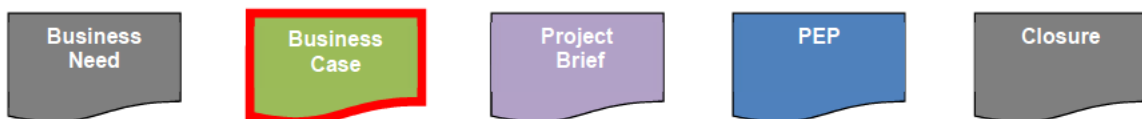


Business Case (G1)

Meremere WWTP MBR Upgrade Project

Infor Project - CT 7036

OG0001076



Date: 11/05/2020
Version: 0.2
Status: Final

Prepared by: Sharon Danks / Richard Pullar

Document Purpose:

This Business Case provides an assessment of the proposed need. The purpose is to:

- confirm business requirements and identify any constraints to the solution
- check that the outcome is aligned with Waikato District Council's strategies and initiatives
- identify the solution boundaries and options to achieve the project outcome
- secure funding to progress the project

Document Review & Approval:

Consultation and Review:

I confirm that I have consulted with the various business unit personnel to develop this Business Case

Responsibility	Consultation	Title	Name
Production	Confirms the WWTP upgrade solution	Production Manager (WD)	Gil Miers
Finance	Confirms finances are available	Commercial Advisor	Reginald Kumar

Document Endorsement:

Project Role	Approval	Signature	Date
Business Owner: Business Manager- Watercare Waikato - Sharon Danks	Agrees that the need exists, and the high-level outcomes suit the business need		
WDC Contract Manager – Ian Cathcart	Agrees that the need exists, and the high-level outcomes suit the business need. Confirms funding is available and project represents value for money.		

Document Approval:

Project Role	Approval	Signature	Date
Waters Governance Board	Has approved that Watercare to progress the procurement of Meremere WWTP MBR Upgrade.		

1. Proposal

It is proposed that the capital expenditure envelope of \$6 million be approved to upgrade the Meremere WWTP by the installation of a MBR plant.

2. Business Requirements

2.1 Strategic alignment

The Meremere Township's wastewater is presently treated in an oxidation pond (surface aerator and baffle system), where treated wastewater then flows through a planted rock filter to a day pond. This is followed by UV treatment prior to being discharged to the Waikato River between 10pm to 5am through an outlet with diffuser.

At present the Meremere Wastewater treatment plant is non-compliant with resource consent conditions.

2.2 Customer focus / business need

The upgrade works will ensure:

- Compliance with Resource consent conditions and reduce environmentally damaging discharges to the Waikato River. The current noncompliance has caused WRC to issue WDC with an Abatement Notice.
- Enable medium term growth within Meremere Village (current population 500 with capacity for growth to 710).

2.3 High-level outcome

The high level outcome of the project is a fully compliant wastewater treatment plant operating within consent parameters for the next 35 years .

3. Proposed Solution

3.1 Possible options

To address the business requirements, the following options have been considered:

- Do minimum – minor upgrades to the existing WWTP
- Decommission Wastewater Treatment plant and pump influent to either Pukekohe WWTP or Te Kauwhata WWTP
- Upgrade Meremere WWTP to a MBR plant

3.2 Most likely or preferred option

The preferred option is to upgrade the Meremere Wastewater Treatment Plant with the installation of a Membrane Bioreactor (MBR) plant. The membrane upgrade will treat most of the flow from Meremere through the dual units (up to 250m³/d), where any higher flow will bypass the new treatment process but continue to be pond treated and disinfected as per the existing system.

3.3 Includes:

- The design, supply, delivery to site, construction, installation, testing and commissioning of the complete MBR plant including:
 - MBR Influent Tie-in
 - Primary screening
 - Influent pipes, sump and pumps
 - MBR Plant and Associated Equipment

- All tie ins between Influent, MBR, pond and wet well
- Solids stream (discharge into pond)
- Utilities
- Electrical upgrade to accommodate additional power demands;
- Control and Instrumentation
- Chemical dosing system for MBR CIP and/or for alkalinity control and/or for phosphorus removal
- All Pond reclamation and Civil Works required
- Curtain replacement in oxidation pond
- Operator Training
- Documentation and Drawings

3.4 Excludes:

- Network Upgrades to reduce inflow and infiltration.
- Consenting – The Meremere discharge consent preparation and application will be completed in a separate project.

4. Project Considerations

4.1 Assumptions, constraints and dependencies:

- Temporary construction laydown area will be required in neighbouring property, an arrangement with land owner has yet to be sort.

4.2 Environmental and consenting Requirements:

- A parallel process to obtain discharge consent will occur, the plant will require a consent with modification to allow 24 hour a day discharge of treated effluent.

4.3 Risks / Issues:

- Contaminated Land – the site is near the decommissioned Meremere Power station and there is a potential that contaminated fill may be discovered and require disposal to an appropriate landfill.

5. Procurement Strategy

Watercare's Supply Chain Team invited two parties to submit Design and Build Proposals, both parties have experience delivering MBR plants for Watercare in the Auckland region. Watercare's procurement process's and policies have been followed in obtaining tender proposals.

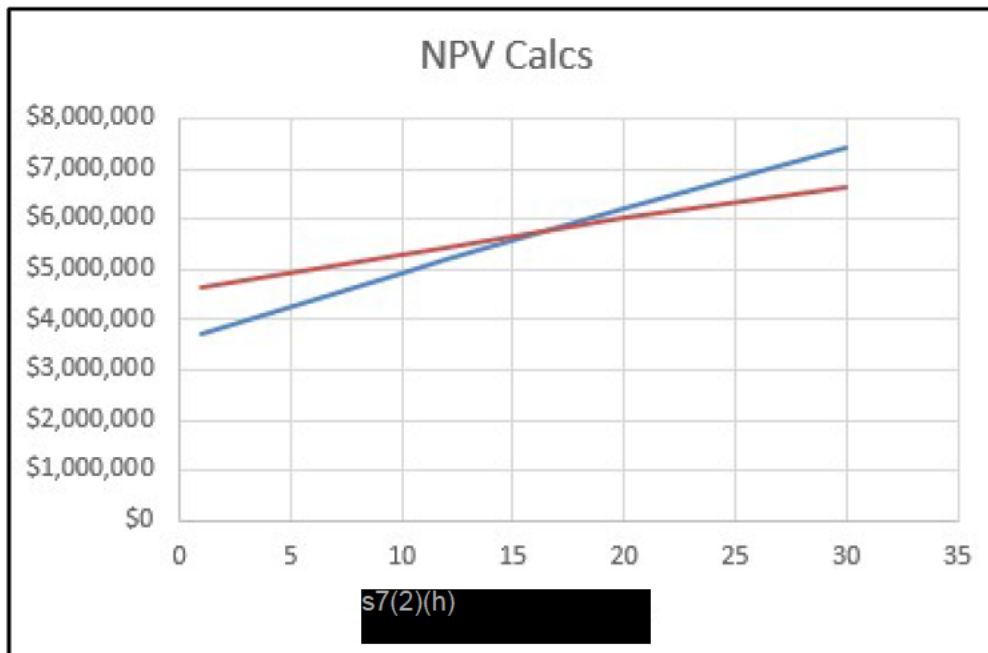
During April, proposals have been evaluated for technical, commercial compliance in addition a detailed nett present value analysis has been undertaken to whole of life costs.

6. Stakeholder Engagement and Consents

A meeting with Ngāti Naho Trust was held in January, at that meeting was proposed to a similar MBR plant in Clark's Beach; this will hopefully be able to proceed once COVID-19 restrictions are lifted. Mercer Community committee have been given an update and liaison will continue as this project and the discharge consent renewal project progress. Following the completion of the consultation an application to vary the discharge timing will be lodged with the WRC . This variation will be in place until the new discharge consent is gained,

Discussions are on-going with WRC and an application for a new 35-year discharge consent will likely be lodged in September.

Engagement is likely to be required with neighbouring landowners prior and during construction phase.



The analysis shows clearly that the **s7(2)(h)** MBR plant has a higher capital cost but the lower operational costs giving a lower whole of life cost.

Additional costs will arise in this project which have been assessed in the following table:

Description	Budget
Council Consents	\$20,000
Property Costs - laydown area in neighbouring property	\$40,000
Design (2%)	\$93,965
Professional Services	\$150,000
Execution (PM + Supervision 4%)	\$187,930
Commissioning	\$150,344
Delivery (Contract Sum plus ground works allowance - Appendix 1)	\$4,698,249
New Power Supply	\$150,000
Scada Programming	\$130,000
Execution Risk (Appendix 2)	\$300,000
Closure	\$45,000
Total:	\$5,965,488

For the Tender recommendation to be finalised some tender items such as the valve and supporting equipment offering needs to be improved. In addition, also greater detail needs to be provided by one tenderer on how contaminated soil will be managed.

7.1 Assets to be written off

No Assets will be written off due to this upgrade with the existing oxidation ponds being retained when the flows exceed 250 cubic metres per day. The existing discharge pump and ultra violet disinfection system are also retained.

7.2 Tender submissions

Both tender submissions meet the Principals Requirements, the significant points of difference are:

- **s7(2)(h)** plant comes with larger tanks, this plus difference in membrane cleaning technologies mean lower energy and chemical costs.
- **s7(2)(h)** have proposed different site layout (see Appendices 3 and 4)
- **s7(2)** specialise in small plants, it is likely that other WDC WWTP's will require upgrading to MBR technology. The other WDC plants are classified as medium sized plants **s7(2)** do not currently make

plants large enough for these other sites; whereas s7(2) do. There are advantages from an operational perspective to operate plants with the same operating systems.

8. AMP Funding

The allocation of funds for this project is shown in the table below:

Funding allocated (\$)	2019	2020	2021	Total
AMP Code 1WW10653	2,156,934	205,400	2,063,243	4,425,577
AMP Code 1WW10610	1,622,431	0	0	1,622,431
Required for this project	0	0	6,000,000	6,000,000
Balance available (+/-)	3,779,365	205,400	-3,936,757	+48,008

Most likely \$/ day (nominal) excluding Capitalised Interest)

9. Programme

The works are programmed to commence in June 2020 and to be completed and in service by June 2021.

Project Duration	Start (mm/yy)	Finish (mm/yy)
Feasibility	complete	complete
Design	06/20	09/20
Execution	09/20	04/21
Closure	04/21	06/21

10. Project governance/ reporting

This project will follow the normal governance and project management process. Reporting will be via the monthly Watercare operations report .

11. Recommendations

This document is seeking approval to progress to the contract award and execution phase, and to set the financial envelope for the project at \$6.0M with a completion date of 02/07/2021 to be executed under the delegation of the Water Governance Board.

Appendices

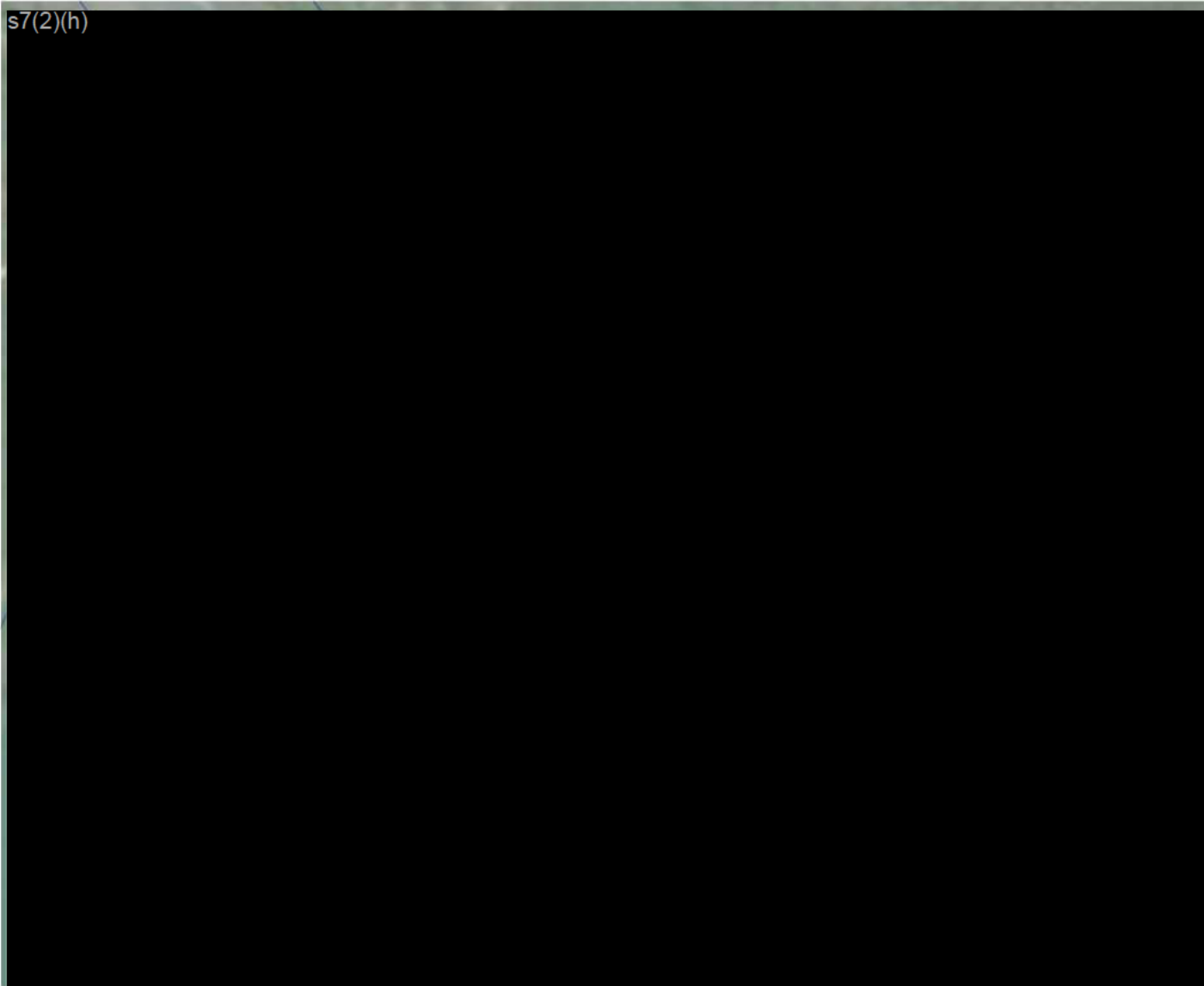
Appendix 1 – Potential Contaminated Ground Works Costs

No	item	Qty.	Rate	Sum
1	Clean Fill	90	\$51.86	\$4,667
2	Hail Off-site disposal	90	\$60.26	\$5,423
3	Pond Sludge	90	\$422.66	\$38,039
4	Disposal of Asbestos Contaminated Material	90	\$125.06	\$11,255
5	Further Soil Testing	3	\$3,200.00	\$9,600
			Total:	\$68,986

Appendix 2 – Risk Items Valuation

No	item	Sum
1	Additional coordination with and provision for SCADA Integration	\$10,000
2	Relocation of services	\$15,000
3	Unforeseen ground conditions and additional geotech	\$80,000
4	Additional access, H&S and maintainability improvements	\$50,000
5	Additional tie-in work and connection details	\$10,000
6	Additional fencing	\$10,000
7	Additional road subbase improvements	\$25,000
8	Additional reinstatement, footpath and planting	\$5,000
9	Additional coordination and additional work due to LV upgrade and ensuring operational continuity	\$15,000
10	Additional work due to chboost the aeration during the works	\$15,000
11	Additional protection of existing structures	\$5,000
12	Unknown obstructions	\$5,000
13	Additional upgrades or relocation of stormwater system	\$5,000
14	Additional cables, instruments, limit switches	\$15,000
	Total:	\$265,000

Appendix 3 – s7(2)(h) Construction Site Layout



Appendix 4 – s7(2) Environmental Site Layout

s7(2)(h)

