Cambridge Waste Water Treatment Plant Relocation Project
Anglian Water Services Limited

Environmental Statement Appendix 2.4: Outline Commissioning Plan

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1 Introduction

1.1 Anglian Water Services Limited

1.1.1 Anglian Water Services Limited (the 'Applicant') is the largest regulated water and water recycling company in England and Wales by geographic area, supplying water and water recycling services to almost seven million people in the East of England and Hartlepool.

1.1.2 The Applicant is committed to bringing environmental and social prosperity to the region they serve, through their commitment to Love Every Drop. As a purpose-led business, The Applicant seeks to contribute to the environmental and social wellbeing of the communities within which they operate. As one of the largest energy users in the East of England, they are also committed to reaching net zero carbon emissions by 2030.

1.2 Introduction to the relocation project

1.2.1 Anglian Water's Cambridge Waste Water Treatment Plant Relocation project (CWWTPRP) ("the Proposed Development") is funded by Homes England, the Government's housing accelerator which seeks to improve neighbourhoods and grow communities by releasing land for development.

1.2.2 The Proposed Development involves the relocation of the existing Cambridge Waste Water Treatment Plant (WWTP) currently operating at Cowley Road, Cambridge, to a new site between Horningsea, Fen Ditton and Stow cum Quy, adjacent to the A14 in Cambridgeshire.

1.2.3 The relocation would make the site of the existing WWTP available to form part of the development of a new low-carbon city district, known as North East Cambridge. The site at Cowley Road, is Cambridge's last major brownfield site, and the wider North East Cambridge district proposals envisage creating around 8,350 homes and 15,000 jobs over the next 20 years.

1.2.4 North East Cambridge is a highly sustainable location for housing. In addition to the Homes England funding, the area has benefitted from Transport Infrastructure Fund (TIF) funding for Park & Ride, the completion of Cambridge Guided Bus public transport infrastructure, the delivery of the Cambridge North rail station and the Chisholm Trail.

1.2.5 North East Cambridge is one of three key strategic sites which will form "*central building blocks of any future strategy for development*" in the proposed Greater Cambridge Local Plan being jointly prepared by Cambridge City Council and South Cambridgeshire District Council that will be subject to public consultation in Autumn 2023. The North East Cambridge Area Action Plan (AAP), currently in "Proposed Submission" form, will be the planning policy framework which ultimately guides the development of North East Cambridge city district.

1.2.6 The importance of the Proposed Development, both regionally and nationally, was recognised by the Secretary of State for Environment, Food and Rural Affairs (DEFRA)

in January 2021, who directed that the Proposed Development is nationally significant and is to be treated as a development for which a Development Consent Order (DCO) is required (see Appendix 1-3 of the Planning Statement, App Doc Ref 7.5).

1.2.7 The policy context of the Proposed Development is described in more detail in the Planning Statement (Application Document Reference 7.5)

1.3 The relocation site

1.3.1 The relocation site was selected following comprehensive study and public consultation. The site selection process and consideration of alternatives is described in more detail in Chapter 3: Alternatives of the Environmental Statement (App Doc Ref 5.2.3).

1.3.2 The current environmental conditions at the existing Cambridge WWTP site and at the relocation site are described in Chapter 2: Project Description of the Environmental Statement (App Doc Ref 5.2.2). The site is located to the north-east of Cambridge and 2km to the east of the existing Cambridge WWTP, as shown on the Works Plans (App Doc Ref 4.3.1). It is situated on arable farmland immediately north of the A14 and east of the B1047 Horningsea Road in the green belt between the villages of Horningsea to the north, Stow cum Quy to the east and Fen Ditton to the south west. Two overhead lines of pylons cross the northern and eastern edges of the main development site and come together with a third line at the north eastern corner of the site. The topography is fairly flat with an approximately 4m fall across the site south west to north east.

1.4 Purpose of the Proposed Development

1.4.1 The Proposed Development for which the DCO is being sought will deliver all the functions of the existing Cambridge WWTP at Cowley Road, treating all waste water from the Cambridge catchment and wet sludge from the wider region.

1.4.2 In addition, it will have an increased capacity, being intended to treat the waste water from the Waterbeach catchment and anticipated housing growth in the combined Cambridge and Waterbeach catchment area.

1.4.3 The infrastructure provided as part of the main works will have a design life to at least 2090, and the supporting infrastructure (i.e. the transfer tunnel, pipelines and outfall) will have a designed capacity sufficient to meet population growth projections plus an allowance for climate change into the 2080s. Furthermore, there is capability for expansion in space that has been provided within the earth bank and by modification, enhancement and optimisation of the design to accommodate anticipated flows into the early 2100s.`

1.5 Outline description of the Proposed Development

1.5.1 The DCO application is seeking approval for the following main elements of the Proposed Development:

- an integrated waste water and sludge treatment plant.

- a shaft to intercept waste water at the existing Cambridge WWTP on Cowley Road and a tunnel/ pipeline to transfer it to the proposed WWTP and terminal pumping station. Temporary intermediate shafts to launch and recover the micro-tunnel boring machine.
- a gravity pipeline transferring treated waste water from the proposed WWTP to a discharge point on the River Cam and a pipeline for storm water overflows.
- a twin pipeline transferring waste water from Waterbeach to the existing Cambridge WWTP, with the option of a connection direct in to the proposed WWTP when the existing works is decommissioned.
- on-site buildings, including - a Gateway Building with incorporated Discovery Centre, substation building, workshop, vehicle parking including electrical vehicle charging points, fencing and lighting.
- environmental mitigation and enhancements including substantial biodiversity net gain, improved habitats for wildlife, extensive landscaping, a landscaped earth bank enclosing the proposed WWTP, climate resilient drainage system and improved recreational access and connectivity.
- renewable energy generation via anaerobic digestion which is part of the sludge treatment process that produces biogas designed to be able to feed directly into the local gas network to heat homes, or as an alternative potential future option burnt in combined heat and power engines.
- renewable energy generation via solar photovoltaic and associated battery energy storage system.
- other ancillary development such as internal site access, utilities, including gas, electricity and communications and connection to the site drainage system.
- a new vehicle access from Horningsea Road including for Heavy Goods Vehicles (HGV's) bringing sludge onto the site for treatment and other site traffic.
- Temporary construction works including compounds, temporary highway controls, accesses and signage, fencing and gates, security and safety measures, lighting, welfare facilities, communication control and telemetry infrastructure.
- Decommissioning works to the existing Cambridge WWTP to cease its existing operational function and to facilitate the surrender of its operational permits including removal of pumps, isolation of plant, electrical connections and pipework, filling and capping of pipework, cleaning of tanks, pipes, screens and other structures, plant and machinery, works to decommission the potable water supply and works to restrict access to walkways, plant and machinery.

1.5.2 Additional elements, together with more information on the above features are provided in Chapter 2: Project Description of the Environmental Statement (App Doc

Ref 5.2.2). Principles of Good Design have been used to inform the development of the project, which has been guided by the National Infrastructure Commission's Design Principles, advice from the Design Council and review by the Cambridgeshire Quality Panel, as described in the Design and Access Statement (App Doc Ref 7.6).

1.5.3 Construction activities, likely to take 3-4 years, will include the creation of a shaft to intercept waste water at the existing Cambridge WWTP and temporary intermediate shafts between the existing Cambridge WWTP and the proposed WWTP to launch and recover a micro-tunnel boring machine. The sequence and location of construction activities are also detailed in Chapter 2: Project Description of the Environmental Statement (App Doc Ref 5.2.2).

1.5.4 Towards the end of the construction period, commissioning of the Proposed Development will commence, lasting for between 6 months and 1 year.

1.5.5 The Proposed Development will also involve the decommissioning of the existing Cambridge WWTP at Cowley Road. This is secured by the Development Consent Order and the Outline Decommissioning Plan (Appendix 2.3, App Doc Ref 5.4.2.3) and involves activities necessary to take the existing plant out of operational use and to surrender its current operational permits.

1.5.6 Following decommissioning, the site of the existing plant will be made available in accordance with agreements already in place with Homes England and with the master developer appointed to deliver the redevelopment of North East Cambridge

1.5.7 Consent is not sought under the Development Consent Order for the subsequent demolition or redevelopment of the Cowley Road site, which, as described in Chapter 2: Project Description of the Environmental Statement (App Doc Ref 5.2.2) will be consented under a separate and future planning permission, by master developers, U+I and TOWN, appointed under the agreements described above.

1.5.8 The relationship between the Proposed Development, the scope of the proposed DCO and the future demolition and redevelopment of the site at Cowley Road is set out in figure 1.1, below.

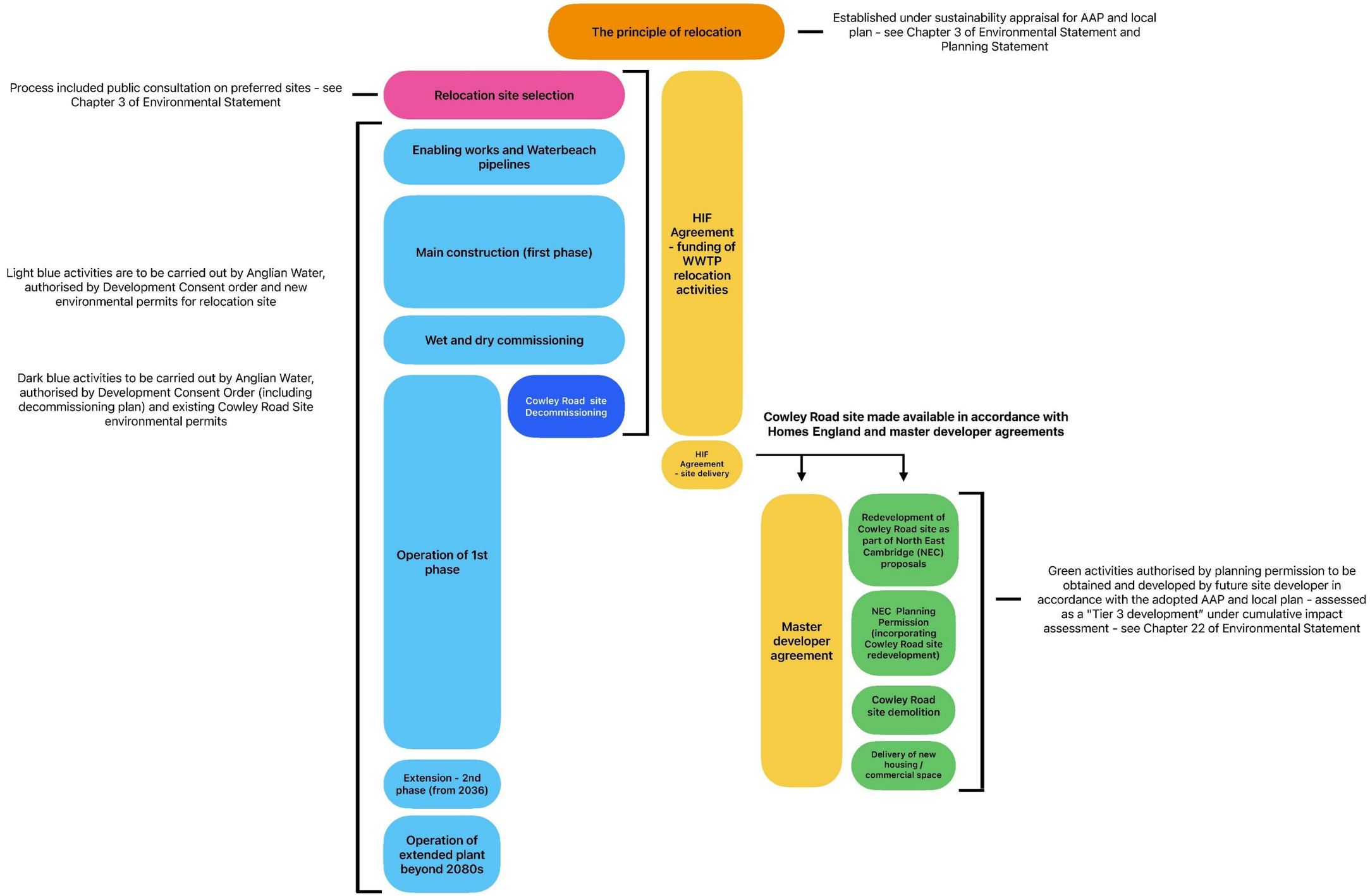

Figure 1.1: Scope of the draft DCO and the future demolition and redevelopment of the site at Cowley Road

1.6 Environmental mitigation

1.6.1 Through the environmental impact assessment process and community and technical stakeholder engagement the Proposed Development has incorporated comprehensive environmental mitigation, secured through the Development Consent Order.

1.6.2 This mitigation includes a Landscape, Ecological and Recreational Management Plan ("LERMP", Appendix 8.14, App Doc Ref 5.4.8.14) has been developed to complement regional and local initiatives, including the Wicken Fen Vision and the Cambridge Nature Network. The 22-hectare footprint of the plant is encircled by a landscaped and planted earth bank situated within the broader LERMP area of around 70-hectares.

1.7 Additional project benefits

1.7.1 In addition to enabling housing growth and future economic development of the Greater Cambridge area the project will also give rise to a number of additional benefits including:

- significantly reduced carbon emissions compared to the existing Cambridge WWTP, being operationally net zero and energy neutral, contributing to Anglian Water's ambition of being operationally net zero as a business by 2030.
- greater resilience and improved storm management, meaning storm overflows and Combined Sewer Overflows (CSOs) are far less likely to occur. This means that, as Greater Cambridge continues to grow, the facility will be able to treat a greater volume of storm flows to a higher standard than would be the case at today's facility.
- The proposed WWTP is being designed to reduce concentration in final treated effluent discharges of phosphorus, ammonia, total suspended solids and biological oxygen demand (BOD), compared to the existing Cambridge WWTP. This means that when the new facility starts to operate, water quality in the River Cam will improve.

2 Specific Design Information for Process Commissioning

2.1.1 Final Effluent will be diverted from existing Cambridge WWTP to the proposed WWTP via a new transfer tunnel terminating at the proposed WWTP into the Terminal Pumping Station (TPS) which will feed the new works and process storm flows above full flow to treatment (FFT). The Applicant will liaise with the Environment Agency if planning to stop discharge into the river for any significant periods.

2.1.2 The existing Cambridge final effluent will be used to hydraulically and pressure test required structures, systems and plant as necessary, including process non-sensitive tanks and pipelines in accordance with the Design Requirements and Water Industry Mechanical and Electrical Specifications (WIMES).

2.1.3 Potable water from the Cambridge Water Company will also be supplied to hydraulically and pressure test process sensitive plant, such as connected with the heating, pasteurization and hydrolysis (HPH) system, Poly make up plant, etc. It is intended to fill the 750m^3 Hydrolysis Tank for hydrostatic test purposes then, following Dry Commissioning of associated plant, to be distributed using newly commissioned systems and mobile pumping plant as necessary.

2.1.4 The MCC building is a BREEAM building and has been recognised as such with allowance made during commissioning as necessary.

2.1.5 The Proposed Development has a significant photovoltaic array installation.

3 Commissioning Water Source

3.1.1 Following the Dry Commissioning phase, to complete testing of control and functionality it will be necessary to complete Wet Commissioning on various plant items, such as process air blowers and field instruments, prior to the introduction of effluent for seeding and operation of plant. The water source for aeration pattern testing, Membrane Aerated Biofilm Reactor (MABR) filling, flowmeters and 'media' wetting-in, which will then allow seeding of the MABR treatment process to begin, will be Final Effluent and Secondary Effluent from the existing Cambridge WWTP activated sludge plant, taken from 'C Works'. This will be brought in by tanker and/or fed through the transfer tunnel from the existing Cambridge WWTP.

3.1.2 Other wet testing will use Final Effluent from the existing Cambridge WWTP either directly from the new TPS following the system hydraulic process path or from suitably positioned mobile pumping plant systems to align with the Construction program and Commissioning requirements (e.g. sequential testing of the 6 No primary settlement tanks (PSTs), the 6 No. final settlement tanks (FSTs) etc.). The Final Effluent will be transferred around the site in line with the construction programme to allow hydraulic static or pressure testing of plant including structures, pipelines, etc.

4 Discharge of Commissioning Water

4.1.1 Commissioning waters will be recycled and reused where practicable before discharge to the new outfall to be built as part of this scheme. A Temporary Discharge Consent Licence is being sought ahead of the main scheme Discharge Consent Licence to maintain good river quality and for possible river augmentation purposes during commissioning. During use and prior to discharge, commissioning waters will be monitored for septicity and composition. A temporary lagoon has been allowed for to accommodate commissioning waters prior to further treatment and discharge. It is anticipated the Temporary Discharge Licence will be time limited and volume constrained. At this stage it is unknown whether further treatment of the Commissioning Waters will be required post use to meet the Temporary Discharge Consent. These requirements will be further considered within the Commissioning Plan and Scheme Construction Schedule.

5 Sequence of Wet Commissioning

5.1 Introduction

5.1.1 Wet commissioning commences when construction including civil, mechanical and electrical elements are complete and dry commissioning is complete.

5.1.2 Wet Commissioning will take place on an ongoing basis and follow the construction program for civil, mechanical and electrical completions. Essentially when plant has been fully installed it will be electrically tested as safe to energise, dry commissioned then wet commissioned.

5.1.3 Commissioning will take place simultaneously across several areas and detailed in the Scheme Program, Commissioning Plan and Commissioning Progress Tracker (CPT) for Commissioning Work Packages and Durations to be developed during the detailed design stage.

5.1.4 The main work areas will be (but not limited to):

- Inlet Works;
- Primary Treatment/Storm Handling;
- MABR Aeration/Process Air/Scour Air;
- Tertiary Treatment/Washwater;
- HPH Plant/Boiler/Gas/Power to Grid including sludge imports and generators;
- Odour Control/PV Banks.

5.1.5 This will include commissioning and operating plant associated with but not supplied by specialist suppliers (e.g. associated non-proprietary motor control centers (MCCs), Telemetry, commissioning water, disposal of commissioning water).

5.1.6 Allowance should be given to ongoing maintenance of plant due to supplier requirements and prior to handover to the Applicant's Operational Staff.

5.2 Inlet Works Area

5.2.1 Once tunnelling work is complete the reception shaft at the proposed WWTP will be converted into the Water Recycling Centre Combined DWF TPS and Storm Pumping Station. Testing should coincide with availability of downstream process (e.g. DWF Pumps and the inlet works area and the storm tank system). The tunnel and reception shaft is a critical structure and will require testing in line with current hydrostatic testing procedures under Civil Engineering Specification for the Water Industry (CESWI) using as a minimum standard compliant final effluent from the existing Cambridge WWTP to prove integrity prior to being put into operation.

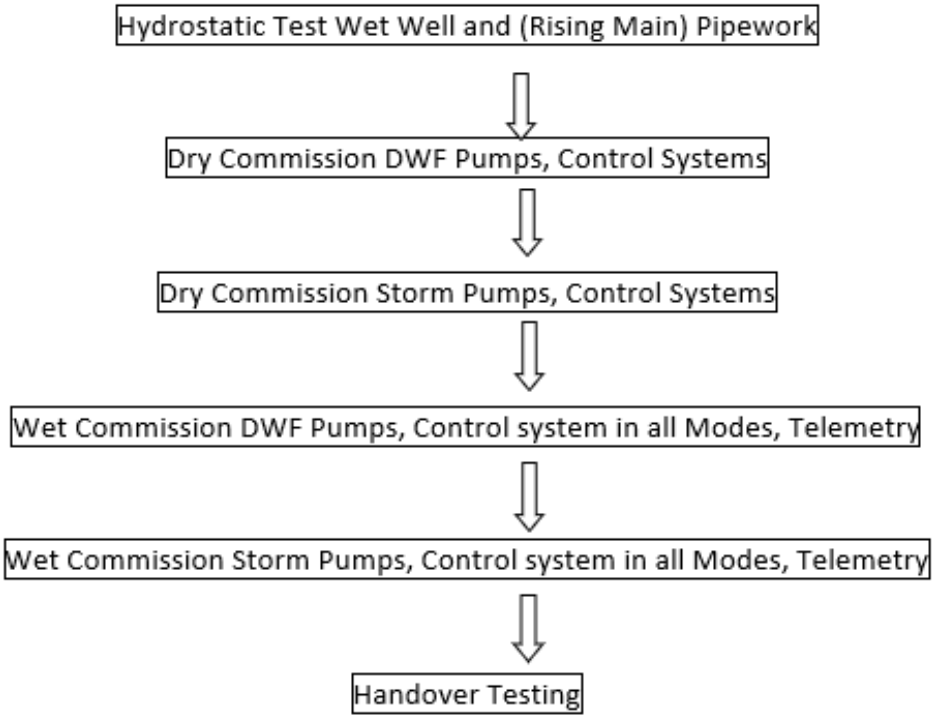

Figure 5.1: Inlet Works Area Process

5.3 Inlet Screenings, Screenings and Grit Handling Area

5.3.1 Once the existing Cambridge WWTP Final Effluent is available at the new works TPS wet well, either by utilising the TPS or over pumping using mobile pumping plant, the screens and screenings handling plant can be commissioned. Final Effluent will also be required in line with the supplier's recommended pressures and flowrates for washwater and screenings transport water.

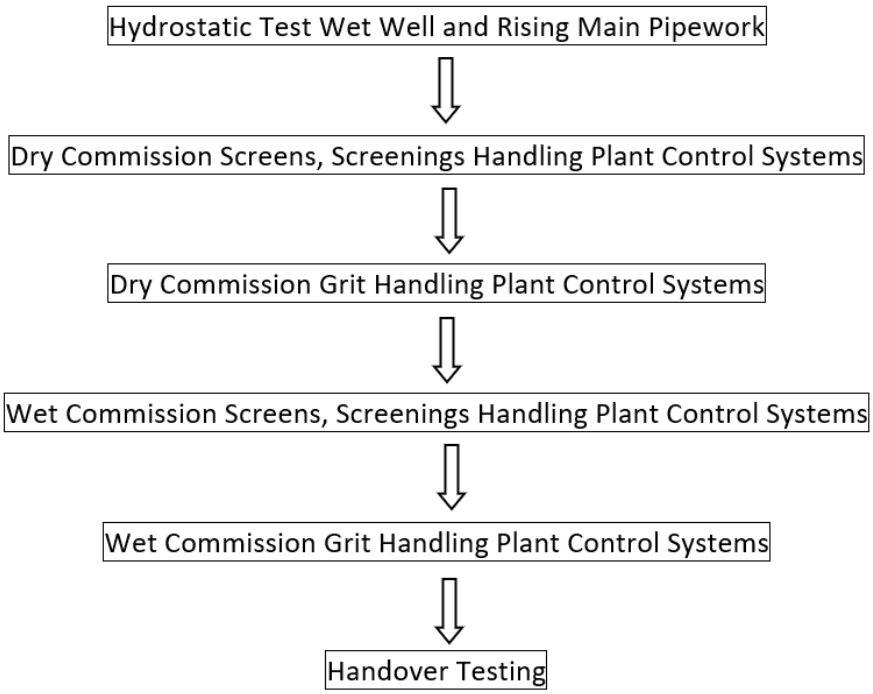

Figure 5.2: Inlet Screenings, Screenings and Grit Handling Area Process

5.4 Storm Area

5.4.1 Once the existing Cambridge WWTP Final Effluent is available at the new works TPS wet well either by utilising the TPS or over pumping using mobile pumping plant to the storm tanks.

5.4.2 Ideally a wet test spill to storm should be carried out when a sufficient volume of existing Cambridge WWTP Final Effluent is available, it is anticipated at this stage they will be generated by the Storm Pumping Station (PS) once wet commissioned.

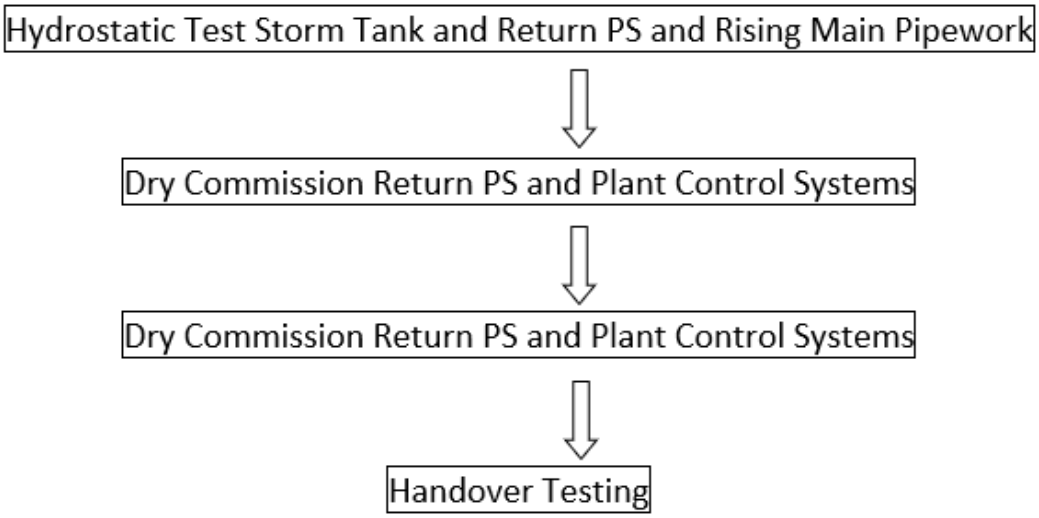

Figure 5.3: Storm Area Process

5.5 P Removal Dosing (Iron Salts) System

5.5.1 The bulk storage tank(s) will be initially hydrostatically tested with Potable Water (NOT Final Effluent) whilst the delivery system, from suction pipework through the dosing kiosk to the Point Of Application (POA) at the mixing chamber (T05010) will be pressure tested by the supplier and installer.

5.5.2 There are certain Anglian Water procedures under POSWASTE to follow, as a minimum Telemetry and the Emergency Shower shall be functioning prior to a chemical delivery. Based on current understanding in 2022, the Supplier will carry out a Pre-Delivery Site Inspection before chemical will be delivered.

5.5.3 This system will be tested and can be left in 'standby/locked off' until as such time it is needed allowing sufficient time (up to 3 months) for process optimisation to meet the Total P/Fe consent to be met.

5.5.4 The sequencing shall be as follows:

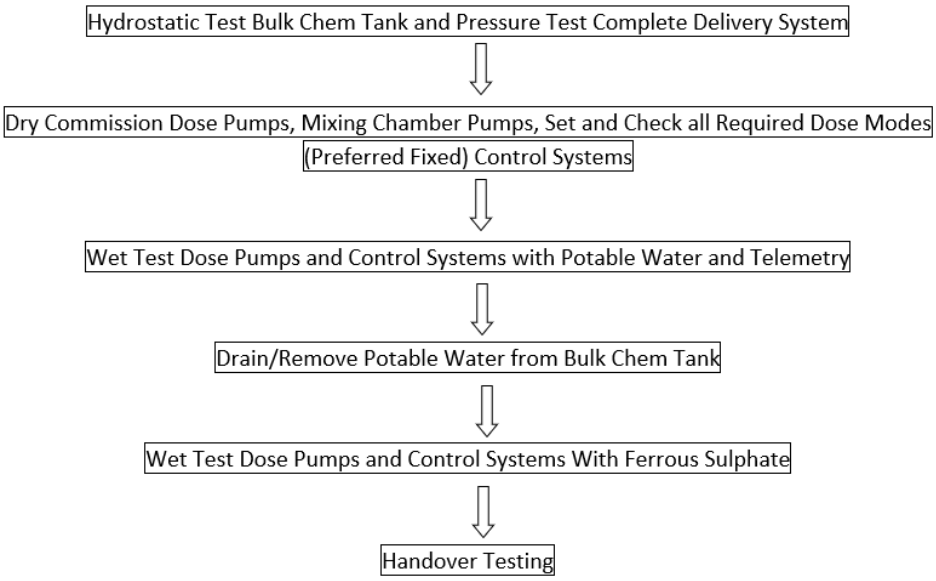

Figure 5.4: P Removal Dosing (Iron Salts) System Process

5.6 PST Distribution, 6 (PSTs) Rotation and Sludge and Scum Operation

5.6.1 6no. PSTs are fed from a distribution chamber; construction of the chamber and 6no. PSTs follow on sequentially dictating commissioning which will also follow on sequentially.

5.6.2 The existing Cambridge WWTP Final Effluent water will be fed through the distribution chamber to test then through to PST1, then PST2 etc. up to PST6. Water will be retained at a depth stipulated by the bridge scraper suppliers to keep the scraper units wetted to prevent unacceptable wear or damage and also wet commission the autodesludge systems – see section 5.7.

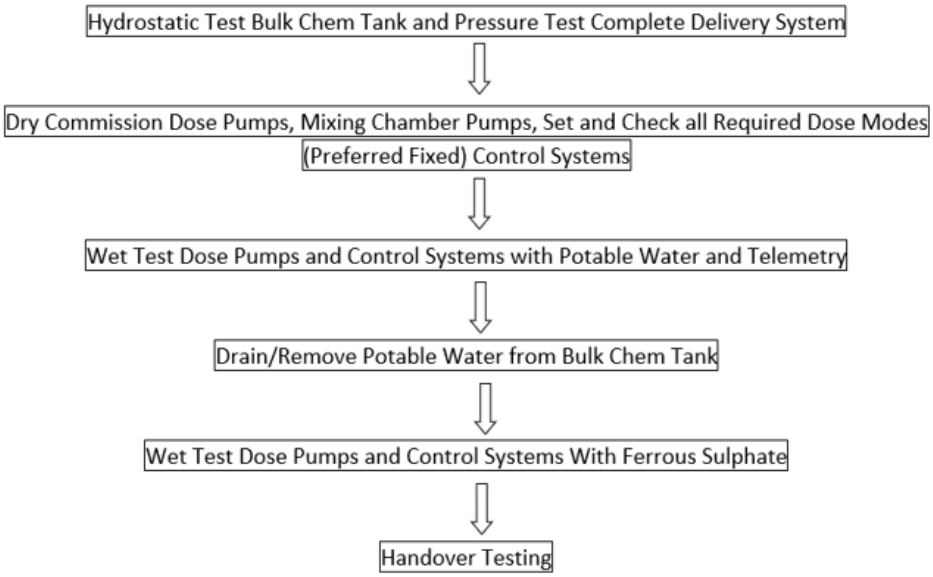

Figure 5.5: PST Distribution, PST's Rotation and Sludge and Scum Operation Process

5.7 PST Auto Desludge System and Sludge Storage Tanks

5.7.1 Following sequential wet commissioning of the PSTs the autodesludge systems on each tank can be sequentially dry and wet tested. The existing Cambridge WWTP Final Effluent will also be used to pressure test the sludge RMs prior to wet commissioning and also hydrostatically test the sludge storage tanks as the Final Effluent will be fed through during wet commissioning. Further Final Effluent can be added from the new TPS using existing Cambridge WWTP Final Effluent, if needed, to test the sludge tanks.

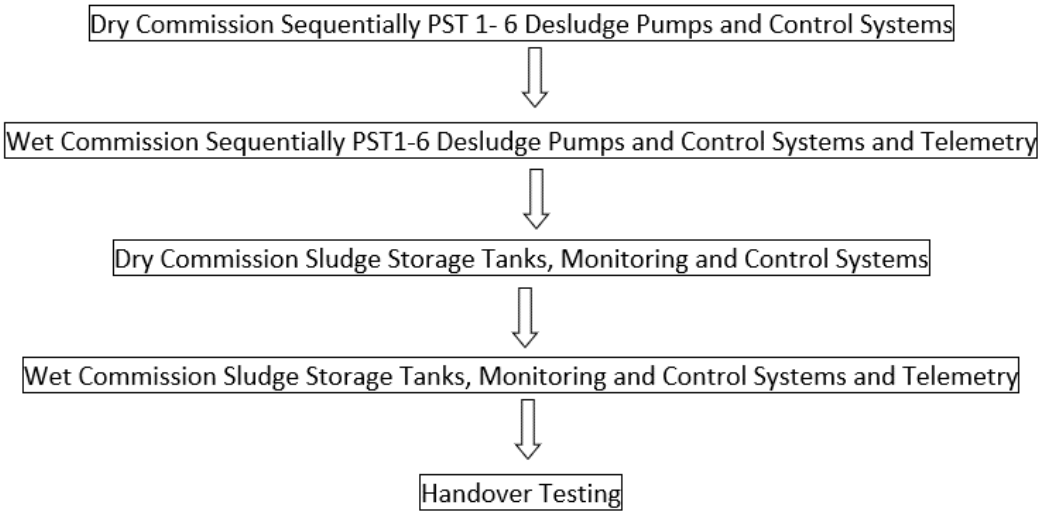

Figure 5.6: PST Auto Desludge System and Sludge Storage Tanks

5.8 MABR Lanes

5.8.1 Once Final Effluent is available at the proposed WWTP in the TPS wet well, either by utilising the TPS or over pumping using mobile pumping plant, the MABR lanes can be filled for pattern testing then process testing using secondary effluent from existing Cambridge WWTP to a depth specified by the supplier. The Final Effluent maybe brought in via the tunnel from existing Cambridge WWTP and/or by tanker. The tank should then be filled with secondary effluent to above the MABR 'grid' again in line with the Supplier's recommendations.

5.8.2 It will be necessary to complete the wet testing lane by lane until all lanes are operational and compliant.

5.8.3 Air pattern testing is needed to ensure that there is an even distribution of air across the MABR system in each lane, with no air blockages or dead spots.

5.8.4 Air should be supplied to the MABR 'grid' using the permanent blowers (if they and 3Phase 400V power available) or a temporary compressor and the air pattern observed from high-level.

5.8.5 Wet commissioning should be carried out in the following order:

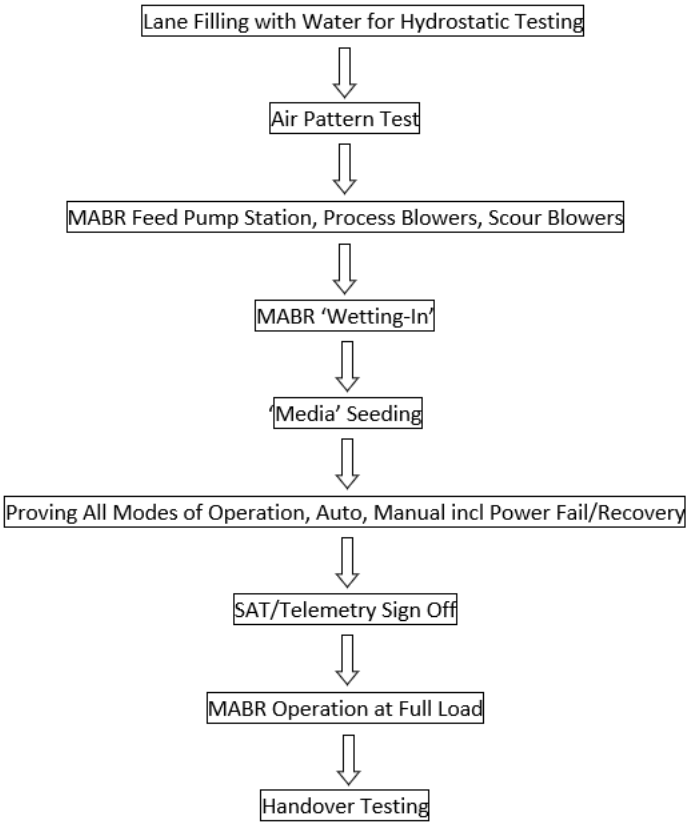

Figure 5.7: MABR Lanes Process

5.8.6 Air pattern testing is needed to ensure that there is an even distribution of air across the MABR system, with no air blockages or dead spots.

5.8.7 The lanes should be filled to a depth specified by the supplier, nominally 150mm above the air distribution system

5.8.8 Air should be supplied to the MABR 'grid' using the permanent blowers (if they and 3Ph 400V power available) or a temporary compressor and the air pattern observed from high-level.

MABR Lane Initial Filling with Water

5.8.9 The filling of each lane using existing Cambridge WWTP Final Effluent from the inlet TPS or mobile pumping plant shall be controlled to give a depth approaching the MABR air distribution system. This commissioning water will be sourced through the transfer tunnel and DWF TPS and whilst it is anticipated to flow hydraulically through the operational inlet and primary treatment areas, provision has been allowed for and costed within the commissioning costs for additional tankering, if necessary, to accelerate seeding of the MABR treatment process.

5.8.10 Each MABR Lane should then be filled with secondary effluent until a depth approx. 150mm coverage is achieved or as advised by the suppliers.

Commission the MABR, Process Air Blowers, Scour Air Blowers, system monitoring and control systems.

5.8.11 If not already done so, the Process Air Blowers, Scour Air Blowers, system monitoring and control systems including telemetry should be commissioned before starting to send flow to the MABR lanes.

5.8.12 Any and all interlocks to inhibit the MABR system if an out of operational parameters situation occurs should be in place and preferably hard tested or if not possible without being in process, then simulated.

'Media' Seeding

5.8.13 Commission the MABR dissolved oxygen (DO) and nitrogen, ammonia (NH3-N) instruments, commence manual sampling using the onsite laboratory and sampling team before seeding commences to give visibility of how the MABR is performing and to inform the decision on discharge of effluent.

5.8.14 At this stage it is desirable to feed the plant with as much flow/load as possible to provide it with the maximum ammonia load and enhance the seeding process. The ammonia and DO control modes can be commissioned during this phase then left disabled to optimise plant loading and biofilm growth.

5.8.15 In addition to on-line monitoring, twice weekly composite samples of MABR feed and discharge effluent will be taken during the seeding phase to monitor progress and assess the ammonia load that the plant is removing.

MABR Operation at Full Load

5.8.16 Following discussions with the MABR supplier the overall seeding stage is expected to be 8-12 weeks before the required level of nitrification is achieved, and handover testing can begin. This duration could be longer or shorter depending on weather and loading conditions.

5.9 MABR Lanes SAS/RAS Systems

5.9.1 The RAS and SAS systems shall be commissioned in line with the construction program as a whole using existing Cambridge WWTP Final Effluent from within the MABR lanes post wet commissioning, but ore seeding to allow pressure testing of pumps and pumping systems and also hydrostatically test the RAS and SAS tanks. This Final Effluent will also be utilised to wet commission downstream sludge handling thickening plant.

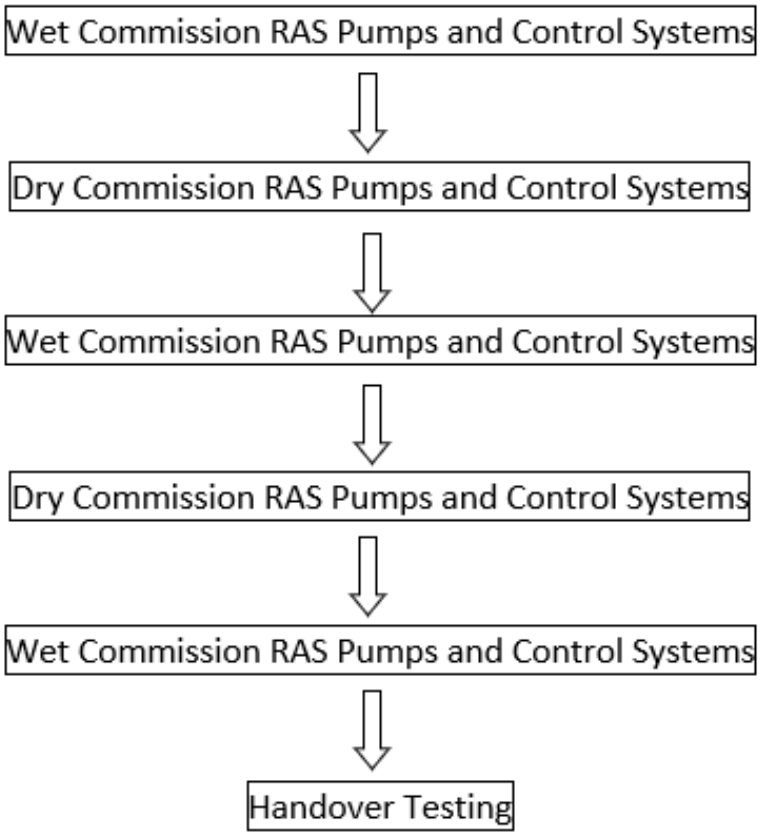

Figure 5.8: MABR Lanes SAS/RAS Systems Process

5.10 Interstage PS

5.10.1 This station lifts the flows between process, the testing waters will be supplied from upstream using existing Cambridge WWTP Final Effluent using portable pumping plant likely from the PST area.

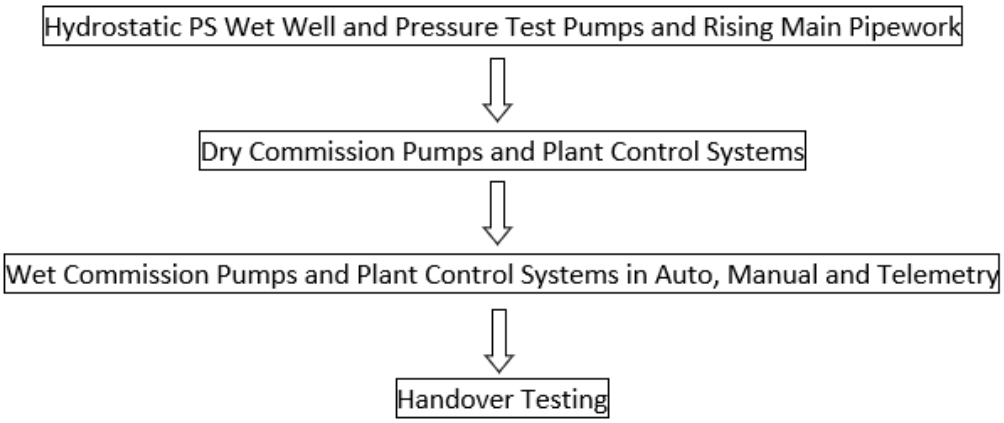

Figure 5.9: Interstage PS Process

5.11 Sludge Handling, Thickening Plant, Poly Make Up, Return Liquors, HPH Feed Pumps

5.11.1 Sludges will pass into a sludge blending tank from the PSTs, FSTs and MABR SAS systems. This sludge is fed through to be thickened prior to use in the HPH plant.

5.11.2 This is a large area to commission and will require sufficient commissioning resource, sludges, poly, potable, and Final Effluent commissioning waters plus on-site lab sampling resource. Pre-requisites will be identified in the Scheme Commissioning Plan and CPT for Commissioning Work Package and Durations to be developed during the detailed design stage.

5.11.3 Commissioning this area will require construction plus mechanical and electrical (M&E) to be complete with power and telemetry also available and will be required ahead of sludge production from the new works/imports.

5.11.4 The Poly make up plant will require existing Cambridge WWTP Final Effluent as well as potable water for part of the process. Depending on the construction program and availability of potable water from Cambridge Water Company, potable may be available on site or if not will be provided using suitably sized clean water tankers or bowsers.

5.11.5 It will be preferable to continue to operate the thickening plant preferable with sludge following wet commissioning on existing Cambridge WWTP Final Effluent to prevent the poly ‘going off’ within the poly make up and pumping plant requiring intervention unless flushed clear with potable water.

5.11.6 Handover testing requires sampling of dry solids (DS) and also thickener filtrate, this will be carried out using the on-site lab and sampling staff. Depending on construction and hence commissioning progress filtrate may require tankering back to the existing Cambridge WWTP Tanker Imports Area for processing.

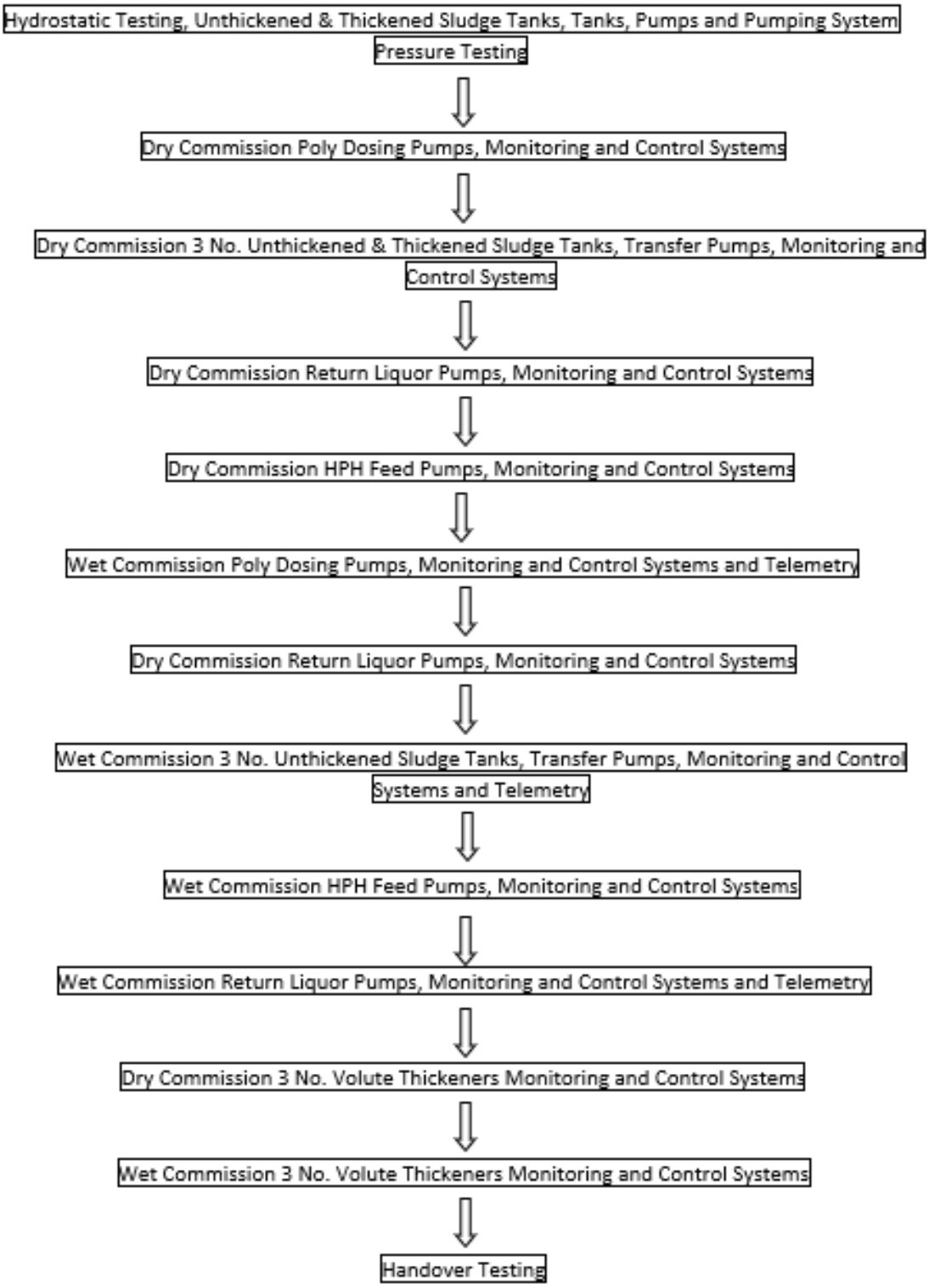

Figure 5.10: Sludge Handling, Thickening Plant, Poly Make Up, Return Liquors, HPH Feed Pumps Process

5.12 Pre-Heating Tank Area

5.12.1 Commissioning this area will require construction plus M&E to be complete with power and telemetry also available and will be required ahead of sludge production from the new works/imports. The Boiler or Heat Pump Package will also need to be complete and available.

5.12.2 This area feeds into the Pasteurisation system which will need to be complete to allow complete and full system commissioning, preferably once started then operation should continue from wet commissioning through to live operation.

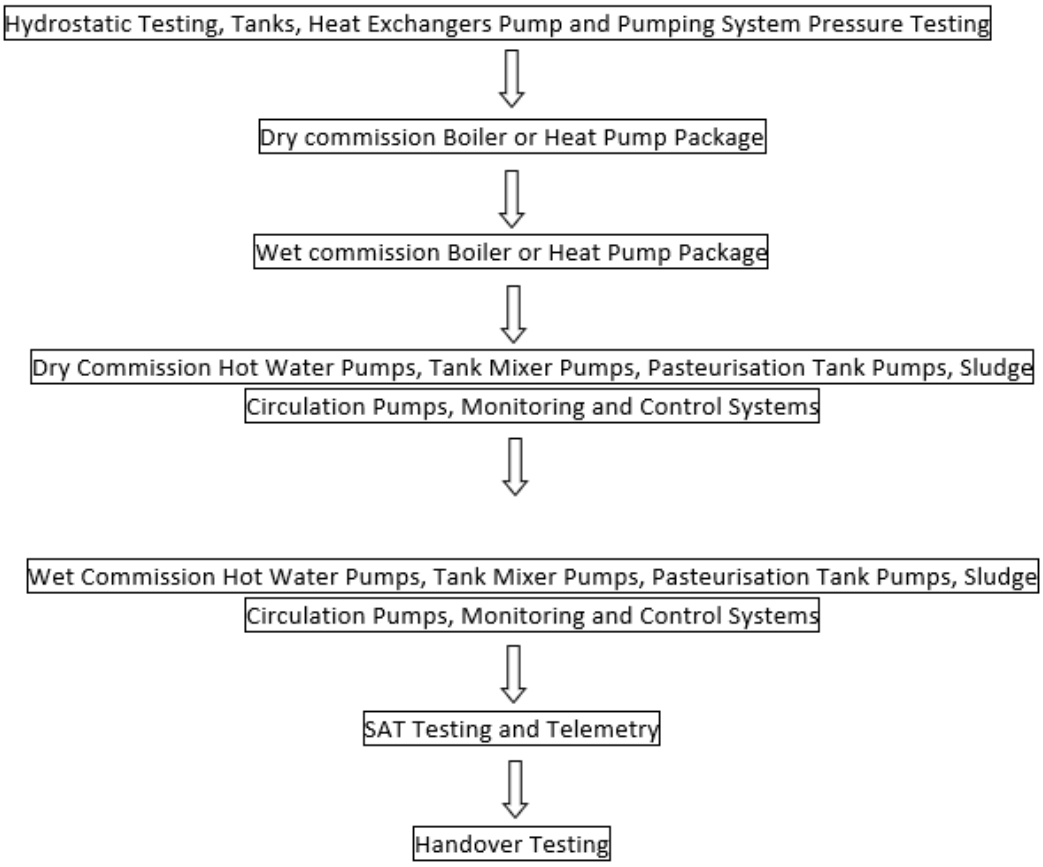

Figure 5.11: Pre-Heating Tank Area Process

5.13 HPH, Digester, Biogas, Cake Storage Area

5.13.1 Commissioning this area will require construction plus M&E to be complete with power and telemetry also available and will be required ahead of sludge production from the new works/imports.

5.13.2 Digestate will be brought in from the existing Cambridge WWTP Final Effluent to begin the digestion process within the 1st digester, the digestate will then provide the

digestate for digester 2 which in turn will provide digestate for digester 3 all based on quantity of sludge available.

5.13.3 It will be a commissioning pre-requisite that all systems associated upstream and downstream will be operational pending live operation and telemetry will be functional for monitoring plant condition and status both on and off site.

5.13.4 An Environmental Licence will be needed for this area to allow operation of the Flare Stack.

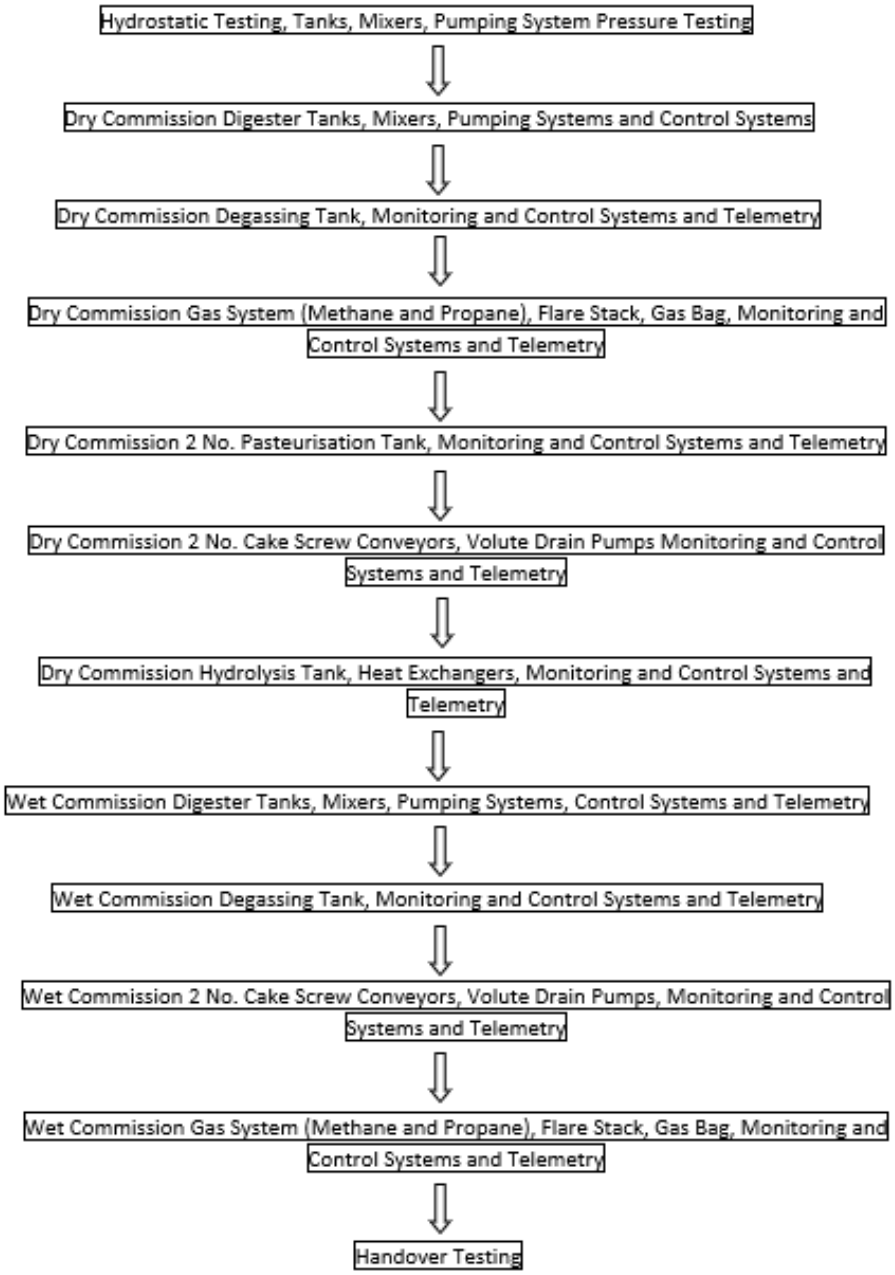

Figure 5.12: HPH, Digester, Biogas, Cake Storage Area Process

5.14 Odour Control Unit (Various)

5.14.1 There are several dedicated odour control units (OCUs) situated around the works to process malodorous atmospheres to be dry and wet commissioned as required for live operational plant i.e., Inlet Works, Sludge Handling Building. OCUs requiring occulent (active system) will require sufficient malodour from the process elements being treated to maintain the treatment culture. The dry and wet commissioning of the odour control units, both biological and scrubbers, is a key commissioning activity to ensure sufficient odour control is achieved at all times. Priority will be given to the full commissioning of each of these units in line with the possible production of malodorous atmospheres. Owing to the specialist requirements of this type of plant they will be commissioned by the supplier and full support will be given at all stages. Ongoing servicing and maintenance will also be allowed for during process optimisation prior to Handover to the client.

6 Handover Performance Sampling

6.1.1 All operational plant including the MABR equipment must be available and operating in automatic before handover testing commences. Handover testing will take place over a continuous 28-day period.

6.1.2 A fully equipped Laboratory will be provided on site with staff to undertake the routine optimisation sampling and also alongside formal Anglian Water Lab sampling for handover.

6.1.3 Proposed handover sampling is shown in Figure 6.1 below.

6.1.4 Pass criteria will be as defined in the delivery execution plan and as given in the Anglian Water standards for handovers.

PROJECT TITLE / DESCRIPTION:	Cambridge WTWRP CR00009			**Project Officer**	Andrew Hardy
CAPITAL CODE/COST CENTRE:				**Contact Details**	
START DATE:	XX/XX/2027	**SEND ROUTES TO:**		**AT:**	
END DATE:	XX/XX/2027	**BOTTLES REQUIRED:**	Y	**WEEKENDS INCLUDED?**	Y

Sample Point Code (S01/W01...)	Sampling Location Description	Reason Code (if not CB)	Enter Determinand Details by Name or Det Code				Suites of Analysis				Spot / Comp	Fast track FT/ XF	Total no. of samples	Frequency (One off Hourly / Daily / Weekly)	Does a route need to be allowed for
			Metals	Chemistry	Organics	Bacti	MIC with Taste	MIC no Taste	Full EC	GAC regen					
MABR Lane 1,2,3&4 Effluent	MABR Lane 1 Effluent		90385 Total P (mg/l) 74555 Fe Total (mg/l) 01803 Ortho P (mg/l)	00852 BOD (mg/l) 01351 TSS (mg/l) 01119 NH3 (mg/) 01621 Alkalinity Total							Spot		672	24 hourly spots samples per day	Yes
Final Effluent	FINAL EFFLUENT		90385 Total P (mg/l) 74555 Fe Total (mg/l) 01803 Ortho P (mg/l)	00852 BOD (mg/l) 01351 TSS (mg/l) 01119 NH3 (mg/) 01621 Alkalinity Total							Spot		672	24 hourly spots samples per day	Yes
MABR Lane 1,2,3&4	MABR Lane 1		90385 Total P (mg/l) 74555 Fe Total (mg/l) 01803 Ortho P (mg/l)	00852 BOD (mg/l) 01351 TSS (mg/l) 01119 NH3 (mg/) 01621 Alkalinity Total							Comp		28	28 days	
Final Effluent	FINAL EFFLUENT		90385 Total P (mg/l) 74555 Fe Total (mg/l) 01803 Ortho P (mg/l)	00852 BOD (mg/l) 01351 TSS (mg/l) 01119 NH3 (mg/) 01621 Alkalinity Total							Comp		28	28 days	

Figure 6.1: Proposed handover sampling

7 Commissioning Process Risks and Contingencies

7.1.1 Table 7-1 outlines the contingency measures to manage risks during the Commissioning Process.

7.1.2 Commissioning will also be undertaken in accordance with the Code of Construction Practice Parts A and B (Appendix 2.1 & 2.2, App Doc Refs 5.4.2.1, 5.4.2.2) a manner to manage risks to the environmental. Where required, during the detailed design stage specific measures may be developed in the detailed Commissioning Plan, such as measures to minimise potential odour impacts during the commissioning activities.

Table 7-1: Commissioning Process Risks and Contingencies

Risk	Contingency
Extended seeding timescales for the MABR Lanes	Wet Commission MABR Lanes during warmer summer months Secondary Effluent and/or Activated Sludge can be brought into to support seeding
Critical Plant Failure	Critical systems have duty / standby plant
Digester – potential non-compliant sludge production due to plant failure	Critical systems have duty / standby plant Re-process Digestate at correct temperature for required duration
Mains Power Fail on Critical Plant	On site generation and portable power generation to be utilised, MCCs to have generator sockets or to be hard wired into the Mains Incomer Sections

8 Commissioning Impact Plan Schedule

8.1.1 Currently it is foreseen that the following impact plans will be required (but not limited to):

- Discharge of compliant Commissioning Waters to the Licensed Discharge Point under a Temporary licence (likely flowrate, quality, and time limited);
- Consideration will be given to tie ins, e.g., Riverside Sewer;
- Discharge of compliant Final Effluent to the Licensed Discharge Point;
- Commissioning of HPH System;
- Commissioning of Boiler System; and
- Commissioning of Biogas System.

9 References

Design Requirements and Water Industry Mechanical and Electrical Specifications (WIMES). Available at: https://www.pumpcentre.com/SitePages/WIMES%20Docs.aspx

Get in touch

You can contact us by:

Emailing at **info@cwwtpr.com**

Calling our Freephone information line on **0808 196 1661**

Writing to us at **Freepost: CWWTPR**

You can view all our DCO application documents and updates on the application on The Planning Inspectorate website:

https://infrastructure.planninginspectorate.gov.uk/projects/eastern/cambridge-waste-water-treatment-plant-relocation/