

Activity brief

Council: Hutt Valley JV
Suburb(s): Seaview WWTP Catchment
Activity code: TBC
Activity name: Seaview WWTP Odour Treatment Renewal
Date: 23 May 2023

Document information

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1 Purpose of activity brief

The purpose of this activity brief is to define the outcomes for the Seaview Wastewater Treatment Plant (WWTP) Odour Treatment renewal and upgrade project.

The objective of this activity is to renew and upgrade the odour treatment equipment, as the existing configuration is no longer delivering compliance with the odour consent conditions for the site. The renewal and upgrade of odour extraction and treatment equipment must be able to achieve odour compliance over the expected 20-year life of the new equipment and provide a safe working environment for operators.

2 Activity definition

2.1 Activity approval

This activity brief is a result of repeated odour complaints in the vicinity of the Seaview WWTP, and condition assessments showing that work is required on the odour extraction and treatment system to achieve consent compliance and in some instances, to provide a safe working environment.

In March 2023, the Hutt Valley Services Committee, a joint committee of HCC and UHCC, requested that WWL report back to the community monthly and to the committee at future meetings on the progress of investigations for odour management at the site, indicating that resolving the odour issues is a critical project from a governance perspective.

The project has been included in Planned Renewals in the Capital Delivery Programme for Year 3 and Year 4.

2.2 Investment area

The investment portfolio element for this project is Wastewater Treatment Plants renewal. Currently approved investment planning for this activity is as described below:



- The Adopted LTP-21 includes:
 - Allowances for *Seaview odour treatment upgrades*, as:
 - \$100K in Year 4 (FY25)
 - \$5.9M in Years 9 thru 11 (FY30 thru FY32).
 - *Aside*: an allowance for air discharge consent renewal in Years 14 & 15 (FY35 & FY36)
- The Capital Delivery Programme (CDP, ref. LTP-21 years) includes:
 - Approved Years 2 & 3:
VS0014 *HCC JV WWTP PLANNED Renewals*, 4.4M
 - Draft Years 3 & 4 (pending all of Councils' approval, *imminent*):
Seaview WWTP Odour Control Modification/Upgrade, \$400K.

It is notable that current financial planning has revised the priority of activity under this specific scheme of work, and so brings forward the fall of cost for this and other planned upgrades at the Seaview WWTP and has also increased the expected scale of work based on new understanding. This is reflected in the "Second Cut" submission of the Unconstrained 30-Year Plan for the NTU (March '23), which included around \$15M in the first three years (i.e. FY25-on) for this scheme.

2.3 Customer outcomes and service goals

The primary and secondary customer outcomes and service goals linked to this activity are shown in the table below.

Table 1: Customer outcomes and service goals

Primary customer outcome		Outcome 2: Respectful of the environment
Primary goal		2.4 We ensure the impact of water services is for the good of the natural and build environment
Secondary customer outcome		Outcome 1: Safe and healthy water
Secondary goal		1.2 We operate and manage assets that are safe for our suppliers, people and customers

2.4 Service objectives and performance measures

The primary and secondary service goal objectives and performance measures are shown in the table below.

Table 2: Service objectives and performance measures

Primary service objective	Water services are managed to comply with consents
Primary performance measure	Full compliance with the odour-related consent conditions for the Seaview WWTP – WGN950162 (01).
Secondary service objective	Water services are delivered in a way that is safe for our suppliers, people and customers
Secondary performance measure	The odour treatment system at the Seaview WWTP shall be fit for purpose and provide a safe working environment to meet new standards around H ₂ S.

2.5 Service goal risk score

This activity has a primary service goal risk score of 25 out of 25.

The service goal risk score is worked out by probability x consequences.

The table below shows the probability and consequences rating currently.

Table 3: Probability and consequences rating - current

Score Component	Current Risk Score Rating (1-5)	Residual Risk Score Rating (1-5)	Comments
Probability	5	1	Greater Wellington Regional Council is investigating odour complaints relating to the site, and have issued an Abatement Notice (June 2021), followed by an Infringement Notice as a result of non-compliance with the Abatement Notice (April 2023). Investigations have shown that odour equipment requires remediation. WWL is obliged to ensure safe working conditions in terms of air quality for employees.
Consequences	5	5	Failure of the odour system will lead to non-compliance and ultimately prosecution, as well as potentially un-safe working conditions.
Inherent Risk Score	25	5	This brief will address the currently identified odour issues with a solution that should reliably achieve odour consent compliance for the next 20 years.

3 Activity description

3.1 Why is this activity needed?

A well-functioning odour extraction and treatment system is critical in achieving compliance with the odour consent for the Seaview WWTP. The WWTP site is located within a light industrial area in Lower Hutt, and operates with the same odour treatment system that was installed at commissioning in 2001. Odour complaints received have escalated in the period 2021-2023, leading to an odour investigation in April 2023.

The investigation identified components of the odour treatment system that require remediation, replacement, or upgrade to ensure the WWTP can meet its odour consent. Operational decisions have been made recently (to increase odour extraction rates with existing equipment) that mean there is no standby or spare capacity in the odour system.

An odour survey undertaken as part of the odour investigation identified other industrial odour sources outside of the WWTP site that may be contributing to odour complaints in the general area. There is no fixed odour / gas monitoring or weather monitoring equipment to support reporting of odour complaints.

Veolia have also undertaken an asset condition assessment of odour components and identified remediation or replacement is required.

Given the escalating nature of the odour complaints, resolving the site's odour compliance is of specific concern to the Hutt Valley Joint Venture Committee.

In some areas of the WWTP, improved odour extraction and treatment is required to provide a safe working environment, while also supporting odour consent compliance.

3.2 What are the problems?

Table 4 lists the odour treatment issues identified at the Seaview WWTP to date.

Table 4: Known Odour Issues

Area	Issue	Comment
Inlet Works Building	When milliscreen covers are off for maintenance or cleaning, milliscreen building air quality does not meet new H ₂ S standards.	Consider appropriate level of building ventilation with localised treatment before discharge to air.
Grit Bin	No cover on sludge handling grit bin, may be a source of fugitive emissions.	Veolia to provide permanent cover on grit bin or plastic bag arrangement under site management requirements.
Screenings Bin	Uncovered, source of odour.	Veolia to resolve covering & extraction.
Existing Odour Ducting	Condition of joints of concern. Reports indicate some ducting may potentially be blocked (due to degree of deterioration?)	Veolia to repair identified leaks.
Existing Odour Ducting	Ducting condition to be reviewed to determine remaining life.	Consider refurbishment or replacement of ducting.
PST Headspace Extraction	Handrail deterioration above PST indicates that cover seals may be in poor condition.	Veolia to refurbish PST cover seals to reduce fugitive emissions and optimise extraction of odour air from PST headspace. Project team to advise if issues in this area are not resolved once repairs completed
Odour Fans	Leaking seals observed. Fans operating at full capacity.	Consider installation of suitably sized fans to provide adequate levels of odour extraction from existing and any new odour sources if original duty are flow rates are no longer considered adequate.
Biofilter	H ₂ S measured above biofilter surface. Short circuiting air flow observed around biofilter walls.	Veolia to undertake replacement of biofilter media as maintenance. Project team to consider condition and suitability of plenum, and potential

	<p>Surface of biofilter covered in plant growth.</p> <p>Media deteriorated.</p> <p>Damage to plenum.</p> <p>Potential accumulation of solids in plenum.</p>	<p>accumulation of fatty solid material in plenum acting as odour source.</p> <p>Consider short-circuiting and whether baffles are present inside biofilter.</p> <p>Consider suitability of current biofilter size & odour treatment redundancy, and provision of online instrumentation for improved monitoring & control (moisture & pH).</p> <p>Consider provision of alternative odour treatment technology, given temperature variation experienced within the biofilter when dryer is on/off.</p>
Storm Tank (when emptying)	<p>Settled solids in storm tank are a source of odour when emptying lower levels.</p>	<p>Consider installation of stirring equipment to maintain odourous sludge in suspension when emptying, or flushing and return to return liquors, or similar solution.</p> <p>Define if it will make an appreciable difference to odour at the site.</p>
Odour System Instrumentation	<p>Biofilter back pressure monitoring installed.</p> <p>Biofilter moisture, air flow and temperature monitoring not installed or operational.</p>	<p>Consider installation of modern odour treatment system process monitoring equipment to ensure improved odour extraction & treatment monitoring, reduce operator input.</p>
Dryer building	<p>Dryer building vents to atmosphere (roof mounted fans). Fugitive emissions in dryer building from strong odour sources such as sludge bins and dryer itself.</p>	<p>Consider installation of localised treatment (i.e. carbon filter) on air extracted from dryer building. Solution should consider finite life of existing dryer building.</p>
Odour monitoring (permanent)	<p>No permanent odour monitoring equipment on boundary.</p>	<p>Consider installation of gas monitoring equipment and weather monitoring station on site boundary to support odour management (particularly of complaints).</p>
Solids Treatment & Storage Tanks/Silos	<p>Some leaks observed, around tank joints/seals.</p>	<p>Resolve fugitive emissions from solids handling equipment, identify whether equipment needs refurbishment of seals or replacement if degradation indicates it's required.</p> <p>May be undertaken as normal maintenance by Veolia.</p>
'Water Trap' Backup Odour Air Release System	<p>Strong odour observed in polymer makeup room - hypothetically from odour air being released to floor drainage</p>	<p>Consider whether secondary odour air system is appropriate (with respect to installed standby odour fan capacity)</p>

	system (as designed) due to high biofilter pressure currently.	and remove odour air connection to water drains as appropriate.
Operator Health & Safety	Odour extraction rates from existing equipment and buildings must meet new Health & Safety workplace exposure standards (i.e. new H ₂ S limits).	Ensure forced (not passive) odour extraction rates from areas that operators regularly access are adequate to provide a safe working environment. E.g. centrifuge room.

3.3 Past investigations & reports

The following investigations and reports have been prepared for the odour treatment system at Seaview WWTP:

- STNZ 2021 – This report identified a number of system and equipment changes that could be made to optimise odour performance of the existing equipment. Veolia subsequently carried out the ‘easy wins’. Air flow monitoring was undertaken to determine air extraction rates from equipment. Refer to Appendix B for further information.
- STNZ 2023 – This report was undertaken to follow up on the 2021 report and identify if the physical works had resulted in an appreciable improvement in the surrounding area. A number of areas where fugitive emissions were occurring were identified; a major recommendation was the replacement of biofilter media. Refer to Appendix B for further information.
- Air Quality 2023 – An odour survey over eight days was undertaken in the vicinity of the WWTP to identify and report on odour. This report also measured H₂S and identified places around the WWTP site where fugitive emissions were observed, and provided commentary on how to resolve the issues. Again, the report indicates the highest priority is biofilter media replacement – but also presents a list in order of priority to resolve the odour complaints. Refer to Appendix C for further information.
- Veolia May 2023 - Asset condition assessment report is due in May 2023. Verbal advice of their asset condition assessment are in line with the findings of the STNZ & Air Quality reports.

3.4 Location

The Seaview WWTP is located at Waterman Street, Seaview.

Photos of the odour control system assets are found in the investigation reports supporting this activity brief.

3.4.1 Location map

Figure 1 shows the location of the odour boundary at Seaview WWTP.

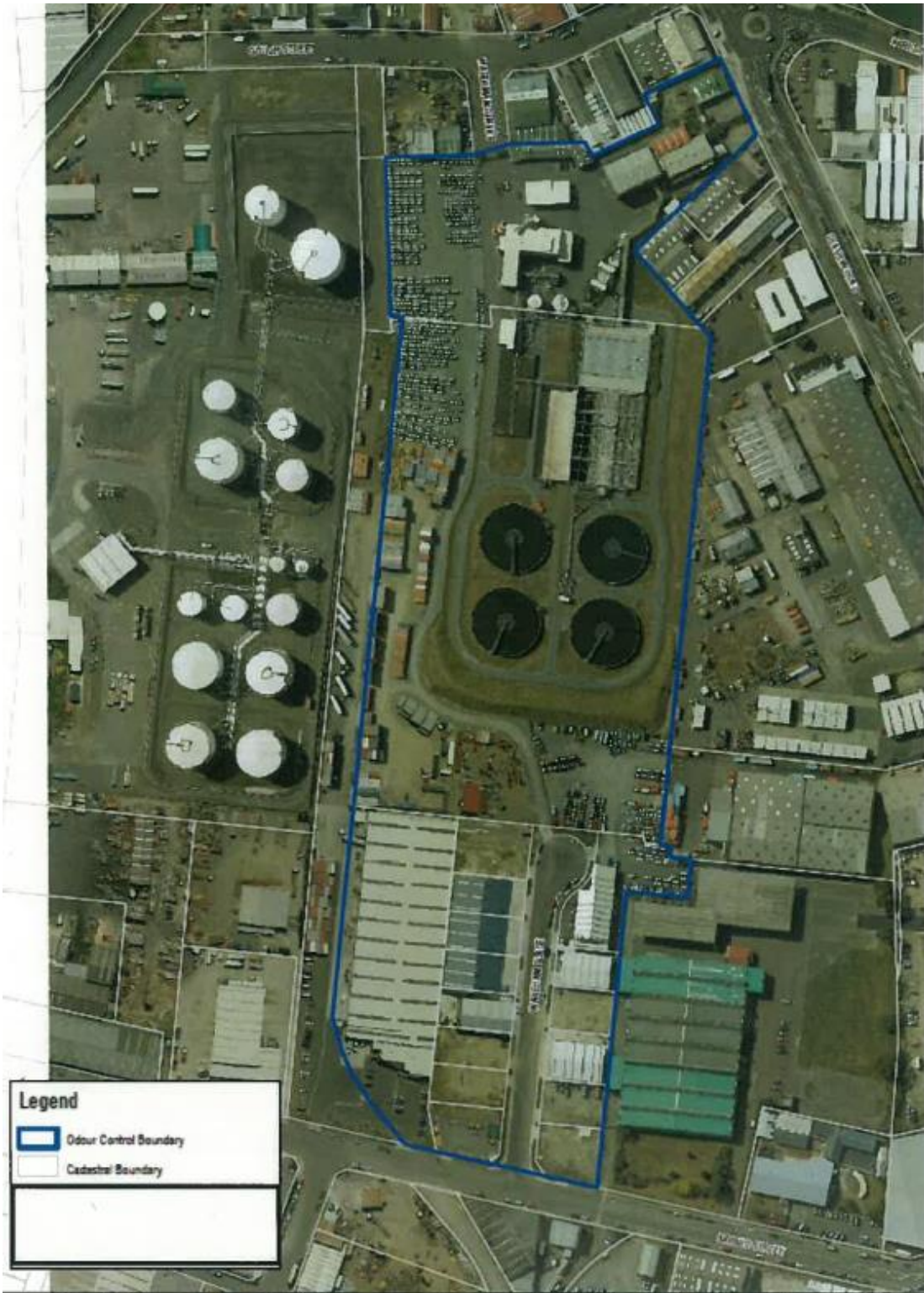


Figure 1: Seaview WWTP

3.5 Activity objective

The objective of this activity is to:

- Refurbish, replace components, or upgrade the odour treatment equipment at Seaview WWTP with an efficient system that is capable of reliably and consistently achieving the current resource consent odour conditions.
- Provide a solution that also delivers a safe working environment for operators, to meet Worksafe’s proposed new Workplace Exposure Standards for Hydrogen Sulphide: WES-TWA¹ of 1ppm and WES-STEL 5ppm in the year 2023.

3.6 Performance requirements and design criteria

3.6.1 Performance requirements

Assets refurbished or replaced as part of this activity brief must be capable of *reliably* meeting the relevant resource consent requirements, for their asset life.

3.6.2 Equipment requirements

The minimum asset life for various equipment types is defined in Table 5.

Table 5: Expected Asset Life

Asset Type	Expected Asset Life
Civil	50 years
Mechanical	20 years
Electrical	15 years
Instrumentation & Controls	7 years
Biofilter Media	4 years

Given the need to reliably meet resource consent conditions (avoiding asset failure as a cause of non-compliance), redundancy shall be considered as part of designing the solutions for this project. As relevant to each component of the odour system, the consultant shall review and propose a level of redundancy. The consultant shall define whether redundancy is achieved via critical spares or the number of installed units. WWL stakeholders shall then review and approve the level of equipment redundancy to be achieved.

3.6.3 Consent compliance requirements

The pertinent odour compliance criteria and sampling methodology that the odour system must achieve are summarised below:

¹ WES-TWA: Workplace Exposure Standards – Time Weighted Average
WES-STEL: Workplace Exposure Standard – Short Term Exposure Limit
For more information, refer to document: Workplace Exposure Standards and Biological Exposure Indices, Worksafe, April 2022, Edition 13, OR latest published version.

“On completion of commissioning, there shall be no discharges to air that are noxious, dangerous, offensive or objectionable at or beyond the boundary of the property. These discharges include odour and dust.”

Resource consent WGN950162 (01) stipulates the odour compliance the site must achieve. Refer to the resource consent (Appendix A), for complete understanding of the compliance criteria that the plant must achieve.

3.6.4 Other performance requirements

The selected equipment shall reflect Wellington Water’s responsibility to its client to minimise operating costs while optimising treatment plant performance. Operating costs include electricity, consumables (media, chemicals, carbon filters), and operator attendance.

The proposed equipment shall be supported by the supplier for the defined asset life.

New equipment must be integrated into the plant’s control system.

The components shall be resistant to corrosion for the environment into which they are installed, and/or modifications made to engineer an environment that is able to achieve the design life of the system components.

Capital and operating carbon are also important design considerations for WWL and shall be duly considered during the design development.

The physical works must be programmed in a way that the WWTP can maintain at least the design level of odour extraction and treatment during construction, or as agreed with Greater Wellington Regional Council.

3.6.5 Codes, Specifications and Relevant Documents

The project shall be undertaken in accordance with all relevant WWL codes, specifications and other standard documents. The performance requirements and design criteria should include, but are not limited to the following documents listed below:

- Current resource consents for the WWTP
- Wellington Water H&S Standards and Procedures (or Veolia equivalent)
- Wellington Water Regional Standard for Water Services
- Wellington Water Regional Specification for Water Services
- Wellington Water As-built Specification for Water Services
- Wellington Water Draughting Manual for Water Services
- Wellington Water Electrical Specifications Parts 1 through 4
- Any by-laws or requirements specified by the relevant Council
- NZ Standards and Legislation relating to the scope of work, in particular:
 - NZS 3106: 2009 Design of concrete structures for the storage of liquids
 - Hazardous Substances Regulations 2017 (HSNO)
 - The Building Act 2004

4 Scope of work

The overall scope of work is the optioneering, concept design, detailed design, tendering, construction, commissioning, asset testing, and hand over of an odour system capable of complying with the resource consent at Seaview WWTP.

4.1 Project Delivery

Delivery of this project is in accordance with the Programme Management Delivery Model. The key steps for successful delivery of this project include (at minimum):

General

- Co-operation with the site operations team (Veolia) and integration of new facilities into an operating plant with minimal disruption, while maintaining consent compliance as far as practicable during construction/commissioning works.
- Project Management and associated tasks including monthly progress reports.
- All documentation to be uploaded to the Woogoo Project Site and filed correctly.
- Develop a detailed stakeholder engagement and communications plan to keep both internal and external stakeholders engaged and informed of the project's progress.
- Cooperation with the nominated Resource Consent advisor (to be advised).
- Deliver the project in accordance with the Programme Management Delivery Model, as relevant. This should include but not be limited to management of design, procurement, construction, commissioning, performance testing and operational support throughout.
- Contribution to monthly Seaview WWTP Programme meeting (for all consultants and contractors working on the site).

Phase 1 DEFINE

Investigation completed, identifying the need for the project defined in this Activity Brief.

HOLD POINT: NET to initiate Project and pass to Project Delivery.

Phase 2 PLAN

The Project Management Plan must reflect the urgency to resolve the current odour issues, and include a suitable allowance for communication with the Regulatory Authority regarding the resolution of the odour infringements.

HOLD POINT: Approval of Project Management Plan, including review by NMG/NET to ensure it is consistent with latest regulatory position.

Phase 3 CONCEPT DESIGN

In addition to the scope of work required by the Delivery Framework, this phase shall include:

- Proceed (via Phase 4 & 5) with short-term mitigation measure of expedited design and purchasing of immediate odour control solutions for zones where odorous air is extracted but un-treated (dryer & milliscreen building). A proposed solution is a carbon filter to be 'bolted on' to the existing extraction system. Alternative solutions can be considered by the project team.

- Review and identification of solutions to achieve compliance with new Workplace Exposure Standards (2023).
- Assessment of usefulness and efficacy of odour masking systems currently in use.
- Consider suitability & reliability of biofilter technology to treat odour and meet resource consent; where air streams treated in the biofilter consist of the 'base' and 'variable' sources. The variable air flow is the dryer air, and the base, or constant, air flow is all other air streams treated in the biofilter currently.
- Assessment of the odour control system backpressure release to water traps and underfloor drainage systems.
- Conduct options workshop with agreed assessment criteria. Options workshop shall utilise layout plans, and PFDs to demonstrate treatment solutions.
- Prepare a Concept design report compiling the Optioneering phase outcomes and recommendations.
- Liaise with regulatory authority as required by NMG Regional WWTP Contract Management team.
- Develop Level 3 CAPEX cost estimate as per the cost estimation manual, and develop OPEX cost estimate.

HOLD POINT: Provide Basis of Design Report for Wellington Water internal stakeholders to review and provide approval to proceed beyond Gateway 3.

Phase 4 DETAILED DESIGN

In addition to the scope of work required by the Delivery Framework, this phase shall include:

- Carry out design to a level appropriate for the preferred procurement approach for the preferred options and undertake design reviews with internal Wellington Water stakeholders. Detailed design should include all aspects of process, civil, structural, mechanical, electrical, instrumentation and controls design.
- Undertake Safety in Design (SiD) Review and ensure consideration of construction phasing and maintenance requirements are factored into the design along with other considerations noted in Section 3 of this Activity Brief.
- Provide updated CAPEX cost assessment as per the cost estimation manual, and updated OPEX assessment.
- Define necessary inputs to manage any temporary consent application requirements (WWL managed).
- Complete all requirements as part of Gateway 4 including design report.
- Prepare tender documents including specifications, schedules, data sheets, communications plan, and consent compliance plan.

HOLD POINT: Confirm funding allocated for construction and obtain approval from Wellington Water that the design meets the current required performance measures and to proceed beyond Gateway 4.

Phase 5 PROCURE

In addition to the scope of work required by the Delivery Framework, this phase shall include:

- As required by the project programming, managing the tendering process via Wellington Water procurement processes; noting that equipment supply and installation tenders may be separate (due to expediting equipment order) or combined, and phases 5-7 may be

repeated for different parts of the project at different times according to funding availability or as the project knowledge progresses.

HOLD POINT: Confirm preferred tenderer and seek approval from Wellington Water to proceed beyond Gateway 5.

Phase 6 CONSTRUCT & COMMISSION

Construction, contract management, construction monitoring, commissioning, and asset proving of the solids handling upgrade in accordance with the gateway process and with consideration of the following items:

- Operator involvement during preparation of the Construction Management Plan, Commissioning Plan, commissioning and suitable operator training.
- Operations and Maintenance Manual submission to WWL/Veolia. Ensure appropriate training for operations staff around any process changes and modify/generate SOP (in specified format) for operating the system.
- Consideration with the timeline of any other construction projects on the site to avoid conflict during construction and additional risks.
- Liaison with Veolia to ensure health and safety requirements plus environmental management plans are being met, and to minimise the risks/impacts of construction on the ongoing operation of the WWTP.
- As-built documentation. Ensure P&IDs, FDS's, and site As-Builts are updated as part of the commissioning requirements.
- Ensure new equipment has been commissioned acceptably and is operating reliably to start performance proving period.
- Successfully complete performance proving period to ensure the odour control system meets operational and performance requirements set by Wellington internal stakeholders and that of the contracted operator, Veolia.

HOLD POINT: Demonstrate commissioning is complete, and performance proving period has met the required performance measures. Seek approval from Wellington Water internal Stakeholders plus Veolia (as operator) to move beyond Gateway 6.

Phase 7 COMPLETE

Complete all requirements of Gateway 6 to proceed into Defects Liability Period and close out project.

4.2 Key activities out of scope

The following activities are out of the scope of this Activity Brief:

- The odour treatment for the new sludge drying facility will be designed by the sludge drying project; however, the current sludge drying facility must be upgraded where practicable to support odour consent compliance until the new dryer project is commissioned.
- Change to the primary odour treatment technology being a bark bed biofilter, unless the project demonstrates an alternative will achieve improved compliance reliability.
- Consent condition changes with Greater Wellington Regional Council.

- ‘Maintenance’ repairs, as indicated in the Investigation Reports supporting this brief, as they will be undertaken by Veolia. For example, this includes replacement of seals and replacement of biofilter media. At the outset of the project, a meeting shall be held between the project team, Veolia and a Regional Contract representative to clearly identify which maintenance/repair works have or will be been undertaken by Veolia, and the degree of success achieved with those works. Any issues remaining in these areas must be defined by the project team.

Note – This Consultant is responsible for capturing any additional out-of-scope elements that are identified during the project and ensuring they are brought to the attention of the appropriate parties within Wellington Water.

4.3 Key dates

The Project Management Plan shall outline key dates for the project, and be agreed with Stakeholders in line with odour compliance requirements.

4.4 Deliverables

As part of the scope, a list of deliverables is required to be developed by the project team and submitted to Wellington Water for approval. As a guide, a list of deliverables is provided below for consideration for inclusion by the Project Team (but should not be limited to this):

4.4.1 Update existing documents:

- Site Operating Guide
- Site Hazard Register
- Process Flow Diagram
- Site P&IDs
- Site Functional Description – modify existing and create new sections as appropriate
- Site Plan
- Site Buried Services Plan and/or Hazardous Area Plan
- Environmental Aspects and Impacts Register
- Emergency Response Plan

4.4.2 Provide documentation for new plant:

- Operations & Maintenance Manuals (including Standard Operating Procedures) and indexed by plant / tag numbers / asset IDs etc. Hard copies to also be provided (loose leaf in binders).
- Functional Description
- Safety in Design Documentation
- HAZOP Documentation
- Hazardous Area Assessment and Dossier
- Basis of Design Report
- Final Design Report
- Equipment Information Sheets
- Lifting Plans
- Asset data schedule (for Veolia’s Asset Management System)

- Any relevant GIS files or information
- MSDS
- Electrical Code of Compliance Certificate
- Commissioning Plan
- Commissioning Results
- Asset Release to Service Forms
- Instrument Calibration Sheets
- SCADA Mimic Screens
- Capitalisation Information
- Consenting Info
- Preventative Maintenance and Renewal Schedule/s
- Critical Spares List
- Compliance Reports
- Training Schedule
- Warranties
- Operations Acceptance of Construction Works Form

4.4.3 **As Built Drawings include:**

- P&IDs
- General arrangement drawings
- Civil drawings
- Structural drawings including reinforcing details.
- Mechanical drawings
- Electrical Single Line Diagrams
- Electrical Cable Block Diagrams
- Control Schematics
- Cable loop diagrams

4.4.4 **Other items:**

- QR Coding and Integration into Veolia's Asset Management System.
- Adequate training delivered for Operators including training materials and recorded training session for future operators to refer to.

5 Significant risks

The known significant health and safety hazards and issues, as preliminarily identified in this section, are subject to the following conditions:

- The SID H&S risk assessment is a living document.
- The H&S risk assessment shall be updated throughout a project, by the project team.
- The current SID H&S risk assessment will be stored in the project's Woogle site.

5.1 Health and safety

The consultant shall be responsible for preparing a design health and safety risk assessment, and maintaining it for the life of the project.

The known significant health and safety hazards and issues, as identified in the assessment are:

- Contact with odorous air.
- Operating wastewater treatment plant – contact with biological hazards in the form of solids, liquids and aerosols.
- Confined spaces containing wastewater, with the potential for inundation or H₂S and CH₄ off-gassing.
- Interactions with existing live services, in particular electrical services.
- Working close to or over water and liquid vessels.
- Working at height, such as on the tops of tanks or near first-floor openings.
- Working adjacent to noisy, automatic, and/or remotely operated equipment, including those with deafening, crushing, cutting, or entanglement risks.
- Falling objects or machinery during the construction phase of the project.

Note:

- A SID H&S risk assessment is required to be developed by the project team and updated throughout.
- The Risk Assessment is a live document and must be reviewed and updated at key stages of the project (refer to Wellington Water Safety in Design process) and copies of the updated register provided to Wellington Water's project manager.
- The known significant health and safety hazards and issues, currently identified at the WWTP will be provided by Veolia as part of the project initiation phase.

5.2 Environmental risks

The initial environmental risks identified are:

- Impacts from failure to maintain odour treatment performance during construction.
- Loss of synthetic construction materials, such as packing wrapping or PVC offcuts, to the environment.

A detailed risk register will be created and maintained by the project team.

5.3 Project risks

A detailed risk register will be created and maintained by the project team. The initial project risks identified are:

- Increased risk of odour treatment non-compliance during construction.
- Maintaining compliance while new equipment is being replaced.
- Seismic performance of existing structures.
- Corrosive conditions / atmospheres.
- Uncertainty around project funding being adequate for project.
- Changes in growth profile.
- Climate change affecting WWTP site.
- Development encroachment affecting odour sensitivity.

6 Considerations

6.1 Design considerations

General design considerations include:

- The Seaview WWTP is an operational site at which work must not result in further consent non-compliance. Construction and commissioning of the work should be implemented with minimum operational disturbance to the existing site and without impacting the compliance. The ability to continue to manage odour at the site during installation works must be carefully considered by the supplier/contractor.
- Undertake the work with respect to any relevant regulatory requirements.
- Reduction of manual handling and operator input.
- Consideration of other associated assets.
- Consideration of the whole of life costs in the options assessment of the long-term solutions and reducing carbon footprint where possible.
- Designs and works must comply with the requirements of any environmental protection and/or Resource Management requirements in place at the site.
- Wellington Water H&S Standards. All contractors are required to be approved Wellington Water Contractors.
- Facilitate Safety in Design (SiD) and Project Risk workshops in all relevant stages with relevant personnel from Wellington Water as per Wellington Water SiD process. Incorporate outcomes in the final design.
- Arrange and facilitate a HAZOP workshop with all relevant stakeholders, and incorporate the workshop outcomes in the final design.
- Ensure the development of a commissioning plan that includes liaison and coordination with operational personnel regarding timing/procedures/testing required, to ensure safe and reliable operation of the plant during commissioning and performance testing.
- Confined spaces – avoid where possible.
- The site's current electrical supply capacity.
- Seamless integration with the plant's existing operation, monitoring, and control.
- Minimising fragmentation of the site's existing clear area to enable future WWTP upgrades.
- Safety in Design (construction).
- Safety in Design (operation).
- Hazardous Substances and New Organisms (HSNO) Act 1996 for any chemical cleaning System.
- Standardised equipment across Wellington region, where appropriate, to optimise maintenance knowledge and ultimately spares.

6.2 Specific design considerations

Specific design considerations include:

- Provide sufficient instrumentation to monitor the equipment being replaced, in a fit-for-purpose manner.

- Consider other minor repair / renewal works that need to be carried out to ensure the basic operation of any systems associated with the discrete project being undertaken.
- Ensure a safe environment inside any plant buildings.
- Ensure equipment can be maintained easily in the future.
- Minimise future corrosion risks.

6.2.1 Level of Service

Level of Service considerations are outlined in Table 6.

Table 6: Levels of Service

Process Unit	Comments
Reliability / Redundancy	The installed equipment shall meet the duty/assist/standby configuration as agreed with WWL and Veolia, during the Concept phase.
Energy efficiency	Energy efficiency is a critical consideration of any design.
Labour requirements & automation	Automatic start-up and remote operation without operator attention (i.e. overnight, outside of normal working hours) shall be designed. Normal operator site attendance and engagement shall be agreed.
Seismic resiliency	To meet importance level 3 – TBC.

6.3 Communication considerations

The project team shall engage with WWL operations team, Veolia (the site’s operators), with support from GWRC, to create a Communications Plan that ensures all stakeholders are engaged when necessary, particularly with relation to effects on consent compliance.

6.4 Other considerations

6.4.1 Growth

Growth is expected to be observed at the WWTP, but there is no current expansion planned for the Maximum Flow value at the WWTP, or changes to the existing treatment processes at the site.

7 Cost estimate

7.1 Total cost estimate

Due to the recent emergence and evolving nature of this project, no formal cost estimate has been carried out yet. The Concept Phase must initially prepare a cost estimate based on the template on the WWL [Cost Estimation Manual](#).

8 Stakeholders

8.1 Internal stakeholders

The internal stakeholders for this activity are shown in the table below.

Table 7: Internal stakeholders

Name	Contact Details	Role	When to Contact
[REDACTED]	[REDACTED]@wellingtonwater.co.nz	Senior Engineer, NET Activity Brief Author	<ul style="list-style-type: none"> • Technical queries • During design development • Clarification on brief related matters • Risk & SiD Workshops • Review of technical reports • HAZOP Attendance
[REDACTED]	[REDACTED]@wellingtonwater.co.nz	Principal Engineer Wastewater, NET	<ul style="list-style-type: none"> • Technical queries • During design development • Risk & SiD Workshops • Review of technical reports • Review of hold points
[REDACTED]	[REDACTED]@wellingtonwater.co.nz	Chief Advisor – Wastewater	<ul style="list-style-type: none"> • Programme and project risk updates • Changes to scope • Approval of hold points
[REDACTED]	[REDACTED]@wellingtonwater.co.nz	Wastewater Contracts – Manager	<ul style="list-style-type: none"> • Endorse project gateways from Regional Contract perspective • Workshops with external stakeholders • Level of service, operations & maintenance requirements • Wellington Water’s interface with Veolia operations contract • Issuing contract instructions to Veolia, related to this project
[REDACTED]	[REDACTED]@wellingtonwater.co.nz	Process Engineer – NMG	<ul style="list-style-type: none"> • Risk & SiD Workshops • Review of technical reports • Workshops with external stakeholders

			<ul style="list-style-type: none"> Level of service, operations & maintenance requirements HAZOP Attendance
██████████	Richard.Millican@wellingtonwater.co.nz	Senior Asset Engineer, Asset Service & Performance	<p>If there is a change to the primary or secondary:</p> <ul style="list-style-type: none"> customer outcome service goal service objective performance measure.
Customer Hub	customer@wellingtonwater.co.nz	Customer Hub	<ul style="list-style-type: none"> For updates on things that could affect neighbours/customers
██████████	██████████@wellingtonwater.co.nz	Communications and Community Engagement for Seaview WWTP	<ul style="list-style-type: none"> Consultation and approval of the communications plan To be informed of progress and potential impacts on stakeholders and customers
██████████	██████████@wellingtonwater.co.nz	HCC Client council rep	<ul style="list-style-type: none"> Project significant issues requiring contact with HC-JV

8.2 External stakeholders

The external stakeholders for this activity are shown in the table below. A communications plan should be developed to describe how and when these stakeholders (or others) will be engaged with. Note that the inclusion of Veolia as external stakeholders is intended to highlight the importance of the design team engaging with the operations team at the specified project intervals.

Table 8: External stakeholders

Name	Contact details	Stakeholder	When to contact
██████████ or delegated authority	██████████@veolia.com	Veolia Contract Manager	<ul style="list-style-type: none"> Phasing of work Plant outages Risk & SiD workshops Design reviews Works programming
██████████	██████████@veolia.com	Veolia Operations Representative for Seaview WWTP	<ul style="list-style-type: none"> Risk, SiD and HAZOP workshops During design development Operations & maintenance requirements H&S site induction

Name	Contact details	Stakeholder	When to contact
			<ul style="list-style-type: none"> • H&S reporting during construction • All construction & commissioning phase site approvals

9 Document location and links

9.1 Where project documents are stored

All future documentation associated with the capital project, including this brief, will be stored in the Project Server CAPEX folder (to be set up).

9.2 Approved products, standards and specifications

The Wellington Water approved products, standards and specifications are listed on the Wellington Water website.

See: [Wellington Water Technical information](#).

Appendix A: Resource Consent

[Consent No. WGN950162 \(01\).pdf \(wellingtonwater.co.nz\)](#)

Appendix B: Source Testing NZ

[Hutt Valley WWTP Odour Control System Assessment July 2021.pdf \(wellingtonwater.co.nz\)](#)

[Veolia Water Services Seaview WWTP H2S Monitoring Programme September to November 2021.pdf \(wellingtonwater.co.nz\)](#)

[Hutt Valley WWTP Odour Control System Assessment February 2023.pdf \(wellingtonwater.co.nz\)](#)

Appendix C: Air Quality Consulting NZ

[R001 Wellington Water - Odour Investigation Report \(DRAFT\).pdf](#)