



# Southern Water Gravesend Sludge Treatment Work Permit Application – Response to Environment Agency

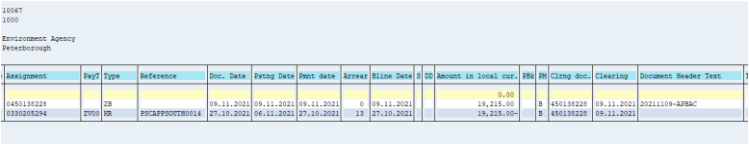
<b>Environment Agency reference:</b>	<b>EPR/QP3337QC/A001</b>	<b>Date:</b>	<b>11 December 2024</b>
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**Table 1: Response to Environment Agency**

Topic of relevancy	Question no.	Question	Response
Payment details	N/A	<p>Unfortunately the application payment you sent is incorrect. Currently correct application charge is £22,801. Following confirmation of the waste activities we will confirm the final charge.</p> <p>Application fee</p> <ul style="list-style-type: none"> <li>£13,984 Substantial variation application fee for - S5.4 (1) (b) (i) Recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 75 tonnes per day (or 100 tonnes per day if the only waste treatment activity is anaerobic digestion) involving biological treatment</li> <li>Application fee for the for the acceptance of waste to the head of works – 1.16.12 -£3,965 at 50%</li> <li>Application fee for the dewatering activity – 1.16.12 - £793</li> </ul>	<p>In the original application Southern Water have paid £19,215 on 12<sup>th</sup> November 2021 (remittance no: 450138228) – a snippet is below (a copy is included as 790101_Payment 2021_GRA) consisting of:</p>  <p>We believe the correct application fee based on below is £20,008. Our records show that Southern Water have paid for</p>

Topic of relevancy	Question no.	Question	Response
		<ul style="list-style-type: none"> <li>Application fee for the temporary storage of cake and other wastes (Grit screenings) – 1.16.12 - £793</li> </ul> <p>Additional Assessments (see below for further details)</p> <ul style="list-style-type: none"> <li>Odour management plan – a fixed charge of £1,246</li> <li>Habitats assessment – a fixed charge of £779</li> <li>Emission Management Plan – a fixed charge of £1,241</li> </ul>	<p><b>Application fee</b></p> <ul style="list-style-type: none"> <li>1.16.2.1 - £13,984 application fee for - S5.4 (1) (b) (i) Recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 75 tonnes per day (or 100 tonnes per day if the only waste treatment activity is anaerobic digestion) involving biological treatment.</li> <li>1.10.2 - £1,965 application fee for minor variation for Tranche B specified generator</li> <li>1.19.2 - Habitats assessment – a fixed charge of £779</li> <li>1.19.5 - Emission Management Plan – a fixed charge of £1,241</li> <li>1.19.6 - Odour management plan – a fixed charge of £1,246</li> </ul> <p>Based on the above the remaining amount of £793 will be paid into acct# 10014411, sort code 607080. The payment will be in the Environment Agency's account by 17th December 2024. Payment ref is PSCAPPSOUTH001.</p> <ul style="list-style-type: none"> <li>1.16.12 - Application fee for the temporary storage of cake and other wastes (Grit screenings) – £793</li> <li>SWS have confirmed there is no acceptance of digestate for dewatering.</li> <li>SWS had confirmed there is no acceptance of wastes to the head of works.</li> </ul>
Diesel generator	1	<p>Your existing permit includes a CHP engine and a diesel generator. It is unclear if the 2.86MWth generator is a DAA's to the section 5.4 activity you have applied for. To ensure that the site is permitted correctly we need to understand:</p> <ol style="list-style-type: none"> <li>Is the 2.86MWth generator a DAA to the section 5.4 AD activity?</li> <li>If it is we can include this on your revised permit, however if they are not, please: <ol style="list-style-type: none"> <li>Apply to surrender the 2.86MWth generator from the existing permit</li> <li>Remove all reference of the generator from your application</li> </ol> </li> </ol> <p><i>Note: If you require further clarification on this please contact me to discuss further. If your generator is not a DAA you will need to apply for a separate permit for this combustion unit.</i></p>	<p>SWS have confirmed the diesel generator at Gravesend has enough capacity to run the whole site including everything on the WtW and the digester to continue feed to digester. However, Southern Water does not have sufficient information available at present to confirm whether the diesel generator is a directly associated activity. As part of Site investigation works Southern Water will investigate the loading and other requirements to evidence whether the generator is a DAA or not. Therefore, supporting documents within application have been amended to remove reference to this generator.</p> <p>The permit will be varied to include the generator at a later date, if necessary, once investigations on the generator are completed.</p> <p>We are in the process of surrendering the generator from the current CHP permit and applying for a separate combustion permit. This will follow in due course.</p> <p>This application, along with payment, will be sent separately to PSC.</p>

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Alternative Storage Tank	2	<p>You have identified an alternative storage tank within your application, however we cannot locate how this tanks works within the process that you are applying for.</p> <p>Update your non-technical summary to clearly explain how the alternative storage tank will be used within the process.</p>	<p>There is one centrifuge to run the Site. If this were to fail/breakdown, then the sludge would be stored in te tank until the centrifuge is fixed and up and running.</p> <p>The non-technical summary, in the main supporting document, has been updated to explain this process and is provided as 790101_MSD_Main_GRA December 2024.</p>
Open tanks	3	<p>On review of aerial photographs we are unclear if you have open tanks within your permit boundary. Under BAT conclusion 14 you must ensure that diffuse emissions are contained. This includes techniques such as storing, treating and handling waste and material that may generate diffuse emissions in enclosed buildings and/or equipment, and collecting and directing the emissions to an appropriate abatement system. If digestate is still biologically active, and you are producing combustible biogas you must take steps to collect the biogas.</p> <p>Biogas should not be vented to the environment. If the source does not produce an explosive environment (i.e. less biologically active) you will need to propose plans to enclose, collect and direct the waste gas emissions to an appropriate abatement system.</p> <ol style="list-style-type: none"> <li>a) Provide a list of all tanks used within the process that you are applying to permit. Confirm the tank volume and weather they are enclosed or open.</li> <li>b) For all open tanks, confirm that you will undertake the following: <ol style="list-style-type: none"> <li>i. If digestate is still biologically active and you are producing combustible biogas you will take steps to collect the biogas and direct this to your gas collection system in line with BAT 14.</li> <li>ii. For open tanks that do not produce an explosive environment (i.e. less biologically active) you will enclose, collect and direct the waste gas emissions to an appropriate abatement system in line with BAT 14 and 34.</li> </ol> </li> </ol>	<p>All tank volumes have been provided in the ADBA tool, previously only the above ground volumes were shown. All relevant volumes have now been included, along with whether they are open or closed. This is also replicated in a table below this response.</p> <p>The Odour Management Plan (790101_ERA_OdourMP_GRA December 2024) has been updated to reflect this.</p> <p>All documents have been updated to ensure that tanks are consistently named and have the same volumes throughout. Below this table is an additional table which has been provided to confirm the tank volumes.</p> <p>Southern Water confirm that if digestate is still biologically active and combustible biogas is produced they will take steps to collect the biogas and direct this to the gas collection system in line with BAT 14.</p> <p>Also for open tanks that do not produce an explosive environment but have been determined to require abatement for other purposes Southern Water will enclose, collect and direct the waste gas emissions to an appropriate abatement system in line with BAT 14 and 34.</p>
Import of grit and screenings from sewer cleaning	4	<p>You have identified in Table A.2 - 19 08 01, 19 08 02 and 19 09 01 for the import of grit and screenings from sewer cleaning for receipt at skips on-site. It is our understanding that these wastes will not undergo anaerobic digestion and as such this activity is not a DAA to the section 5.4 activity but a separate waste activity. In order to progress</p>	<p>Southern Water confirm that Gravesend STC does not accept the import of grit and screenings into the Site.</p> <p>Therefore, no further response is required for this query.</p>

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		<p>this activity you will need to provide all information identified within our application process, this includes but is not limited to the below (please note it is your responsibility to ensure that information is provided in line with our requirements, failure to provide this will mean that we will not be able to progress this element of your application).</p> <ol style="list-style-type: none"> <li>Payment as identified above.</li> <li>Non-technical summary, and process flow including how you will keep this activity separate from your installations activity (<a href="https://www.gov.uk/guidance/waste-environmental-permits">https://www.gov.uk/guidance/waste-environmental-permits</a>)</li> <li>Assessment against Non-hazardous and inert waste: appropriate measures for permitted facilities <a href="https://www.gov.uk/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</a></li> <li>Completion of relevant forms – B4 new bespoke waste operation - <a href="https://www.gov.uk/government/publications/application-for-an-environmental-permit-part-b4-new-bespoke-waste-operation">https://www.gov.uk/government/publications/application-for-an-environmental-permit-part-b4-new-bespoke-waste-operation</a></li> <li>Updating and inclusion of this activity in all relevant management plans such as the Odour management plan, accident management plan, residue management plan etc.</li> </ol>	<p>Southern Water does, however, import digested cake for temporary storage on site. Therefore, the questions are relevant to this activity and the response is provided below.</p> <ol style="list-style-type: none"> <li>Please refer to question 1 for details on the breakdown of the fee.</li> <li>The non-technical summary of the main supporting document (790101_MSD_Main_GRA December 2024) has been updated, and throughout, where applicable, to show the application is for two activities: <ul style="list-style-type: none"> <li>Anaerobic digestion of sludge</li> <li>Temporary storage of sludge cake (digested)</li> </ul> <p>The process flow diagram has been updated to show the import and export of cake for temporary storage is show as separate to the process of the anaerobic digestion of sludge. The document reference is 790101_MSD_Schematics_GRA December 2024.</p> <p>Evidence that digested cake has previously been accepted at the Site for temporary storage is provided as 790101_WasteTransferNotes_GRA December 2024.</p> </li> <li>The Appropriate Measures Assessment details are provided in section 6.3 'Question 3a: Operating techniques' of the main supporting document (document reference 790101_MSD_Main_GRA December 2024). A high-level assessment against the appropriate measures for inert and non-hazardous waste has been undertaken and is presented in document reference 790101_Appropriate Measures_GRA December 2024. A separate operating technique document is being drafted will be provided as part of the wider IC implementation report.</li> </ol> <p>The imported, digested cake will be planned, to ensure the Site has capacity to accept it. It is mentioned in the OMP, that the process scientist will undertake a risk assessment to ensure that odours can be appropriately mitigated for the short time the cake is stored on Site.</p> <p>The Alternative Cake Bay is predominantly designated for imported, digested cake, however, when unavailable, or full, an available bay elsewhere on Site will be used. The bays are thoroughly washdown</p>

*Note: We are unclear if you intend to temporarily store digested cake on site prior to transfer off site that has not been produced within the onsite AD process. If you are importing cake or temporary storage and transfer of site without wastes being processed through the AD this will be a separate waste activity which we can include in the screening storage activity. In order to progress the temporary storage of digested cake, you will need to provide all information identified above for this waste. Payment as identified above.*

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			<p>to prevent cross contamination. The Bays are identified using appropriate signage.</p> <p>The total tonnage for the temporary storage on site is 1,000t/a. The cake can be stored across 1 of 7 bays with a total storage capacity at any one time of 6200 tonnes. No blending, or liming of imported, digested cake occurs on Site.</p> <p>c. Application form B4 has been provided to include this new waste activity into the installation permit (document reference 790101_App_PartB4_GRA December 2024)</p> <p>d. The following documents have been updated to address the two permitted activities:</p> <ul style="list-style-type: none"> <li>• 790101_MSD_Main_GRA December 2024</li> <li>• 790101_MSD_Schematics_GRA December 2024</li> <li>• 790101_ERA_OdourMP_GRA December 2024</li> </ul>
Dewatering activity	5	<p>You have identified EWC code 19 06 06 which you have stated is accepted for “intersite transfers of post digested liquid sludge as per EMS480. Common example of this is if centrifuges are offline which necessitates exports of digested liquid. Definition is with reference to RPS231. <a href="https://www.gov.uk/government/publications/waste-codes-for-sewage-sludge-and-sludge-containing-other-materials-rps-231/wastecodes-for-sewage-sludge-and-sludge">https://www.gov.uk/government/publications/waste-codes-for-sewage-sludge-and-sludge-containing-other-materials-rps-231/wastecodes-for-sewage-sludge-and-sludge</a>.” It is our understanding that these wastes will not undergo anaerobic digestion and as such this activity is not a DAA to the section 5.4 activity but a separate waste activity (if less than 50 tonnes per day). In order to progress this activity you will need to provide all information identified within our application process, this includes but is not limited to the below. (Please note it is your responsibility to ensure that information is provided in line with our requirements, failure to provide this will mean that we will not be able to progress this element of your application):</p> <ol style="list-style-type: none"> <li>a) Payment as identified above.</li> <li>b) Non-technical summary, and process flow including how you will keep this activity separate from your installations activity (<a href="https://www.gov.uk/guidance/waste-environmental-permits">https://www.gov.uk/guidance/waste-environmental-permits</a>)</li> <li>c) Assessment against Non-hazardous and inert waste: appropriate measures for permitted facilities</li> </ol>	<p>Southern Water confirm that Gravesend STC does not accept digestate for dewatering.</p> <p>Therefore, no further response is required for this query.</p>

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		<p><a href="https://www.gov.uk/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</a></p> <p>d) Completion of relevant forms – B4 new bespoke waste operation - <a href="https://www.gov.uk/government/publications/application-for-an-environmental-permit-part-b4-new-bespoke-waste-operation">https://www.gov.uk/government/publications/application-for-an-environmental-permit-part-b4-new-bespoke-waste-operation</a></p> <p>e) Updating and inclusion of this activity in all relevant management plans such as the Odour management plan, accident management plan, residue management plan etc.</p> <p><i>Note: the above is for a waste activity, if you exceed the 50 tonnes threshold then this will be to be applied for as an installation activity.</i></p>	
Liming	6	Note: Your application advises that you will undertake liming for cake produced only from the AD activity. Should you want to undertake liming for cake that will not be processed by the AD then this would be a separate waste activity that you have not applied for as part of this application.	SWS have confirmed they only add lime to indigenous, digested sludge as it falls into the cake bay. No liming of imported, digested cake is undertaken, and cake is not imported for the purposes of liming.
Acceptance of waste to the head of the works (HoW)	7	<p>You have provided table A.3 'Wastes to import under a waste activity permit' for 16 10 02, 19 09 02 and 19 09 06 to be accepted at the HoW. It is our understanding that these codes will not undergo anaerobic digestion and as such this activity is not a DAA to the section 5.4 activity but a separate waste activity. In order to progress this activity you will need to provide all information identified within our application process, this includes but is not limited to the below. (Please note it is your responsibility to ensure that information is provided in line with our requirements, failure to provide this will mean that we will not be able to progress this element of your application):</p> <p>a) Payment as identified above</p> <p>b) Non-technical summary, and process flow including how you will keep this activity separate from your installations activity (<a href="https://www.gov.uk/guidance/waste-environmental-permits">https://www.gov.uk/guidance/waste-environmental-permits</a>)</p> <p>c) Assessment against Non-hazardous and inert waste: appropriate measures for permitted facilities <a href="https://www.gov.uk/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</a></p> <p>d) Completion of relevant forms – B4 new bespoke waste operation - <a href="https://www.gov.uk/government/publications/application-for-">https://www.gov.uk/government/publications/application-for-</a></p>	<p>Southern Water confirms Gravesend STC does not import tankered waste (domestic or trade) to the head of works because there is no tankered waste disposal facility installed at Gravesend inlet works.</p> <p>There is always the possibility that tankers have been discharging Southern Water liquid waste from the network, direct into the inlet works, in an emergency, which is undertaken under the Urban Wastewater Treatment regulations.</p> <p>No further response is required for this query.</p>

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		<p><u><a href="#">an-environmental-permit-part-b4-new-bespoke-waste-operation</a></u></p> <p>e) Updating and inclusion of this activity in all relevant management plans such as the Odour management plan, accident management plan, residue management plan etc.</p>	<p>For existing operations and would look to implement an improvement condition to assess the fate of impact of the substances emitted to water in line with the improvement condition provided previously. The IC would also be in line with the requirements of 'Non-hazardous and inert waste: appropriate measures for permitted facilities' section 6.4 <a href="https://www.gov.uk/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</a></p> <p>For waste not currently imported to the head of works we would require an assessment of the fate and impact of the substances emitted to water and sewer following the Environment Agency's risk assessment guidance, and this would not be able to be captured in any improvement condition implemented.</p> <p>Therefore, please provide:</p> <p>f) Evidence that you are currently accepting the waste codes identified for acceptance to the HoW. (Note: This can be a single waste transfer note demonstrating that this waste stream has been accepted at site)</p> <p>g) If you are not currently accepting the EWC code identified, provide an assessment of the fate and impact on the receiving waters in line with the Environment Agency's risk assessment guidance</p>
		<p>As the HoW waste activity would be discharged off site to the Wastewater Treatment Works. Effluent discharged to the head of the works is a point source emission to sewer. The 'Non-hazardous and inert waste: appropriate measures for permitted facilities' requires operators to assess the fate and impact of the substances emitted to water and sewer following the Environment Agency's risk assessment guidance. We acknowledge that applicants may not hold this information in order to inform a quantitative risk assessment for existing discharges. For this application provide the following information:</p>	<p>h) Provide a summary of the sampling and analysis methodology of the effluent discharged and specify the likely pollutants in the effluent (guidance here Monitoring</p>

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		<p>discharges to water: guidance on selecting a monitoring approach -GOV.UK (www.gov.uk) and <u>Surface water pollution risk assessment for your environmental permit - GOV.UK</u></p> <p>i) Provide a written statement with a commitment to undertake the sampling and analysis in line with the '<u>Non-hazardous and inert waste: appropriate measures for permitted facilities - 3. Waste pre-acceptance, acceptance and tracking - Guidance - GOV.UK</u>'</p> <p>j) Provide a written statement with a commitment that those undertaking the sampling and analysis will be by accredited to MCERTs or provide evidence of equivalent standards</p> <p>k) Provide a revised site plan which identifies the effluent sampling point and emission point for the effluent discharge from the head of works activity</p>	
Emissions to air	8	<p>You are applying to add new combustion plant to your permit. This includes two boilers, and a flare that is potentially operated for over 10%. You will need to provide an assessment of your emissions in line with guidance 'Air emissions risk assessment for your environment permit'.</p> <p>a) Provide an assessment of your emission to air in line with guidance '<u>Air emissions risk assessment for your environmental permit - GOV.UK</u>'</p> <p>b) Provide an updated C2.5 form</p> <p>c) Confirm the MWth rating of the less than 1 MWth boiler</p>	<p>a. The Gravesend STC includes two dual-fuel (biogas/gas oil) boilers, which operate as duty/standby. Boiler 2 was replaced in December 2023 with a 0.494MWth input Rehema P420 dual fuel boiler. Boiler 1 is a Beeston Broxley 433 with a thermal input of 1.1MWth. The boilers operate as backup in the event of a CHP engine failure in order to maintain digester temperature when the CHP engine is offline. Therefore, the CHP and boilers do not operate concurrently.</p> <p>The Air Quality Assessment which accompanied the environmental permit application for this site, dated 14/01/2019, included only the emissions from the CHP and did not include emissions from the boilers in the assessment. This assessment assumed that the CHP would be operating at 100% load for a full year because this is a more conservative approach than modelling a split in operational hours between the CHP and boilers. This conservative approach is still valid with the replacement of one of the digester boilers and no update to the Air Quality Assessment and H1 screening assessment is necessary.</p> <p>b. Form C2.5 is provided as 790101_APP_FormC2.5_GRA December 2024 and associated combustion data on 790101_CombustionPlant_GRA_December 2024</p> <p>c. Boiler 2 was replaced in December 2023 with a 0.494MWth input Rehema P420 dual fuel boiler.</p>



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Documents that cannot be located	9	<p>We cannot locate the following documents as part of your submission. Please provide copies of the below documents/files. Please note that your application will not be duly made until these have been checked:</p> <ul style="list-style-type: none"> <li>• 790101_MSD_DrainagePlan_GRA</li> <li>• 790101-MSD-IED-GRA-SIM-M-104</li> <li>• 790101-MMD-IED-GRA-SIM-M-101 (Tank failure base run)</li> <li>• 790101-MMD-IED-GRA-SIM-M-102 (Rainfall base run)</li> <li>• 790101-MMD-IED-GRA-SIM-M-103 (Rainfall included)(Scenario 1)</li> <li>• 790101-MMD-IED-GRA-SIM-M-104 Option1 (Tank failure base run) Scenario 1</li> <li>• 790101-MMD-IED-GRA-SIM-M-105 (Rainfall included) (Scenario 2)</li> <li>• 790101-MMD-IED-GRA-SIM-M-106 Option2 (Tank Failure Only) Scenario 2 Application scope</li> </ul>	<p>Drainage plan is provided as 790101_Drainage Plan_GRA November 2021</p> <p>The updated ADBA Tool (790101-MMD-IED-GRA-CA-C-001 P04 December 2024) supersedes the previously submitted model files.</p>
WwTW reference	10	<p>You application includes reference and information to the WwTW throughout. You are not applying to permit the WwTW, and this will not form part of your permit boundary.</p> <p>Update your 'Main Supporting Document 790101_MSD_Main_GRA' to reflect the activities you are applying for and remove reference to WwTW which will not form part of this application.</p>	<p>This has been completed to reflect all activities being applied for and to remove references to the WTW, which do not form part of this application. Some references to the WTW have been left in to provide context.</p> <p>The Main supporting document (790101_MSD_Main_GRA December 2024) has been updated to reflect these changes</p>
Process flow	11	<p>The process flow provided in '790101_MSD_Schematics_GRA' includes the WwTW which does not form part of your applied for process, does not include all assets applied for, and does not include the waste activities.</p> <p>Update your process flow to clearly show which assets will form part of your permit boundary, ensure all activities are included and remove or clearly identify which assets in the process flow are part of the WwTW and not part of this permit application.</p>	<p>Updated process flow diagram, has been provided as doc ref 790101_MSD_Schematic_GRA December 2024</p>
Flare operation	12	<p>BAT 15 states that "BAT is to use flaring only for safety reasons or for non-routine operating conditions (e.g. start-ups, shutdowns) by using both of the techniques given below. "which are identified as providing the correct plant design which includes the provision of a gas recovery system with sufficient capacity, and plant management which includes balancing the gas system and using advanced process control.</p>	<p>Southern Water confirm that Gravesend is compliant with BAT 15 and 16. The BAT Assessment has been amended to remove, where appropriate, the following statements</p> <p>"BAT is to use flaring only for safety reasons or for non-routine operating conditions (e.g. start-ups, shutdowns) by using both of the techniques given below. "which are identified as providing the correct plant design which</p>

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		<p>You have advised in your application that “This is part of a biogas programme of projects to ensure assets are correctly sized and operate within the requirements. It is accepted that not all BAT requirements are currently met and a plan outlining the measures to be completed to meet BAT will be provided within 6 months of permit issue” This statement does not meet BAT and proposals must be submitted with your application.</p> <p>Provide your solution for compliance with BAT 15.</p>	<p>includes the provision of a gas recovery system with sufficient capacity, and plant management which includes balancing the gas system and using advanced process control.”</p> <p>“It is recognised that not all BAT-required parameters are monitored and work is planned to provide the required equipment to meet BAT. A plan providing the measures required to become BAT compliant will be provided within 6 months of permit issue.”, and “This is part of a Biogas programme of projects to ensure assets are correctly sized and operate within the requirements. It is accepted that not all BAT requirements are currently met and a plan outlining the measures to be completed to meet BAT will be provided within 6 months of permit issue.</p> <p>The updated BAT is provided as 790101_BAT_GRA December 2024. The ERA (790101_ERA_GRA December 2024) and MSD (790101_MSD_Main_GRA December 2024) have also been updated to reflect any changes.</p> <p>Southern Water acknowledges that the flare is appropriate for emergency use (such as breakdown and maintenance). Southern Water confirms that they plan to retain the existing CHP and flare at Gravesend as they meets the Site’s requirements for biogas combustion.</p> <p>Gas modelling shows the site is not expected to flare outside of maintenance or emergency scenarios.</p> <p>The existing flare and CHP are to be retained at this site.</p> <p>The flare has been tested and the emissions are compliant. The flare is not planned for replacement.</p> <p>Additional work is required to ensure all BAT requirements are met (e.g. access platforms for testing, the required testing is fully adopted into BAU and related processes, ensure all required signals for data collation and reporting are provided, all specific requirements are met for MCERTs and M1 &amp; M2 guidance).</p> <p>The detail of this is under review and any identified scope will be completed in AMP8.</p> <p>The flare use data forms part of wider data collation and reporting (IT) system improvements planned to meet BAT 2c for inventory, BAT 11 energy and has an influence on BATs 15b, 16b and 21c for incident reporting (re. PVRVs and gas system management).</p>

Topic of relevancy	Question no.	Question	Response
			Further information is being collated in line with discussions with the SSD LIA (KS) on 3/12/24 and will be provided in due course (regarding asset replacement plans and timescales but will be provided for all sites even though no asset replacements are required here).
Secondary containment	13	<p>BAT conclusion 19 requires that tanks for liquids must be located in a suitable secondary containment, and that impermeable surfacing must be provided. Under guidance Control and monitor emissions for your environmental permit - GOV.UK (www.gov.uk), you must prevent leaks or accidental release of liquids that could cause pollution from tanks, sumps, containers bunds. You have provided '790101-MMD-IED-GRCA-CA-C-001 - P02 IED Gravesend ADBA Tool (Feb 24)'. On initial review of this high level document we cannot clearly identify that this meets BAT.</p> <p>a) Provide an update secondary containment report and ADBA assessment that clearly identifies the containment solution proposed, the containment volumes, an explanation of how your proposals meet BAT and CIRIA C736. This must be for the assets that you are requesting to be permitted.</p> <p>b) Ensure your permit boundary (and all relevant documents) include your proposed containment solution.</p> <p><i>Note: As a result of our initial review we have identified the following areas of concerns which as a minimum will need to be addressed in any updated report.</i></p> <ul style="list-style-type: none"> <li>• You have not considered jetting.</li> <li>• Your preferred solution does not clearly show how volumes have been calculated, or confirm that all tanks have been included.</li> <li>• We cannot identify how you have considered rainfall.</li> <li>• Your solution includes different proposals, proposals that are not to be taken forward should be removed to ensure no confusion.</li> <li>• Your containment volume does not reflect your areas proposed.</li> </ul>	<p>The ADBA tool has been reviewed and has been amended. The ADBA tool is provided as 790101-MMD-IED-GRCA-CA-C-001 P04 December 2024.</p> <p>All tank volumes have been provided in the ADBA tool, previously only the above ground volumes were shown. All relevant volumes have now been included, along with whether they are open or closed. This is also replicated in a table below this response.</p> <p>All documents have been updated to ensure that tanks are consistently named and have the same volumes throughout. Below this table is an additional table which has been provided to confirm the tank volumes. The 790101_MSD_Main_GRA December 2024 and 790101_ERA_OdourMP_GRA December 2024 have also been amended accordingly.</p> <p>The Environmental Risk Assessment (790101_ERA_GRA December 2024) Appendix B has also been updated to include the management of firewater.</p> <p>Updated site layout plan is submitted as 790101_MSD_SiteLayoutPlan_GRA December 2024.</p>

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		<ul style="list-style-type: none"> <li>Your solution advises that it is based on the future retention of assets and not what you are applying to permit. Your solution must be based on the assets you are applying to permit.</li> </ul> <p>Please note that a failure to clearly address key risks within your application will result in this application being returned.</p>	
Activity capacity	14	<p>Table 6.1 of your main supporting document advises that you are applying for an annual capacity of 277,821m<sup>3</sup> per annum. This volume seems low based on an Anaerobic Digestion capacity of 2,580m<sup>3</sup> and we require further confirmation that this volume is correct. Also, your volume must be provided in tones not meters cubed. Provide the following information:</p> <ol style="list-style-type: none"> <li>Total tonnage of indigenous and imported wet tones to be received at the sludge treatment centre per annum.</li> <li>Total tonnage per annum to be accepted at the anaerobic digesters</li> <li>Digester hydraulic retention time</li> </ol>	<p>This has been added into the 790101_MSD_Main GRA December 2024.</p> <ol style="list-style-type: none"> <li>Total tonnage of indigenous and imported wet tones to be received at the sludge treatment centre per annum. 306,482 wet tonnes.</li> <li>Total tonnage per annum to be accepted at the anaerobic digesters is 67,273 wet tonnes.</li> <li>Digester hydraulic retention time minimum standard is 14 days – average measured for the site is 17.4days.</li> </ol> <p>The annual throughputs through the Gravesend STC is presented in 790101_AnnualThroughput_GRA December 2024.</p>
Waste codes accepted	15	<p>You have provided table 'A.1 Waste imported for anaerobic digestion'. This table includes EWC code 16 10 02 in which you have listed waste types that you intend to accept under this code. (some would not meet the WM3 requirements for 16 10 02). To accept a varied list under 16 10 02 would cause the digester outputs to fall outside of the sludge use in agriculture regulations meaning that your site would be undertaking co-digestion. As such we require further information on the classification of this waste.</p> <ol style="list-style-type: none"> <li>Provide the source of 16 10 02 that you intend to accept for anaerobic digestion.</li> <li>Explain why accepting 16 10 02 would not be co-digestion.</li> <li>If you are applying for co-digestion, update and re-submit your application to reflect co-digestion.</li> <li>If you do not require 16 10 02 for acceptance to the anaerobic digestion process confirm that this code is to be removed.</li> </ol>	<p>Southern Water confirm that the code 16 10 02 is to be removed from tables referring to 'Wastes imported for Anaerobic Digestion', as the intention is not for co-digestion at this site.</p> <p>In addition, Southern Water acknowledge these waste codes listed under 'Wastes received under the Controlled Waste Regulations 2012 'will not be included in a permit.</p> <p>The Main Supporting Document and Odour Management Plan have been amended and provided separately (doc ref 790101_MSD_Main_GRA December 2024 and 790101_ERA_OdourMP_GRA December 2024 respectively). The latest version removes the applicable 16 10 02, and caveats that controlled waste will not feature on the permit.</p>
Odour management plan	16	<p>Your odour management plan advises that the site uses carbon filters which does not match other site descriptions.</p>	<p>Southern Water confirms that 1 No. OCU on Site consists of both a biofilter (woodchip media) and carbon filter. It has been confirmed that the OCU serves the following assets:</p>

Topic of relevancy	Question no.	Question	Response
		Update all documents to ensure that the Odour control unit reflects the unit operated on site.	<ul style="list-style-type: none"> <li>• Imported sludge tank</li> <li>• SAS storage tank</li> <li>• Combined thickened sludge tank</li> <li>• Alternative sludge storage tank</li> <li>• Works liquors P.S.</li> <li>• Drum thickeners 1&amp;2</li> <li>• Drum thickeners 3&amp;4</li> <li>• Centrifuge</li> </ul> <p>Southern Water is progressing detailed survey and assessment of the existing OCUs to understand any additional measures that may be required to meet BAT 34 and 53.</p>
Waste water emissions during storm overflow conditions at the WwTW	17	<p>Routine emissions to the WwTW from the installation will be controlled via monitored emission limits as an indirect discharge (as defined in the Waste Treatment BREF).</p> <p>However, as WwTW periodically discharge sewage during storm conditions, it's possible that waste water from the installation could bypass the WwTW treatment processes and be emitted as a direct discharge to water. It is not clear from the application how this abnormal situation will be prevented. Operators of environmental permits cannot emit waste waters directly to surface waters without detailed risk assessment. You must therefore have procedures to prevent the discharge of waste water from the installation from bypassing the WwTW treatment processes directly to surface water during storm overflow conditions.</p> <ol style="list-style-type: none"> <li>a) Provide written procedures which describes the site's contingency arrangements to prevent digestate and effluent being discharged off site while the WwTW are in storm conditions.</li> <li>b) Provide a description of the buffer storage proposals to control or hold emissions to the event of storm overflow conditions at the WwTW.</li> <li>c) Should any contingency arrangements use storage tanks to act as a buffer, provide evidence that demonstrates the</li> </ol>	<p>The returns from the STC enter the WwTW process downstream of the storm separation point. Therefore, all returns from the installation will go through the WwTW treatment and cannot be directly discharged during storm conditions.</p> <p>Southern Water will provide a wastewater and digestate buffer storage plan (listed in regard to BAT 4 in the Implementation Plan document reference 790101_MSD_Implementation Plan December 2023). The Plan's purpose is to propose and describe site contingency arrangements to provide appropriate storage capacity or other appropriate measures to prevent or minimise emissions of wastewater or digestate being discharged off site during any occasions when the receiving wastewater treatment works is in storm overflow operating conditions. It is understood the Plan will be required to include, but not be limited to:</p> <ul style="list-style-type: none"> <li>• Proposals for additional storage capacity with secondary containment within the site boundary for wastewater and/or other digestate during any occasions when the receiving wastewater treatment works is in storm overflow operating conditions.</li> <li>• Procedures to cease discharges during these conditions.</li> <li>• Calculation of a reasonable contingency capacity of waste water and/or other digestate during any occasions when the receiving wastewater treatment works is in storm overflow operating conditions.</li> <li>• A description and design specification of the buffer storage infrastructure and secondary containment measures. The design</li> </ul>

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		<p>waste waters or digestates can be held in this storage during the period of storm overflows.</p> <p><i>Note, this information can be included as an addendum to your accident management plans as part of BAT conclusion 21, Emissions from accidents and incidents.</i></p>	<p>shall be completed by an appropriately qualified engineer and secondary containment shall be designed in line with CIRIA C736.</p> <ul style="list-style-type: none"> <li>• A program of works with timescales for the implementation and construction of the buffer storage.</li> <li>• A preventative maintenance and inspection regime.</li> </ul>
Site Condition report (SCR)	18	<p>On review of your site condition report this includes activities in the wider WwTW which do not form part of your permit boundary and does not include Appendix B. Landmark Envirocheck Report.</p> <p>a) Update your SCR to reflect the permit area and application you are applying for, removing activities that will not be included within your permit.</p> <p>b) Provide 'Appendix B. Landmark Envirocheck Report', and all supporting information identified in section 'supporting information'.</p>	<p>The SCR (doc ref 790101_MSD_SCR_GRA December 2024) has been updated to amend reference to activities in the wider WwTW, which do not form part of the permit boundary, and remove any identified exemptions.</p> <p>The Landmark Envirocheck Report and any other supporting document has been provided (doc ref 790101_MSD_SCR_GRA_AppB Envirocheck).</p> <p>The site investigation report is also provided as 790101_MSD_SCR_GRA_SIRReport</p>
Waste acceptance and pre-acceptance	19	<p>You have advised in 'Southern water – Duty of care' that "There are no specific pre acceptance procedures for sludge imports, they are acceptable for importing to any of Southern Water's 16 permitted Sludge Treatment Centres (STCs)". This does not meet the requirements of BAT 2.</p> <p>Provide a waste pre-acceptance and acceptance procedure for imported and indigenous sludge. Guidance on what this should include can be located at <a href="#">Biological waste treatment: appropriate measures for permitted facilities - Guidance - GOV.UK</a></p>	<p>The waste acceptance and pre-acceptance procedure is provided as 790101_WasteAcceptance_GRA December 2024.</p>
Emissions to air from odour control units	20	<p>Under BREF guidance BAT conclusion 8, BAT is to monitor channelled emission to air at agreed frequencies and standards. On review of submission you have identified the monitoring of H2S and NH3, however we can see no mention of parameters for the 'Treatment of water-based liquid waste' (TVOC and HCl), or evidence that TVOC and HCl have not been identified as relevant in the waste gas stream. Your activity includes prior to the AD process (the biological treatment of waste) the thickening and dewatering process which is a directly associated activity of the AD process. The odour control units identified serve this directly associated activity. The BAT AELs are appropriate for the activity defined under the BREF as 'Treatment of water-based liquid waste'. The BREF provides examples of wastes that would be considered as water-based liquid wastes. These include wastes under the category '19 08 wastes from waste water treatment plants not</p>	<p>Southern Water confirm that characterisation of emissions from the odour control units will be undertaken in line with BAT 3 to demonstrate if TVOC and HCl are present in the waste gas stream.</p> <p>If TVOC and HCl are identified as relevant in the waste gas streams Southern Water will monitor these emissions in line with BAT requirements.</p> <p>The Odour Management Plan has been updated. Table 8 of the OMP to reflect the above commitments, document reference 790101_ERA_OdourMP_GRA December 2024.</p>

Topic of relevancy	Question no.	Question	Response
		<p>otherwise specified'. The treatment of this waste in the dewatering and thickening stage and the subsequent emissions to air from connected abatement could be subject to the BAT AELs specified within BAT conclusion 8.</p> <p>a) Confirm that you will characterise emissions from the odour control units in line with BAT 3 to demonstrate if TVOC and HCl are present in the waste gas stream.</p> <p>b) Confirm that if TVOC and HCl are identified as relevant in the waste gas streams that you will monitor these emission in line with BAT requirements.</p>	
Indirect emission to water	21	<p>You have identified indirect emissions to water from:</p> <ul style="list-style-type: none"> <li>• Condensate from the gas pipelines and gas storage bag</li> <li>• Boiler blow down to minimize damage from high mineral content water</li> <li>• Drain down of plan – (Occurs during maintenance when it is necessary to drain down</li> <li>• the feed water, hot well or boiler shell.)</li> <li>• Uncontaminated roof water from buildings.</li> <li>• Run off from impervious surface</li> <li>• Domestic facilities.</li> <li>• Washwater</li> </ul> <p>This however does not seem to include all emissions such as liquors returning to the head of works. To confirm the WwTW does not form part of your permit boundary, effluent discharged to the head of the works/WwTW is a point source emission to sewer. BAT conclusion 3 requires operators to have an emissions inventory for the effluent. You must identify all emissions and clearly identify where these can be sampled and where they will leave the site boundary. Where you have a separate waste process such as the dewatering of digested sludge you must clearly identify any emission point and keep this separate. The indirect emission to water and sources feeding the sampling point(s) require clarification and updating on relevant site plan before we can duly make your application. Your emission points should be clear, identify the process, identify the emission and sampling location in line with guidance <a href="#">Monitoring discharges to water: guidance on selecting a monitoring approach - GOV.UK</a></p>	<p>a. The Site Layout Plan (document reference 790101_MSD_SiteLayoutPlan_GRA December 2024) has been updated to indicate the emission points and monitoring locations listed under bullets points b, e, f , g &amp; h.</p> <p>b. Document reference 790101_Sampling proposal_GRA December 2024 is provided to address the following, in relation to the indirect emissions to water and covering point d. Written statement with a commitment to undertake the sampling and analysis in line with the 'Non-hazardous and inert waste: appropriate measures for permitted facilities.</p> <p>Document 790101_Sampling proposal_GRA December 2024 also provides a summary of the sampling and analysis methodology of the effluent discharged in order to specify the likely pollutants in the effluent. As well as a written statement with a commitment that those undertaking the sampling and analysis will be by accredited to MCERTs or provide evidence of equivalent standards.</p> <p>c. Table 6.3 of the main supporting document (790101_MSD_Main_GRA December 2024) has been updated to identify all relevant indirect emissions to water, ensuring that it reflects the site plans provided</p>

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		<ul style="list-style-type: none"> <li>a) Update your emission point plan to ensure all that all indirect emissions to water are included, and clearly explain which emission point includes which waste water stream.</li> <li>b) Include your emission/sampling point for the HoW waste activity and dewatering activity ensuring that these are representative of the discharge.</li> <li>c) Update table 6.3 of your main permit application to identify all relevant indirect emissions to water, ensuring that it reflects the site plans you have provided.</li> <li>d) Provide a written statement with a commitment to undertake the sampling and analysis in line with BAT3 for the installation activity and appropriate measures for waste activities.</li> <li>e) You have identified emission point "Domestic facilities", domestic facilities will not be regulated as part of this permit and should be removed from your application.</li> <li>f) You have identified "Condensate from the gas pipelines and gas storage bag", "Boiler blow down to minimise damage from high mineral content water" and "Runoff from impervious surfaces" however it is not clear where these emissions will be released on site or sampled. Provide separate emission points and sampling point locations for these emissions.</li> <li>g) You have identified "Uncontaminated roof water from new buildings". To discharge uncontaminated water, such as clean rainwater from roofs (as explained in groundwater protection position statement G12) or from small areas of hardstanding to surface water you will not require emission limits, however the location on your site plan should be clear so that it can be included in any permit issued. Provide the locations and NGRs for all "Uncontaminated roof water from new buildings" and ensure these emission points are clearly marked on any emission point plan.</li> <li>h) You have identified "Washwater from the washing down of mechanical equipment during maintenance activities" and "Drain down of plant" as intermittent releases. Confirm where these will be emitted and sampled prior to discharge.</li> </ul>	



Tank List	Above ground Volume (m <sup>3</sup> )	Total Tank Volume (m <sup>3</sup> )	Covered?	Notes
Post Digestion Storage Tank	370	370	Yes	
Anaerobic Digester	2300	2580	Yes	
Alternative Sludge Storage Tank	2300	2300	Yes	
Liquor Balancing Tank 1	280	280	Yes	
Liquor Balancing Tank 2	280	280	Yes	
Sludge Holding Tank	290	290	Yes	
SAS Storage Tank	290	290	Yes	
Combined Thickened Sludge Storage Tank	280	280	Yes	
Sludge Reception Tank 1	720	720	Yes	Collared tank - self-bunded but review of compliance required so has been included for calcs as conservative approach.