



SMEC INTERNAL REF. 3002.1235

Off-Farm Efficiency
Program

Victoria Lower Murray Water (LMW) Water Efficiency Project

Client Reference No. C01728

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Contents

Executive Summary..... 1

1. Introduction..... 2

2. Scope of Review..... 2

3. Technical Elements..... 2

4. Water Savings..... 3

5. Costings..... 3

6. Risk Plan..... 4

7. Qualifications..... 4

Appendices

Appendix A Documents Received and Reviewed

Executive Summary

The proponent seeks approximately \$34.3m for the Lower Murray (LMW) Water Efficiency Project to achieve 2.5GL of water savings. 1.8GL is proposed to be transferred to the Commonwealth, the remainder retained by the State and proponent for improving urban water security and support outcomes for traditional owners.

The project scope consists of lining 7km existing earthen channel, lining 16.1km and piping 3.9km of existing concrete lined channel, along with decommissioning 442 Dethridge meter outlets and upgrading 14 meter outlets to ultrasonic meter emplacements and assessment/upgrade of 285 stock and domestic meters. The scope builds on previous works undertaken by the proponent with Sunraysia Modernisation Project (SMP) and aligns with industry benchmarks. Future operation and maintenance of the proposed works will be the responsibility of the proponent.

Technical documentation provided with the application was limited to a description and the bill of quantities in the cost schedule. The basis of design and scope provided was high level only, however supported by commentary and information from the previous SMP.

The project proponents (LMW) and Victorian State government agencies have delivered similar scopes of works recently, hence the broad scope, design, construction and programming elements and risks are well understood. Industry contributors to the submission are credible and well regarded in their field. Estimated costs are within historical industry expectations and water savings calculations are reported to have followed the Victorian Water Savings Protocol methods.

Risks of significance, particularly related to program and cost, have been identified in the risk plan, with mitigating processes outlined by the proponent. Risk considerations for the project moving forward, while referenced in the risk plan, include cost and program implications associated with project development, procurement and supply chain capacity, especially given the tight timeframes for construction delivery in 2023 during the short supply system shutdown. These may be exacerbated if delivery conditions and market capacity vary relative to the previous historical projects that the reference design and costs have been based on. Risks associated with the above issues rest with the proponent.

This review concludes the technical scope of works is well understood by the proponent and scope and costs are within industry expectations. While the delivery program is tight, the proponent has previous experience with these elements through the delivery of the SMP and has outlined risks and mitigation strategies. On the basis that water savings for the Commonwealth are achieved, the project aligns with industry benchmarks and provides improvement to current assets and management of water allocations for the proponent and the regional community moving forward.

1. Introduction

This summary documents a desktop review on behalf of DAWE of an infrastructure project application for funding under the Off Farm Efficiency Program received from the Victorian Government for proponent Lower Murray Water.

2. Scope of Review

SMEC were engaged by DAWE to undertake a review of the Lower Murray (LMW) Water Efficiency Project as part of the Federal Government's Off Farm Efficiency Program

The Scope of the review included consideration of:

1. Is the methodology and water savings calculations for the proposed works appropriate and likely to generate the proposed water savings? Are any further water savings possible?
2. Review methodology and calculations
 - Check against State or Commonwealth guidelines
 - Benchmark against other projects
 - Identify issues, risks and opportunities.
3. Does the detailed project budget demonstrate appropriate costings that reflect market realities (not inflated prices), and Review quantities and costs
 - Compare adopted rates with other similar projects in the region
 - Identify issues, risks and opportunities.
4. Is the risk plan adequate to the nature of the risks of the project?
 - Review risk plan (e.g. water savings, capex, O&M risks and costs)
 - Is the project sustainable in the long run?

3. Technical Elements

The project scope consists of lining 7km existing earthen channel, lining 16.1km and piping 3.9km of existing concrete lined channel, along with decommissioning 442 Dethridge meter outlets and upgrading 14 meter outlets to ultrasonic meter emplacements and assessment/upgrade of 285 stock and domestic meters. The scope builds on previous works undertaken by the proponent with Sunraysia Modernisation Project (SMP) and aligns with industry benchmarks. Future operation and maintenance of the proposed works will be the responsibility of the proponent.

Technical documentation provided with the application was limited to a description and the bill of quantities in the cost schedule, despite the application stating the project is ready for construction. The basis of design and scope provided was high level only, however supported by commentary from the previous SMP.

Clarifications were sought and subsequently provided regarding inconsistencies with the scope of works, proposed water savings and estimated costs. The additional documentation and context, while still by-in-large utilising information and knowledge from the SMP, were of the order expected for similar budget submissions.

The project proponents (LMW) and Victorian State government agencies have delivered similar scopes of works recently, hence the broad scope, design, construction and programming elements and risks are well understood. Industry contributors to the submission are credible and well regarded in their field.

4. Water Savings

Water savings calculations are noted in the supplied documents to have followed the Victorian Water Savings Protocol methods. Initial documentation provided various levels of justification of water savings calculations, some of which lacked sufficient field information to validate the estimates. For instance

1. Merbien-Wargan Channel: the method clearly notes water savings are based on pondage tests across 94% of channel to be remediated – this is considered to be a fair representation of water loss conditions
2. Red Cliffs Channel: water savings are based on 63% of length to be piped (however only 300m of 4km of channel is included in water savings calculations). Clarity on the extent of pondage tests on the Red Cliff channel length to be lined is was requested.
3. K and L Channels: No reference was made to pondage testing to estimate water savings from either K or L channels, despite their:
 - total length representing 60% of the total channel length
 - proposed water savings being 50% of the total 2.5GL
 - location being apart from Red Cliff (ie possibly different soil type)
 - condition of existing concrete channel, relative to Red Cliff, is not cited
4. Water Savings methods for the DMO and S&D meters are well documented to be in accordance with the Victorian Water Savings Protocols. However this required confirmation and evidence of audit/reviews.

Subsequent information provided including independent consultant reports provided further context and clarity on the basis for and estimates of water savings, which were found to overall be in order of the expected for the proposed infrastructure upgrades.

0. Costings

A review of 'Att 4a LMW Water Efficiency Project - Detailed Cost Spreadsheet' identified some inconsistencies within the L Channel cost build up, in the order of \$2.5m of base costs, and potential \$3m in P90 cost estimates.

Clarification was sought and the proponent submitted an updated cost spreadsheet and submission documentation requesting funding for a revised amount of \$34.3m, compared to the original of \$37.2m.

While the estimates derived from BOQ's from high level arrangements, the proponent clarified previous SMP design information, which aligns well with this scope, was referenced in the quantity build up.

The proponent engaged an independent reviewer to undertake a cost and risk review for the project. The reviewer's experience enables them to apply lessons learnt on previous projects in advising of key risks and adjustments to unit rates and contingencies, commensurate with a project of this type and scale.

Information provided by the proponent clarified the unit rates were adopted by and large from previous projects in Northern Victoria with similar delivery models to that proposed for the LMW Water Efficiency Project.

Overall, the estimated costs are within historical industry expectations.

6. Risk Plan

A risk assessment was included in Attachment 6.

The project proponents (LMW) and Victorian State government agencies have delivered similar scopes of works recently, hence the broad scope, design, construction and programming elements and risks are well understood.

Risks of significance, particularly related to program and cost, have been identified in the risk plan, with mitigating processes outlined by the proponent. Risk considerations for the project moving forward, while referenced in the risk plan, include cost and program implications associated with project development, procurement and supply chain capacity, especially given the tight timeframes for construction delivery in 2023 during the short supply system shutdown. These may be exacerbated if delivery conditions and market capacity vary relative to the previous historical projects that the reference design and costs have been based on, for instance any COVID-19 related impacts on the proponent and the supply chain.

The proponent provide clarification on the risk assessment process, including external facilitation and input from previous construction personnel. This process identified planning activities and mitigation measures particularly related to continuing to supply LMW customers to enable construction during and if necessary following LMW supply shut down.

The risk plan considers an appropriate level of definition of issues at this stage of the project's development. Risks associated with the above issues rest with the proponent.

7. Qualifications

- This review consisted of a desktop assessment only, of information provided by the proponent and limited to those documents noted in the attachment as being reviewed.
- Socioeconomic/Stakeholder/Environmental/Salinity/Cultural elements were not assessed

Appendix A

Documents Received and Reviewed

Received	Type	Reviewed
LMW Signed – Off-Farm Efficiency Program State Led Application Form 2 Feb	pdf	Yes
LMW WEP Attachment 2 - Final 3.2.22	pdf	Yes
Att 3456 - LMW WEP Attachments Package Final Updated – 2 Feb 22	xls	Yes
Att 1a - LMW_District_Channels_2021_MBN_20210624	pdf	Yes
Att 1b - LMW_District_Channels_2021_MDA_K_L_20210624	pdf	Yes
Att 1c - LMW_District_Channels_2021_RED_20210624	pdf	Yes
Att 4a LMW Water Efficiency Project - Detailed Cost Spreadsheet Updated – 2 Feb 22	xls	Yes
Att 4b LMW Water Efficiency Business Case - Cost Assurance Review - Report FINAL	pdf	Yes
Att 9 - LMW_WEP_Statement of Reasons Template_Min_19 Dec 2021	pdf	Yes
Att 3a - LMW_WEP_Closing the Loop Report_Min_19 Dec 2021	pdf	No
Att 7 - Insurances	pdf	No
Att 8 - LMW Workplace Relations Management Plan	pdf	No
LMW WEP - Response to Cwth questions 1-9	.doc	Yes
LMW WEP Business Case Final 3.2.22	pdf	Sighted
LMW WEP Water Savings Report GHD Final	pdf	Sighted
Channel Cross Section (scan of previous design sections)	pdf	Sighted
Final Channel Outlet Design (standard detail)	pdf	Sighted
SMP2 - Commonwealth National Water Infrastructure Development Fund - Capital Component - Final Report 15 December 2019 - (1)	pdf	Sighted
SMP2 tender spec	pdf	Sighted

Note superseded versions are not included in above



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