitted discharge consent. Under abnormal operations (such as turbidity testing failure), 2No. lagoons can also be used for settlement treatment of wastewater.

Sludge is received at the sludge balancing tank from DAF plant generated sludge, wastewater treatment plant sludge and imported sludge (Swinford WTW and tanker imports). Filling, recirculation, and discharge of sludge within the tank is automatically controlled relative to tank level. At high level, sludge is transferred by 2No. submersible pumps operating on a duty/standby basis, to the sludge thickening tank. At low level, sludge is recirculated within the tank. This aids with mixing and avoids anoxic zones.

Prior to loading, in-line polymer dosing proportional to flow is pumped in from an orifice plate before the sludge thickening tanks. This is to aid with sludge thickening within the 2No. sludge thickening tanks. A separate connection from the Swinford WTW sludge main and sludge lagoon is also installed to one of the sludge thickening tanks. Two flat-bottomed continuously raked thickeners within the tanks promote sludge thickening and compaction whilst separated supernatant is discharged to the wastewater settlement tanks for treatment. The thickening tanks recirculate sludge filling to a set level before transferring to sludge holding tanks. Thickened sludge transfer is controlled by high level control. Transfer pumping is at a pre-set time cycle.

2No. sludge holding tanks provide storage of thickened sludge before pressing or backup centrifuge. The tanks' capacity allow contingency of a 3-day downtime based on average loading conditions. From the sludge holding tanks 2No. sludge feed pumps with associated dynamic mixer system, solids meter and polymer feed pumps each serve the 2No. Bucher sludge presses. Polymer feed is typically dosed at 5mg/l.

When a sludge press is activated to run, the feed pumping system transfers sludge for dewatering. The presses are arranged in a duty/assist configuration. They are designed to operate fully automatically. The cake conveyor system is also automatically operated to discharge cake to one of 3No. skips. There are cross-over valve configurations allowing capability of sludge feed pumps to feed sludge to either of the presses. The sludge cake conveyors move between filling the different skips. When a skip is full, it's position is deactivated from filling whilst it is replaced with an empty skip. Once replaced, the skip position is re-activated to resume its filling with the other two skips. Filled skips are collected by appropriately authorised waste carriers. HGV trucks carrying skips are covered and transported offsite for application to land.

Dewatering filtrate from the presses is passed through a filtrate buffer tank before being collected into the filtrate sump and discharged to sewer. The foul sewer transfers liquid to Swinford WTW for treatment. There are 2No. submersible pumps operating on a duty/standby basis. Pump initiation is controlled by level switches. Filtrate flows to sewer are monitored and recorded via SCADA.

The sludge presses are periodically cleaned using a cleaning in place (CIP) system. The CIP tank is filled with water and if required cleaning chemical (transferred via lance pump from the chemical kiosk store). CIP tank water is heated to a set temperature for cleaning. CIP water is circulated around each press. Wash water is collected via the filtrate buffer tank and discharged to sewer.

An emergency backup centrifuge is available at the site if sludge presses are unavailable. It is located within a dedicated container to the south of the sludge press building. Permanent above ground level pipework is installed in the sludge press building to supply the centrifuge. Hose connections at ground level can be made between the sludge press building and the centrifuge container. Dewatering filtrate from the centrifuge is passed through a filtrate buffer tank before being collected into the filtrate sump and discharged to sewer.

Polymer make-up is prepared from dry polymer powder delivered to site by tanker into dedicated polymer powder tanks. The dry powder room contains dry powder handling equipment, loading powder through 2No. screw feeders and blowers into the wet room mixing tanks. Powder polymer is mixed with water and is matured on a set timer. The polymer is then transferred into storage stanks prior to dosing.

2.2.3 Sludge cake

Sludge cake collected from Bucher Press or emergency centrifuge treatment and is transferred by conveyor from the press building to sealed roll-on-roll-off skips, placed on impermeable surfacing and located away from sensitive receptors. in sealed roll-on-roll-off skips, placed on impermeable surfacing and located away from sensitive receptors. The filled cake skips are loaded onto HGVs and removed off site for agricultural land spreading.

2.2.4 Seasonality

Sludge treatment is undertaken at the WTW on a continuous basis, every day 365 days of the year. Sludge cake is, therefore, produced daily and at similar levels across the whole year.

However, cake storage on site, both in relation to duration and volume, varies across time. Cake is removed from site for spreading to land under a landspreading deployment. As such, sludge will remain on site longer during wet periods and during autumn and winter periods where there would be limited uptake of nutrients from the solids. This means that there will be more sludge within the tanks and lagoons during the autumn and winter, under normal conditions, than during the summer period.

2.2.5 Source Assessment

There is an unchanneled potential release from treated, dewatered cake which is stored in the cake skips at the site. Another potential source is from the uncovered sludge balance tank, 2No. sludge thickener tanks and 2No. emergency sludge lagoons.

2.2.6 Risk

The overall treatment process is considered to a be a low source of bioaerosols as discussed above, there are a number of control measures in place at the site to reduce and contain emissions of bioaerosols. These control measures are regularly maintained to sustain their efficacy and reduce the risk of equipment failure. The greatest probability of exposure from bioaerosols emitted from the site is from uncovered operations such as the cake skips, cake conveyor and uncovered tanks/lagoon.

However, the cake conveyor is at the end of the sludge treatment process, is managed to control height and arrangement, and is located within a building minimising water infiltration and air flow. The cake has also been produced to a standard where it requires no further treatment before being deposited on agricultural land and therefore is likely to have a low concentration of bioaerosols. Cake skips are removed from site when full to be replaced with empty skips for filling from the automatic conveyer. The probability of exposure from this source is also minimised.

The potential bioaerosol risk from sludge storage in uncovered tanks is managed to be minimal through robust process control. Sludge recirculation is undertaken from the bottom of tanks, which minimises the level of surface turbidity.

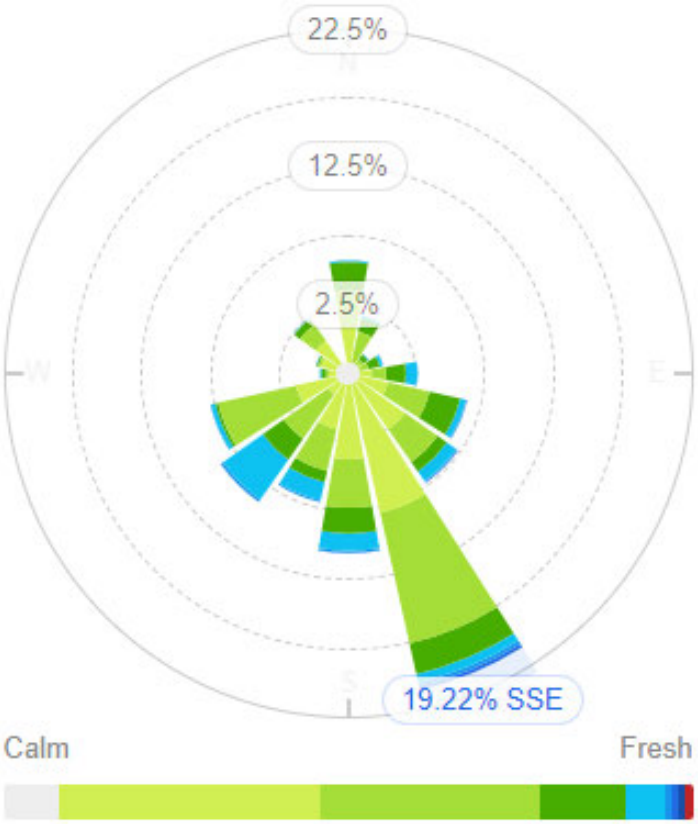
The bioaerosol risk from the lagoons is minimised through their use only as a contingency or emergency during abnormal operation or peak flows beyond the main treatment tanks' capacity.

2.2.7 Pathways

Bioaerosols are very small and light in weight so can easily be transported by the wind from their source to a receptor. The 5 year average wind rose for the most representative meteorological site, Oxford (located approximately 6km East of the Site), is shown in figure 1.

The wind rose data shows that the site experiences strong prevailing south easterly winds, predominantly in excess of 6 knots. The FWTW site and surrounding area has a relatively flat topography. The site has screening to the south, east and north east by mature trees along Cumnor Road, Mayfield Close and the southern entrance and along the site boundary.

Figure 1 – Oxford Wind rose (5 year average)



Because of the dilution effect in open air, bioaerosol concentrations fall away rapidly with distance from the source. It has been shown by research by the HSE[5] that by 100 to 200m away, the bioaerosol concentration has mostly returned to background levels. Between 50m and 100m distances downwind of the process, bioaerosol concentrations were substantially reduced by comparison to those level measurements at source. RR786 confirmed previous published studies which showed that at a distance of 250m from composting activity, in most cases, the bioaerosol concentrations will be reduced to background levels. Note that this research was undertaken on aerobic composting sites, which generate higher levels of bioaerosols than sludge dewatering sites, although the 250m separation distance has been retained.

At present, Thames Water do not have any empirical evidence for the levels of bioaerosols that might be associated with the potential sources at their sludge treatment centres. As a responsible operator, Thames Water are currently considering carrying out monitoring for bioaerosols at a number of typical STC's in order to confirm that the understanding of the wider waste water treatment industry, that sludge treatment processes do not give rise to elevated levels of bioaerosols, is correct.

2.3 Receptors

Environment Agency guidance note M9 recommends a screening distance of 250m from bioaerosol emission sources to static receptor locations. Sensitive receptors are defined as: 'permitted activities where people are likely to be for prolonged periods'. This term would therefore apply to dwellings (including any associated gardens) and to many types of workplaces. We would not normally regard a place where people are likely to be present for less than 6 hours at one time as being a sensitive receptor. The term does not apply to those controlling the permitted facility, their staff when they are at work or to visitors to the facility, as their health

[5] RR786 - Bioaerosol emissions from waste composting and the potential for workers' exposure https://www.hse.gov.uk/research/rrhtm/rr786.htm

is covered by Health and Safety at Work legislation but would apply to dwellings, commercial or industrial premises nearby where people might be exposed for the requisite period.

There are potentially sensitive receptors found within 250m of potential bioaerosol emission sources at the site. These receptors are found to the North East, and South of the Site.

Three reas of sensitive receptors have been identified based on their location and receptor type. The distance and direction from each potential bioaerosol emission source to the closest sensitive receptor within the area has been identified.

Where multiple assets exist for the same process, such as the uncovered sludge tanks, only the closest location has been presented. The receptors closest to a potential emission source are sailing club to the south of the cake skips, which is located approximately 50m.

Table 2: Static Receptors within 250m of Potential Bioaerosol Sources

Receptor	Description	Source	Distance from closest source (m)	Direction from the site
R1	Commercial Sailing club	Cake Skips	50m	South
R2	Residential premises	Wastewater treatment tanks	160m	North East
R3	Residential premises	Sludge Lagoons	80m	North East

2.4 Magnitude of Risk

The method used for this bioaerosol risk assessment is adapted from the EA's standard guidance on risk assessments for environmental permitting, which recommends using a Source-Pathway-Receptor model to help determine the magnitude of the risk associated with bioaerosol emissions from a facility.

The magnitude of risk is a function of both the probability of exposure and the consequences of the hazard.

The probability of exposure to bioaerosols can be described as:

Probability	Meaning
High	Exposure is probable, direct exposure likely with no/few barriers between source and receptor
Medium	Exposure is fairly probable, barriers less controllable
Low	Exposure unlikely, barriers exist to mitigate
Very Low	Exposure very unlikely, effective and multiple barriers

The consequence of the hazard considers the nature of the source, the hazard and receptor. These consequences can be described as:

Consequence	Meaning
High	Severe consequences, evidence that exposure may result in serious damage

Consequence	Meaning
Medium	Significant consequences, evidence that exposure may result in damage that is not severe and is reversible
Low	Minor consequences, damage not apparent, reversible adverse changes possible
Very Low	Negligible consequences, no evidence for adverse changes

The probability of exposure and consequence of the hazards are then combined to determine the overall magnitude of the risk, as demonstrated in Figure 2 below.

Figure 2 Magnitude of Risk matrices

Probability ↑ / Consequence →	VL	L	M	H
H	M	M	H	H
M	L	M	M	H
L	L	L	M	M
VL	VL	L	L	M

There are two potential sources of bioaerosols release within 250m of static receptors:

- Emergency sludge storage lagoon
- Emergency sludge storage tanks

The receptors are situated to the North East of the release points. The prevailing wind direction is from the South west. There is potential for wind-borne transportation of bioaerosols. The risk of bioaerosols being generated from the permitted processes on site is low.

Overall, the probability of bioaerosols being released at levels considered pollution from the sludge treatment process and the identified potential sources is considered to be low.

The potential duration of release of bioaerosols varies from infrequent to frequent. The magnitude of release is considered to be low. There is one commercial receptor (R1) approximately 210m distance from identified potential sources (emergency sludge lagoon). Given that the identified potential sources are considered to represent a low risk, the intervening distance and the screening provided by the vegetation bund and M4 motorway, it is considered that the risk of exposure to occupants of this building from bioaerosols emitted from the site is likely to be low.

One residential property (R2) has been identified, approximately 248m distance from the identified potential sources. Given that the identified potential sources are considered to represent a low risk and the intervening distance and screening provided by the vegetation bund and M4 motorway, it is considered that the risk of exposure to residents at this property from bioaerosols emitted from the site is also low.

The overall magnitude of the risk is summarised in Table 5 below.

Table 5: Risk of Exposure to Receptors within 250m of Potential Bioaerosols Sources

Source	Magnitude of Release	Pathway	Receptors	Control Measures	Consequence	Probability of Exposure	Magnitude of Risk
Cake Skips	Medium	Inhalation via wind-borne transportation	R1	Cake skips are enclosed and removed from site as soon as reasonably practicable following filling, based on the prevailing weather and availability of land.	Low	Low	Low
Uncovered Sludge Treatment Tanks	Medium	Inhalation via wind-borne transportation	R2	Robust process control minimises the release risk of bioaerosols. Sludge recirculation from tank bases minimises surface turbidity and risk of release. Turbidity of liquids are monitored.	Low	Low	Low
Uncovered Emergency Sludge Tanks	Medium	Inhalation via wind-borne transportation	R3	The lagoons are not used as a primary asset for treatment under normal working conditions and only used as an emergency or contingency to sludge tanks. Robust plant maintenance minimises the time utilising the lagoons due to sludge build-up from plant failure. Covered sludge holding tanks can store up to 3 days thickened sludge production. Plant throughput minimises the length of time the lagoon would in service at any one time.	Low	Low	Low

2.5 Abnormal Situations

In the event of plant failures or abnormal situations, an alarm would be raised on the Site Supervisory Control and Data Acquisition (SCADA) or telemetry systems, which will be reacted to by on-site or regional control room operators and Duty Managers. Depending upon the nature of the fault or emergency, where required, an operator would contact a mechanical or electrical technician, both of whom are on-call 24-hours, to attend site as soon as practicable.

If the on-call technicians are already engaged upon other response work, there is the facility to access staff from other TW geographic divisions, coordinated by the Duty Manager. All faults, breakdowns and emergencies are logged electronically together with records of the action taken and the solutions reached. One such abnormal event would be use of the emergency sludge lagoon. Such an event would result in an increase risk of bioaerosol release.

3. Conclusions

A source-pathway-receptor risk assessment has been undertaken to appraise the potential for risk to human health in dwellings and other nearby buildings from bioaerosols arising from operations at the WTW Facility. The risk assessment followed a standardised approach, namely:

- Hazard identification: what sources of bioaerosols are present;
- Exposure assessment: what are the mechanisms or pathways allowing bioaerosols to migrate off site and reach a receptor; and
- Risk evaluation: what is the probability, magnitude and duration of exposure. This considered control measures in place to reduce the probability or magnitude of release.

A small number of potential sources of bioaerosols within the site processes have been identified, connected to the storage and movement of digested sewage sludge/cake at the site; operation of an odour control unit and abnormal operation of an emergency sludge lagoon.

Although only qualitative data is available, the overall bioaerosol risk to the identified, potential, receptors within 250m of potential bioaerosol sources associated with the sludge treatment process is considered to be Low.