

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

<b>Environment Agency reference:</b>	<b>EPR/DP3998HH/V007</b> (file reference Application Variation RFI and payment letter 24052024.pdf)	<b>Date:</b>	<b>14 June 2024</b>
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**Table 1: Response to Environment Agency**

<b>Topic of relevancy</b>	<b>Question no.</b>	<b>Question</b>	<b>Response</b>
Payment details	N/A	The correct application charge is £17,250 (plus the fee for the waste activity identified). This leaves a balance of £2,639 to pay (plus the fee for the waste activity identified if required).	<p>No additional waste activity is being applied for, therefore no further fees are required.</p> <p>Further explanation to clarify the waste activity is not required is addressed in response to question 4 and 14.</p> <p>The stated £13,984 in the Not Duly Made letter is in reference to 2024 Charging Scheme charging reference 1.16.2.1 for a new activity.</p> <p>The basic pre application advice provided in August 2020 explained the fee for Aylesford would be in relation to 'an existing bespoke waste permit transitioning to a bespoke installation', and was interpreted to refer to a substantial variation.</p> <p>Southern Water now acknowledge that the variation is to add new activity and the Emissions Management Plan fee is to be paid.</p>

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			<p>The fee paid in 2021 was £14,611, this includes a substantial variation fee and the Odour Management Plan and Habitats Assessment fee.</p> <p>The difference is therefore:  Revised application fee (£13,984 + £1,241 + £1,231 + £779) = £17,250  Application fee paid in 2021 (£12,586 + £1,246 + £779) = £14,611  Remaining fee of £2,639 will be paid upon confirmation from the Environment Agency. This additional fee will be paid via BACS, details to be provided in the week commencing 17 June 2024.</p>
Permit boundary	1	Update your permit boundary in your site layout plan to include your existing site, and new proposed activity, or clearly explain why the area for the works inlet is not included.	The Site Layout Plan (document reference 790101_MSD_SiteLayoutPlan_AYL June 2024) has been updated and provided separately in response to the Not Duly Made letter. It includes the work inlet and the containment solution within the permit boundary.
Secondary containment	2	<p>a) Provide an update secondary containment report that clearly identifies the containment solution proposed within the permit boundary, the containment volumes, an explanation of how your proposals meet BAT and CIRIA C736.</p> <p>b) Update your permit boundary (and all relevant documents) to include your proposed containment solution</p>	<p>The report is provided separately as document reference 790101-MMD-IED-AYL-CA-C-001 - P03 IED Risk Register Aylesford June 2024. The previous report document reference 'IED-Aylesford STC Containment Solution Overview (Dec 23)' is therefore replaced by the above.</p> <p>Section 5 of the report addresses the following aspects, as per the Not Duly Made letter:</p> <ul style="list-style-type: none"> <li>● Considered jetting</li> <li>● Contain all tanks,</li> <li>● Explanation on volumes in regard to CIRIA C736 in relation to the 110%/25% rule</li> <li>● Considered rainfall</li> <li>● Explanation on how the chosen solution mitigates spillage from sludge storage tanks identified in the area holding the sludge storage tanks</li> <li>● Provided further comment on impermeable surfacing</li> <li>● Further details on the earth bund on how this will meet CIRIA C736</li> <li>● Addressing that all drainage will be returned to the WwTW, a receptor</li> </ul> <p>The Site Layout Plan (document reference 790101_MSD_SiteLayoutPlan_AYL June 2024) has been updated and provided separately in response to the Not Duly Made letter. It includes the containment solution within the permit boundary.</p>
Activity Capacity	3	Please confirm that the annual capacity of 267,373 (wet t) per annum is correct by providing the following information:	<p>A visual summary of the Site's throughout quantities in total dry solids (TDS) and wet tonnes is provided separately in document reference 790101_AnnualThroughput_AYL June 2024.</p> <p>On reflection, the annual throughput provided in the application requires adjusting. The annual capacity is 291,150 tonnes (wet).</p>

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		<ul style="list-style-type: none"> <li>a) Total tonnage of indigenous and imported wet tones to be received at the sludge blending tank.</li> <li>b) Digester hydraulic retention time</li> </ul>	<p>Digester hydraulic retention time varies. In the past four years it is between 15.6 days to 19.5 days. The minimum retention time for the digesters, as an operational standard, is 14 days.</p> <p>The Main Supporting Document has been updated to reflect the requested annual throughout.</p>
Waste codes accepted	4	<p>'Wastes imported for Anaerobic Digestion':</p> <ul style="list-style-type: none"> <li>a) Provide the source of 16 10 02 that you intend to accept for anaerobic digestion.</li> <li>b) Explain why accepting 16 10 02 would not be co-digestion.</li> <li>c) If you are applying for co-digestion, update and re-submit your application to reflect co-digestion.</li> <li>d) If you do not require 16 10 02 for acceptance to the anaerobic digestion process confirm that this code is to be removed.</li> </ul> <p>'Wastes received under the Controlled Waste Regulations 2012': please note that we do not permit controlled waste regulation codes, as such these will not be included on any permit issued.</p> <ul style="list-style-type: none"> <li>e) Confirm your acceptance of the above</li> </ul> <p>'Wastes to import under a waste activity permit': It is understood that waste identified in table 'A.3 Wastes to import under a waste activity permit' 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.</p> <ul style="list-style-type: none"> <li>f) Payment (note this will be dependent on the volume and activities being carried out)</li> <li>g) Non-technical summary, and process flow including how you will keep this activity separate from your installations activity</li> <li>h) Assessment against Non-hazardous and inert waste: appropriate measures for permitted facilities</li> <li>i) Completion of relevant forms – B4 new bespoke waste operation</li> <li>j) 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> </ul> <p>'Tankered trade waste imports under a waste activity' permit':</p> <ul style="list-style-type: none"> <li>k) Evidence that you are currently accepting the waste codes identified.</li> <li>l) If you are not currently accepting the EWC code identified, provide an assessment of the fate and impact on the receiving</li> </ul>	<p>'Wastes imported for Anaerobic Digestion': 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>'Wastes received under the Controlled Waste Regulations 2012': Southern Water acknowledge these waste codes will not be included in a permit</p> <p>'Wastes to import under a waste activity permit': The table has been removed from the application.</p> <p>'Tankered trade waste imports under a waste activity' permit': Southern Water are not proposing to vary the permit to allow for new waste codes to be accepted for 'Tankered trade waste imports under a waste activity permit'. Evidence of the Site accepting such wastes are provided in document reference 790101_WasteTransferNotes_AYL June 2024.</p> <p>Not all waste codes could be evidenced by waste transfer notes in the timescale provided by the Environment Agency. Southern Water wish for the Environment Agency to proceed to determine the application based on the waste codes evidenced in document 790101_WasteTransferNotes_AYL June 2024.</p> <p>The Main Supporting Document and Odour Management Plan have been amended and provided separately (document reference 790101_MSD_Main_AYL June 2024 and 790101_ERA_OdourMP_AYL June 2024 respectively). The latest version removes the applicable 16 10 02, and caveats that controlled waste will not feature on the permit.</p>

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		waters in line with the Environment Agency's risk assessment guidance.	
Head of works In-direct emission point	5	<p>a) Provide a summary of the sampling and analysis methodology of the effluent discharged and specify the likely pollutants in the effluent.</p> <p>b) Provide a 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>c) 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>d) 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>	<p>A sampling proposal is provided in a separate document, document reference 790101_Sampling proposal_AYL June 2024, which provides response to Question 5a-c.</p> <p>The Site Layout Plan (document reference 790101_MSD_SiteLayoutPlan_AYL June 2024) has been updated and provided separately in response to the Not Duly Made letter. Reference point S1 refers to the emission point for effluent discharge from the head of works, and M1 refers to the monitoring point of the effluent discharge from the head of works activity.</p>
Waste water emissions during storm overflow conditions at the WwTW	6	<p>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.</p> <p>b) Provide a description of the buffer storage proposals to control or hold emissions to the event of storm overflow conditions at the WwTW.</p> <p>c) Should any contingency arrangements use storage tanks to act as a buffer, provide evidence that demonstrates the waste waters or digestates can be held in this storage during the period of storm overflows</p>	<p>The storm tanks have no discharge outlet to the environment (are 'blind') and are used as flow balance tanks. Storm separation for the majority of the flow from the catchment occurs upstream at Castle Rd Allington WPS.</p> <p>The incoming flows, available on-site storm tank capacity and the facility throughput are managed to ensure the capacity of the WtW and STC are not compromised. The storm tanks have no discharge outlet to the environment. While the storm tanks are full, all incoming flows continue to be treated by the process.</p> <p>Digestate and effluent from the STC are returned to the process downstream of storm separation.</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> </ul>

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			<ul style="list-style-type: none"> <li>● A description and design specification of the buffer storage infrastructure and secondary containment measures. The design shall be completed by an appropriately qualified engineer and secondary containment shall be designed in line with CIRIA C736.</li> <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>
Waste acceptance and pre-acceptance	7	Provide a waste pre-acceptance and acceptance procedure for imported and indigenous sludge that meet the requirements of BAT 2.	The waste pre-acceptance and acceptance procedure for imported and indigenous sludge are provided in document reference 790101_WasteAcceptance_AYL June 2024. Document reference 790101_MSD_DutyofCare_AYL December 2023 remains relevant for trade waste imports.
Standby generator	8	<p>a) For the specified generator explain using the RGN2 DAA test why the generators meets the criteria of a DAA.</p> <p>b) If it does not meet the requirements of a DAA remove this from your permit application and amend your site plans to reflect this</p>	<p>The generator is insufficient to run the whole peak demand of the STC and WwTW. It is primarily at the site to prioritise use to run all of the WWTW, inlet screen, wash compactors, Detritors, primary settlement tank (PST), desludge pumps, filter beds, return pumps, wash water pumps. In regard to the assets at the STC, as a minimum, the generator is for the water pumps for heating and mixers on digesters.</p> <p>The response to the DAA three criteria is shown in italics:</p> <p>(2A) "the activity will only be directly associated with the stationary technical unit if that unit is the principal user of the activity" -<i>Applying the points a and b below, it has been determined that the digestors within the STC (stationary technical unit, and related to the schedule activity) is not the principal user.</i></p> <p>Is the activity in question providing different services to 2 or more separate main activities? <i>Yes, it partly serves some assets of STC, and primarily for serving the WwTW.</i></p> <p>The principal user would be either (i) the most dependent user or, where this is not clear, (ii) the largest single user in terms of taking output, providing input - <i>The generator is primarily for serving the WwTW. At the STC, it can serve the water pumps for heating and mixers on digesters and these are not the largest single user and it is not the most dependant asset.</i></p> <p>(2B) the activity must have a technical connection with the listed activities carried out in or by the stationary technical unit; and – <i>Yes, serves water pumps for heating and mixers on digesters</i></p> <p>(2C) the activity must be capable of having an effect on emissions.' <i>Yes, emission point for the exhaust.</i></p> <p>In conclusion, the generator fails 2A of the DAA criteria (RGN2), on the grounds the STC's water pumps for heating and mixers on digesters are not collectively the 'principal user'.</p>

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			<p>The following documents have been amended, and provided separately, to remove reference to the generator:</p> <ul style="list-style-type: none"> <li>● Site Layout plan</li> <li>● Main Supporting Document</li> <li>● Odour Management Plan</li> <li>● Air quality risk assessment</li> <li>● Reside Management Plan</li> </ul>
Air dispersion modelling	9	Please provide and confirm the MWth input for all combustion plant.	The MWth were provided in the 2023 resubmission in section 1.2 of the Air quality assessment (document reference 790101_AQRA_AYL December 2023): 0.88MWth CHP plant and two boilers (0.87MWth each). Nonetheless, an updated assessment has been provided to remove the generator (document reference 790101_AQRA_AYL June 2024).
Emissions to air from odour control units	10	<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>	<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 emission in line with BAT requirements.</p> <p>The Odour Management Plan has been updated to reflect the above commitments, document reference 790101_ERA_OdourMP_AYL June 2024.</p>
Indirect emission to water	11	<p>a) Update your emission point plan to ensure all that all indirect emissions to water are included (e.g. liquors returning to the head of works), and clearly explain which emission point includes which waste water stream.</p> <p>b) Provide a written statement with a commitment to undertake the sampling and analysis in line with BAT3.</p>	A sampling proposal is provided in a separate document with a written statement to undertake the sampling and analysis in line with BAT3, document reference 790101_Sampling proposal_AYL June 2024.
Open tanks	12	Confirm your acceptance to take a pragmatic approach to the implementation of solutions by implementing a three stage IC that cover and direct all gases to an appropriately sized gas utilisation and storage system, or should the digestion process be identified as stable with the digestate having minimal potential for biogas production, while the open tanks still being covered in accordance with BAT conclusion 14d	<p>Southern Water accept the:</p> <ul style="list-style-type: none"> <li>● approach outlined in the letter dated 24 May 2024, Subject 'We need more information about your application and underpayment of application charge' by Sarah Raymond (Environment Agency), and;</li> <li>● the Improvement Condition in Appendix 1, of the same letter.</li> </ul>
Application EPR/DP399 8HH/V006	13	<p>a) Clearly explain the purpose of the balancing tank and processes prior to discharge of waste to the head of works</p> <p>b) Confirm if you are applying for to vary your existing waste activity to an installation.</p>	<p>Tankered trade waste is accepted to site to join incoming flow from Allington WPS, then via a channel adjacent to works inlet. Tankered trade waste therefore passes through the screens and into WwTW process.</p> <p>The term 'balancing tank' is a generic term for the tank at the Site that manages flows into the four PSTs. There is no draw off that takes different constituents (ie sludge, and liquors) away from the tank. The only draw-offs are for the contents of the 'balancing tanks' to return to the PSTs for top up.</p> <p>The use of the balancing tank, and the passing of wastes through other assets</p>

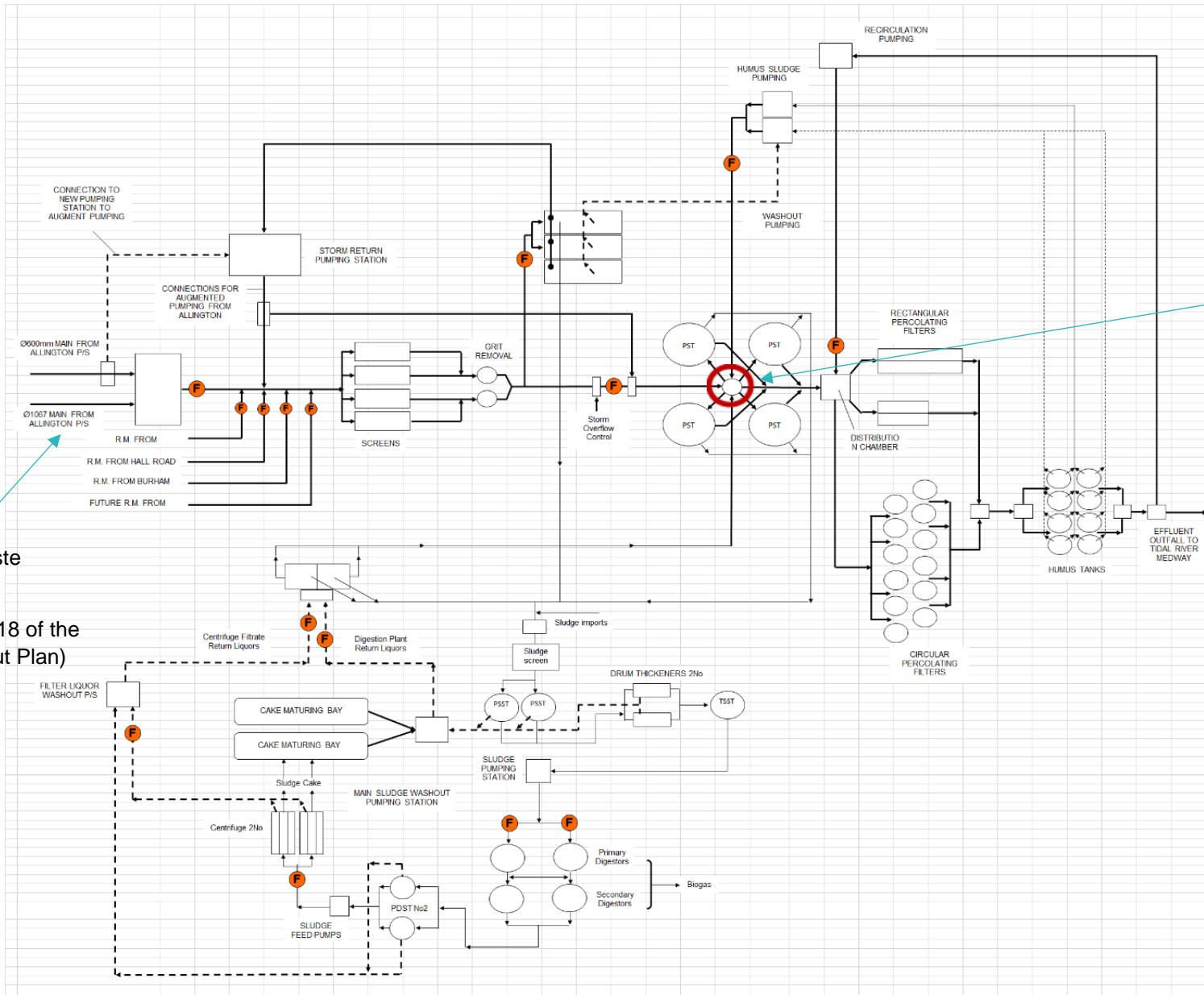
Topic of relevancy	Question no.	Question	Response
			<p>(screens and grit removal) before entering the head of the works does not change the characteristic of the received waste and does not constitute a treatment process. The screens and grit screens are for the purpose of removing detritus to benefit 'downstream' assets, such as the PSTs. Please see Figure 1 of this document for schematic to demonstrate the location and waste transfer through the balancing tank.</p> <p>The variation application is to:</p> <ol style="list-style-type: none"> <li>1. Modernise the conditions of the existing physical treatment activity (A16) as authorised under the permit reference EPR/DP3998HH, and to increase the annual throughput of this activity to <b>59,000 tonnes per annum</b> (V006 states 56,000 tonnes per annum), and;</li> <li>2. Add the Schedule Activity for the anaerobic digestion of sewage sludge.</li> </ol> <p>Southern Water confirm the intention is not for the current waste activity listed in EPR/DP3998HH to be converted to a Scheduled Activity. The characteristics of the received waste destined for the head of the works (ie not via anaerobic digestion) does not change. Therefore, it is understood the request to increase to <b>59,000 tonnes per annum</b> does not constitute a change to an installation activity.</p>

Document	Related questions	Document Reference
Site Layout Plan	Question 1 Question 2b Question 5d Question 8b	790101_MSD_SiteLayoutPlan_AYL June 2024
Secondary containment report	Question 2a	790101-MMD-IED-AYL-CA-C-001 - P03 IED Risk Register Aylesford June 2024
Annual throughput summary	Question 3a	790101_AnnualThroughput_AYL June 2024
Odour Management Plan	Question 4 Question 7b Question 10	790101_ERA_OdourMP_AYL June 2024
Waste transfer notes	Question 4	790101_WasteTransferNotes_AYL June 2024
Main Supporting Document	Question 4 Question 8b	790101_MSD_Main_AYL June 2024
Sampling proposal	Question 5a - c Question 11b	790101_Sampling proposal_AYL June 2024

<b>Document</b>	<b>Related questions</b>	<b>Document Reference</b>
Waste pre-acceptance and acceptance for imported and indigenous sludge	Question 7	790101_WasteAcceptance_AYL June 2024
Air quality risk assessment	Question 8b Question 9	790101_AQRA_AYL June 2024
Residue Management Plan	Question 8b	790101_MSD_ResidueMP_AYL June 2024



Figure 1: Wastewater Treatment Works schematic



Trade waste reception  
(Point ref 18 of the Site Layout Plan)

'Balancing Tank'