

## SOUTH AUSTRALIA - ADDITIONAL EFFICIENCY MEASURES CRITERIA ASSESSMENT OUTCOME

|                                                                                             |                                                   |
|---------------------------------------------------------------------------------------------|---------------------------------------------------|
| <b>Project Reference No:</b>                                                                | 622693                                            |
| <b>Outcome:</b>                                                                             | Compliant with the Efficiency Measures assessment |
| <b>Date recommended to proceed to public comment</b>                                        | 4 June 2021                                       |
| <b>Date recommended to proceed to the Australian Government's detailed assessment stage</b> | 25 June 2021                                      |

### Overview

The project involves works on two properties located within the Renmark irrigation district totalling 18ha. The major section of this project will be the complete redevelopment of an 8ha mixed production property converting the sprinkler system to a drip system and include new plantings, the second property 10ha will be installing soil moisture probes.

The main redevelopment will comprise removing the old plantings and irrigation system and planting a new highly profitable variety of table grapes that will be one of the first on the market. The new plantings do not form part of the request for Water Efficiency Program funding.

The proposed irrigation system will comprise of new pumping infrastructure including new pump and motor, primary automatic filtration, variable speed drive, suction and rising main. The infield component of the system will be installing a new main line, sub-mains, flushing manifolds, automatic back up field filters, pressure compensated dripline, cooling sprinklers, system automation and fertigation.

Soil moisture monitoring probes will be installed on both properties, the real time, loggable probes will assist in the precise application and timing of irrigation applications and shift configuration. This will create a system where the irrigator can monitor plant water use and apply irrigation to meet the specific crop demands.

A conservative water saving of 36.8 ML will be generated through the project works.

## Part 1 - State Assessment - Efficiency Measures criteria

### Assessment Approach

This State Assessment is reliant on the information provided by the applicant. The comments provide a summary of the information provided by the applicant which is deemed relevant by the assessor to demonstrate that the Efficiency Measures – Agreed Criteria have been met.

### Water Savings Substantiation

The water savings expected to be achieved by the project have been verified by an Independent Approved Irrigation Professional.

The water savings substantiation is provided at Attachment A.

The project is expected to return a conservative 36.8 ML to the environment, with the applicant retaining 0.8 ML of water savings.

| Water Saving Component                    | Area ha | Water Saving (ML/ha) | Estimated Water Saving (ML) | Total volume of Eligible Water Rights offered for transfer (ML) |
|-------------------------------------------|---------|----------------------|-----------------------------|-----------------------------------------------------------------|
| Soil Moisture Monitoring                  | 18.0    | 0.5                  | 9.0                         | 36.8                                                            |
| Primary Automatic Filtration              | 8.0     | 0.3                  | 2.4                         |                                                                 |
| System Automation and Control             | 8.0     | 0.5                  | 4.0                         |                                                                 |
| Mainline                                  | 8.0     | 0.2                  | 1.6                         |                                                                 |
| Pump and Variable Speed Drive             | 8.0     | 0.45                 | 3.6                         |                                                                 |
| Overhead Sprinkler Conversion to Drip     | 2.0     | 2.5                  | 5.0                         |                                                                 |
| Under canopy Sprinkler conversion to Drip | 6.0     | 2.0                  | 12.0                        |                                                                 |
| <b>Total Water Saving</b>                 |         |                      | <b>37.6</b>                 |                                                                 |

| Efficiency Measures Criteria                                                                                              | Project Responses to Efficiency Measures Criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Adequate Response Y/N | State Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Evidence of engagement with community, industry and government agencies during project design (Criteria 9, 6a, 6b)</b> | <p>6a. Please refer to attachment B from the Renmark Irrigation Trust (RIT).</p> <p>6b. The Delivery Partner was engaged by the Australian Government in December 2018. Since this time the Delivery Partner has undertaken extensive consultation on the Water Efficiency Program with key stakeholders within the SA MDB region. Direct engagement with industry and commodity groups, irrigation infrastructure operators, Local Government, Regional Development organisations has occurred on the program. The works proposed through this project are consistent with regional plans and strategies on sustainable land and water management practices and building resilience and adaptability into the irrigated agriculture sector.</p> <p>9a. Please refer to response to 6b.</p> <p>9b. Please refer to response to 5b.</p> | Y                     | <p>The application has demonstrated that the delivery partner has consulted with relevant industry bodies, relevant Irrigation Infrastructure Operators, local governments and regional development organisations on a strategic regional approach to developing projects under the Water Efficiency Program.</p> <p>The application has also provided evidence that the relevant network operator, the Renmark Irrigation Trust, is involved in or aware of the project.</p> |
| <b>Potential Direct Water Market Impacts (Criteria 7a, 7b, 7c, 7d)</b>                                                    | <p>7a. Refer to Attachment B (Renmark Irrigation Trust Summary), confirming that the volume of water entitlement owned and the period of ownership. The project has been independently assessed which included the provision of formal quotations to establish</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Y                     | <p>The application has demonstrated that:</p> <ul style="list-style-type: none"> <li>• The water rights to be transferred as part of the project have been independently verified as a conservative estimate of the water savings that can be generated and that the project will not</li> </ul>                                                                                                                                                                              |

|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>the budget for the project. This assessment confirms that a conservative volume of the total assessed potential water saving has been nominated for return and that additional savings will be retained by the proponent. The water savings are based on industry benchmarks (crop and irrigation system type specific) that have been collated over a long period of time from local and district on-farm water use studies and investigations.</p> <p>7b. Attachment B (Renmark Irrigation Trust Summary) verifies that the nominated water access entitlement meets the 3-year ownership.</p> <p>7c. As described in 7a. this project will generate water savings through the implementation of efficiency works that will result in an on-going reduction in water demand.</p> <p>As the properties involved in the proposal produce permanent horticultural crops there is an existing fixed water demand based on the current irrigation systems and crop types that are in place. The existing fixed demand will be reduced through the irrigation efficiency measures that are proposed meaning the project will have no impact on water reliability as the reduction in supply via the transfer of water entitlement is fully offset by an on-going reduction in water</p> |  | <p>transfer more water than the project will save.</p> <ul style="list-style-type: none"> <li>• The water entitlements to be transferred have been held for a minimum of 3 years at the time of application.</li> </ul> <p>The project will generate water savings above the volume returned to the environment and will effectively increase the water available for productive uses in the consumptive pool. The increase in available water will have no direct impact on reliability and may put downward pressure on water market prices.</p> |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                     | <p>demand.</p> <p>7d. As described above in 7c. this project will generate a reduction in on-going water demand across the properties involved.</p> <p>Currently the existing water demand of the properties is fixed due to the nature of the irrigated production involved e.g. permanent crops and therefore the project will not directly impact on the price of water as the property level supply and demand relationship will remain the same e.g. neutral to positive due to the retained savings and conservative nature of assessed water savings.</p> <p>Several recent reports have also highlighted that the greatest driver of water price (allocation) remains climatic conditions due to the direct relationship it has with water availability.</p> <p>Projects of this nature proactively assist applicants to be less exposed to price fluctuations linked to water availability and climate by ensuring that the productivity of on-farm water use is maximised.</p> |   |                                                                                                                                                                                                                                                                                       |
| <b>Contribution to Proponent Businesses and Irrigation District Viability (Criteria 4a, 4b, 4c)</b> | <p>4a. One of the properties where works are proposed are located within the footprint of the Renmark Irrigation Trust (RIT). RIT has a strong commitment to the adoption of best practice irrigation both with respect to supply of water to customers and customers</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Y | <p>The application has demonstrated that:</p> <ul style="list-style-type: none"> <li>• The project will contribute to the longer term sustainability of the business and the irrigation district more generally.</li> <li>• The project is focused on modernising existing</li> </ul> |

|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |                                                                                                                                                                                                                                                                                                                                                                                                           |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>application of that water. The Renmark community and the broader Riverland region is heavily dependent on the irrigated agriculture sector to drive the economy and therefore projects that invest in the longer-term sustainability of businesses are vitally important for ensuring the economic contribution is maintained and enhanced into the future. One property where the works will occur is a private diversion and therefore is not reliant on shared irrigation infrastructure for accessing water. Upgrades will occur to the internal irrigation system that supports both permanent and annual irrigated crops.</p> <p>4b. The property is located within the Renmark Irrigation Trust which has been fully piped since 1975 and services over 600 irrigators. The works are focused on on-farm upgrades and will have no impact on existing supply infrastructure.</p> <p>The other property included in the proposal is a private diversion and the works are focused on ensuring the longer term sustainability and productivity of the irrigation system and therefore is consistent with the intent of upgrading systems that will maintain productivity into the future.</p> <p>4c. As has been outlined in both 4a. and 4b. one property is serviced by an irrigation infrastructure operator whose business plan is reliant on its customers being viable and</p> |  | <p>inefficient irrigation systems, which will position the business to capitalise on returns for table grape production in the SA Riverland.</p> <ul style="list-style-type: none"> <li>• The project will contribute to the longer term viability of the property, which will provide benefits across the trust and irrigation district more broadly, consistent with current business plans.</li> </ul> |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                            | <p>sustainable into the future. This project will significantly improve the productivity of on-farm water use and also increase annual turnover for the property which is consistent with longer plans for the irrigation infrastructure operator. The other is not located within an irrigation district however the proposed works are consistent with regional, State and Basin scale land and water management planning objectives.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <p><b>Support for Regional Economies (Criteria 5a, 5b, 5c, 5d, 6c)</b></p> | <p>5a. As described in 2a. all materials and labour for this project will be supplied through local irrigation businesses and contractors. Irrigated agriculture is the primary economic driver of the Riverland region and therefore proposals that invest in under-pinning the continuing viability of irrigated businesses ensures that this contribution will be sustained.</p> <p>While not forming part of the program funding request, the commodities grown at one property will diversify away from traditional crop types, to early to the market, table grape production. This will provide jobs not only in the redevelopment phase but on an on-going basis due to the more labour intensive nature of table grape production.</p> <p>5b. Currently the property is not operating as efficiently as it could be and these works will address the current limitations with irrigation management. The benefits of improving the</p> | Y | <p>The application has demonstrated that the project will:</p> <ul style="list-style-type: none"> <li>• Support the small but emerging table grape industry, which has potential to become an important sector of the Riverland and SA economy.</li> <li>• Maintain and potentially increase seasonal employment along with engaging local contractors during the redevelopment and construction phase.</li> <li>• Generate benefits for the broader region and not just the applicant through the sourcing of local farm input supplies by the participating business and generating regional employment.</li> <li>• Increase regional and Basin wide productivity through increasing the volume of water available for consumptive uses on the water market.</li> </ul> |

|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
|  | <p>productivity of on-farm water use extend beyond the farm gate and provide flow-on benefits to the local community, region and the State. The on-farm irrigation efficiency works also assist the proponent to be better adapted to reduced and/or more volatile water availability in the future.</p> <p>5c. As described in 4b. one property is located within the Renmark Irrigation Trust (RIT) which has been fully piped since 1975. The proposed on-farm works will not reduce the productive capacity of the trust and no change to the proponent's delivery shares that are held within RIT will occur as a result of the project.</p> <p>5d. As outlined in 5a. due to the reconfiguration of the property the works are expected to generate additional seasonal employment while also increasing the existing level of on-going employment. The works will provide a direct injection of investment during the implementation phase and post project will support employment along the picking, packing and distribution chains.</p> <p>6c. While the project will deliver positive benefits to the proponent these benefits will extend beyond the farm gate through investment in the local community both for the project works and in the longer term.</p> <p>The works will ensure the properties are viable and sustainable into the future and</p> |  |  |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|

|                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                 | <p>continue to contribute product to local processing facilities which will assist with underpinning jobs along the supply and distribution chains.</p> <p>The project involves the transfer of a small volume of water which will be fully offset by the reduction an on-going reduction in water demand across the properties.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Social and Environmental Benefits (Criteria 2a, 2b, 2c,)</b> | <p>2a. The works proposed through this project will assist the business to significantly improve the productivity of its on-farm water use. The works will directly facilitate an increase in annual revenue that is derived from the existing irrigated crops which will assist with under-pinning the current levels of on-going and seasonal employment. The existing inefficiencies in the system is meaning that irrigation water is not being utilised as productively as it potentially could be which is impacting on fruit production and the overall performance of the vineyard and orchard. Irrigated agriculture is the primary driver of the Riverland economy and therefore the project will ensure that this important economic contribution continues well into the future. All works involved in the project will be undertaken by local contractors so investment will remain the local economy and benefit local service providers. The works will also set the vineyards and orchard up for the future and ensure it remains financially viable and</p> | Y | <p>The application has:</p> <ul style="list-style-type: none"> <li>• Described the expected socio-economic and environmental benefits of their proposed project, which include: <ul style="list-style-type: none"> <li>○ Increased productivity in terms of return per megalitre for the business and region.</li> <li>○ Improving the business' long term resilience and viability, which will have flow on benefits to the local, regional and State economies.</li> <li>○ Sourcing of goods and services for the project from local companies, which will add further economic stimulus to the Riverland community.</li> <li>○ Increased regional and Basin wide productivity through increasing the volume of water available for consumptive uses on the water market.</li> </ul> </li> <li>• The proposed works are on-farm and will not affect the amenity value to local communities of weirs, storages and parks.</li> </ul> |

|                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                  | <p>continues to support both on-farm employment and other agriculture dependent businesses both locally and across the region. The project will deliver direct benefits at the farm scale through the improved productivity of water use which will then have flow on benefits to the region's broader wine industry sector and the State through economic contributions.</p> <p>2b. As this project only involves work directly linked to the properties it is not expected to add amenity to community assets such as weirs, storages and parks.</p> <p>2c. N/A – Total cost is under \$4 million.</p> |   | <ul style="list-style-type: none"> <li>The project is below the \$4 million threshold for large projects and is not required to address criteria 2c.</li> </ul>                                                                                                                                  |
| <b>Comply with all relevant laws including work health and safety laws. (Criteria 2d)</b>        | <p>2d. The Delivery Partner has well established WHS management procedures in place which have been specifically tailored to the implementation of Australian Government irrigation efficiency programs. The proponent will be required to complete a Risk Assessment specific to the project activities and demonstrate that all required insurance is in place and current prior to the project works commencing and any funds being paid.</p>                                                                                                                                                         | Y | <p>The application has demonstrated that the applicant and delivery partner have an understanding of all relevant legislation and/or regulation that will require approval prior to works commencing and that they will comply with all relevant laws including work health and safety laws.</p> |
| <b>Business Resilience, including Drought and Climate Change Impacts (Criteria 10a, 13a, 12)</b> | <p>10a. Please refer to response to 5b.</p> <p>12a. As described in 7a. the project proposal has been independently assessed and this assessment confirms that a conservative volume of the total water saving is nominated for return. The project works budget has also</p>                                                                                                                                                                                                                                                                                                                            | Y | <p>The application has demonstrated that the project will:</p> <ul style="list-style-type: none"> <li>Modernise existing inefficient irrigation systems, which will position the business to capitalise on returns for table grape production in the SA Riverland.</li> </ul>                    |

|                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                    | <p>been substantiated through formal quotations.</p> <p>13a. The project will address existing inefficiencies in on-farm irrigation management. The works will reduce annual irrigation demand and also generate additional supply through the retained savings that will remain with the proponent. This will mean post project that the proponent is better adapted to future climate variability which is expected to increase the volatility of water supply.</p> <p>The project also includes the adoption of a purposely design cooling irrigation system which will assist the proponent to have enhanced resilience and adaptability to future climate extremes.</p> |   | <ul style="list-style-type: none"> <li>• Generate additional water savings that will be retained by the applicant to improve their capacity to better manage periods of reduced water availability.</li> <li>• Provide the enterprise with an increased ability to endure and adapt to future climate variability and water availability by generating productivity improvements and improving profitability.</li> </ul>                        |
| <b>Cultural Benefits<br/>(Criteria 8a, 8b, 8c)</b> | <p>8a. As has been outlined in the responses to previous criteria the project is expected to generate positive outcomes at a local and regional community scale. The project works will ensure an existing irrigated business remains viable and sustainable into the future which is very important given the Riverland region of SA is heavily reliant on a prosperous and high performing irrigated agriculture sector. The transfer of a share of the water savings generated from the project to the Australian Government will also ensure that a portfolio of water is available to e-water managers to assist with the maintenance of</p>                            | Y | <p>The application has described the expected cultural benefits of the proposed project, including the strategy for increasing the cultural benefit to participants and their communities through local sourcing of goods, services and labour.</p> <p>The total project value is below \$3 million and is not required to identify cultural heritage sites and manage any impacts in accordance with relevant Commonwealth and State laws.</p> |

|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
|  | <p>priority ecological assets across the Murray-Darling Basin. With tourism and recreation also key drivers of the Riverland and State.</p> <p>8b. As has been outlined in other criteria the project represents a direct investment in an irrigated business to ensure its longer-term sustainability and viability. This outcome contributes benefits at the community, region and State level by underpinning existing employment both on-farm and within the processing and distribution networks. All goods and services for the project will be sourced from local suppliers and contractors ensuring program investment remains in the local community and region. The project will also adopt innovative irrigation management technologies which can be showcased to encourage broader adoption and highlight the region's longer-term commitment to sustainable land and water management practices.</p> <p>8c. N/A – project is not over \$3 million.</p> |  |  |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|

### **In-Principle Recommendation**

The application has adequately addressed the Efficiency Measures – Agreed Criteria and demonstrated that the project will have neutral or positive socio-economic impacts and not have negative third party impacts on irrigation systems, water markets or regional communities. Accordingly, the South Australian Government provides in-principle approval for the project and recommends that the application proceed to the **public comment stage**.

## **Part 2 - State Response – Public Comments**

Through the public comment process run by the Department and published on the Have your say website, there were no comments lodged.

### **Final Recommendation**

The application has adequately addressed the Efficiency Measures – Agreed Criteria and demonstrated that the project will have neutral or positive socio-economic impacts and not have negative third party impacts on irrigation systems, water markets or regional communities. Accordingly, it is recommended that the application proceed to the Australian Government's detailed assessment stage.

## 1 PROJECT DETAILS:

|               |  |              |            |
|---------------|--|--------------|------------|
| CID Name:     |  | Date:        | 23/02/2021 |
| CID No:       |  | Client Name: |            |
| Project Name: |  | Project No:  |            |
| Submitted By: |  | Contractors: |            |

## 2 PREAMBLE AND PROJECT SCOPE:

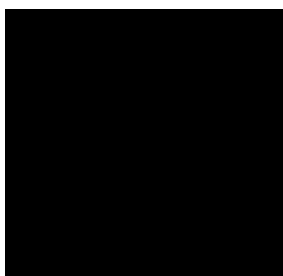
The above project was assessed on the below mentioned scope and is limited to project data supplied, including any documentation and designs as being true and correct in every respect.

I declare, as an Independent Approved Irrigation Professional agreed to under the Deed, that:

- I have carried out the technical and practical feasibility assessment for the Works; and
- I have had no previous involvement in preparing this Project Proposal.

I certify that the Project Works are technically and practically feasible, including that:

- the projected water savings they will generate are reasonable and realistic, including being appropriate to the crops, soils, climates, water delivery system and topography of the Eligible Irrigator's Property;
- the rationale for the water savings assessment is clearly explained;
- the projected water savings can be achieved while maintaining the agricultural production potential of the Property on which the Works would be completed as part of a Project;
- the engineering solutions they entail are achievable and appropriate to the needs of the Eligible Irrigator and the Property;
- the projected costs are reasonable and realistic, and within the expected range for that type of infrastructure and scale of installation; and
- the projected water savings they will generate represent the conservative or minimum feasible volume that could be derived from completing the Works.



Certified Irrigation Designer



# **Water Savings Substantiation – Water Efficiency Program (WEP)**

## **Technical Assessment**

**Project ID:** [REDACTED]

**Crop Type:** Table Grapes / Stone Fruit

### **Project Summary:**

The project involves works on two properties located within the [REDACTED] irrigation district totalling 18.0ha. The major component of this project will be the complete redevelopment of an 8.0ha mixed production property converting the sprinkler system to a new surface drip system including new plantings (funded separately) with the second 10.0ha property to install a new soil moisture monitoring network.

The main redevelopment will comprise of removing the old plantings and irrigation system and planting a new highly profitable variety of table grapes that will be one of the first to the market. The proposed new irrigation system will comprise of new pumping infrastructure including new pump and motor, primary automatic filtration, variable speed drive, suction and rising main. The in-field distribution component of the system will include a new main line, sub-mains, flushing manifolds, automatic back up field filters, pressure compensated surface dripline, cooling sprinklers and full system automation and fertigation.

Soil moisture monitoring networks will be installed at both properties with logging capacitance probes assisting in the precise application and timing of irrigation event and refining shift configuration. This will create a system where the irrigator can monitor plant water use in real time and schedule irrigation to meet the specific crop water demand.

A conservative water saving of 36.8ML, or ~2.0ML/ha will be generated through the project works.

### **Water Saving Methodology:**

The conversion from overhead and under tree sprinkler irrigation to surface drip irrigation is expected to significantly improve the water use efficiency and productivity of this irrigated business. Applying water through an efficient drip system will produce a water saving through reduced application and evaporation.

New primary filtration will be installed across 8.0ha including the areas that will be irrigated with the new surface drip line that will contribute to improved overall system performance. The primary filtration will be automated allowing back-flushing to occur in a more efficient manner through the use of pressure differential triggers as well as removing an existing system constraint.

With a remote access control and automation system that will send alerts to the applicant which will enable them to manage their system more efficiently and accurately monitor water use preventing over irrigation, while protecting the vineyard during extreme weather events.

The new irrigation system will also include a dual cooling irrigation system to assist with heat management in the vineyard which is most important in table grape production. The cooling system will enable on-farm water efficiency to be optimised while supporting the desired production levels and quality. With an increase in the number of extreme heat days expected in the future the cooling system will ensure the vineyard is able to best mitigate against these extremes while maximising the productivity of water use.

The installation of a new pump set coupled with a variable speed drive (VSD) and automation will provide the irrigator with complete flexibility within their irrigation system. The irrigator will be able to manipulate the system to deliver the exact plant water requirements based of varietal needs reducing over pumping and excessive water use.

The installation of soil moisture monitoring probes will provide information to optimise irrigation decision making, the probes are a web based continuous logging soil moisture monitoring system which will provide real-time information to optimise irrigation decision making. This installation will improve reliability of irrigation as well as irrigation to crop water requirements, adjusted to soil water storage through more targeted irrigation scheduling, which is expected to generate additional water savings and productivity improvements.

A new mainline will be installed to handle the delivery of the higher pressures associated with the installation of the new system and this will eliminate the remaining system constraint and allow precise and flexible delivery of water to the vineyard.

| Water Saving Activity                     | Area<br>(ha) | Water<br>Saving<br>(ML/ha) | Total Water<br>Saving<br>(ML) | Conservative<br>Saving<br>(ML) | Conservative<br>Saving<br>(ML/ha) |
|-------------------------------------------|--------------|----------------------------|-------------------------------|--------------------------------|-----------------------------------|
| Soil Moisture Monitoring                  | 18.0         | 0.5                        | 9.0                           | 36.8                           | 2.0                               |
| Primary Automatic Filtration              | 8.0          | 0.3                        | 2.4                           |                                |                                   |
| System Automation and Control             | 8.0          | 0.5                        | 4.0                           |                                |                                   |
| Mainline                                  | 8.0          | 0.2                        | 1.6                           |                                |                                   |
| Pump and Variable Speed Drive             | 8.0          | 5%^                        | 3.6                           |                                |                                   |
| Overhead Sprinkler conversion to Drip     | 2.0          | 2.5                        | 5.0                           |                                |                                   |
| Under canopy Sprinkler conversion to Drip | 6.0          | 2.0                        | 12.0                          |                                |                                   |
| TOTAL                                     |              |                            | 37.6                          |                                |                                   |

^ 8.0ha x 9.0ML/ha x 5% = 3.6ML

#### **Project Budget:**

Project costs have been based quotes provided by [REDACTED]

#### **Irrigation Design:**

An Irrigation Design has been completed by a certified designer for the irrigation system and has been included as an attachment to the proposal.

#### **Approvals/Environmental:**

No approvals are required to conduct the works as the works are occurring on private property and the activities will not have an adverse environmental impact on the property or surrounds.

The specific irrigation efficiency improvements will contribute to reducing deep drainage beyond the crop root zone and hence improved salinity outcomes for the River Murray.