This business case was used to inform decision-making on sustainable diversion limit adjustment mechanism projects.

Detailed costings and personal information has been redacted from the original business case to protect privacy and future tenders that will be undertaken to deliver this project.

Eastern Mount Lofty Ranges Flows for the Future Project

Sustainable Diversion Limit Adjustment Supply Measure Phase 2 Submission

Government of South Australia
Department of Environment, Water and Natural Resources

Department of Environment, Water and Natural Resources
Government of South Australia
11 March 2016

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CONTENTS

1 Document Purpose

The purpose of this document is to submit the Eastern Mount Lofty Ranges Flows for the Future (EMLR F4F) Project to the Sustainable Diversion Limit Adjustment Assessment Committee for Phase 2 Assessment as a supply measure. This document should be read with the *Flows for the Future: Reforming flow management in the Eastern Mount Lofty Ranges Water Resources Area*.

2 Summary of Proposal

This proposal follows from the Stage 1 Feasibility Study for the Flows for the Future Proposal submitted to the Sustainable Diversion Limit Adjustment Assessment Committee (SDLAAC) in 2015 (DEWNR 2015).

The EMLR F4F proposes activities that at times of low flows will result in additional flows to riverine environments in the Eastern Mount Lofty Ranges (EMLR), including flows to the River Murray and to the Lower Lakes in South Australia.

The project will contribute to agricultural outcomes in the EMLR, whilst returning, on average, up to 1.6 gigalitres (GL) per annum to the EMLR creeks system and increasing flows to the River Murray and Lower Lakes. The long term average annual contribution to Lake Alexandrina is modelled to be up to 1.3 GL on average per year.

The project aims to restore environmentally important elements of the natural flow pattern within the EMLR that are currently significantly affected by water capture. The project will shift the timing of consumptive water capture to higher flow events. This allows low flows and freshes (or pulse flows) to pass through the system, supporting water-dependent habitats and catchment processes.

There are a range of activities that can be used to support low flows within the EMLR, including:

- Dam by-pass, siphoning or pumping solutions
- Filling in dams
- Watercourse diversion solutions
- Surrendering entitlement, linked with removing or altering dam or diversion infrastructure
- Surrendering entitlement in one place, and removing infrastructure in another, and/or
- Exchanging dams for aquifer storage and recovery and removing dams.

The EMLR F4F project is proposed for funding under the State Priority Project (SPP), with additional Commonwealth funding being sought through the SDL adjustment mechanism. This will enable an extended implementation timeframe so as to ensure maximum outcomes are achieved for the EMLR and the River Murray.

The F4F project SPP business case provided at Attachment 1 has estimated the cost of delivering low flow diversions to all the licenced and in-scope dams (1,150 dams) in the EMLR at [redacted].

Within the implementation timeframes for SPP, the SPP business case targets achieving threshold flow diversion on 680 'critical sites' in the EMLR at a cost of [redacted]. This represents approximately 60% of the critical sites identified for threshold flow diversion and [redacted] of the total F4F project cost.

Additional funding and an implementation timeframe up to 2022 through the SDL adjustment process represents an opportunity to deliver low flow diversions for the remaining 470 'critical sites' in the EMLR, representing the remaining 40% of the critical sites. It is estimated that these sites can be delivered in three years with an estimated finish date of 30 June 2022 and a cost of [redacted].

The cumulative outcome of the proposed F4F projects in the EMLR is a feasible six year project that would support Basin Plan implementation. It would return an additional 1.6 GL on average per year to the EMLR system through threshold flow diversion at 1,150 licenced in-scope dams in the EMLR and up to 1.3 GL on average per year to Lake Alexandrina.

3 Eligibility Criteria

Eligibility criteria applicable to the EMLR F4F project as an SDL adjustment supply measure are outlined below:

Reflects the definition of "Supply measure" under Basin Plan (cL7.03 and cL7.15)

The EMLR F4F project meets the criteria of a supply measure that operates to increase the quantity of water available to be taken compared with that under the existing benchmark condition as specified in Schedule 6 of the Basin Plan. The measure was not in the benchmark conditions that were assumed in the benchmark model.

In particular, the F4F project will increase end of system flows from the Eastern Mount Lofty Ranges into Lake Alexandrina. This has the potential to reduce flow requirements from the Murray system to maintain limits of change associated with the Coorong, Lower Lakes and Murray Mouth site (e.g. minimum barrage flow requirements).

The affected resource unit from the Flows for the Future proposal is the SS11 South Australian Murray within the SA River Murray Water Resource Plan area.

Operational by 30 June 2024 (Basin Plan cL7.12)

The Flows for the Future proposal will be operational by 30 June 2024. Full implementation is planned to take six years with key elements as outlined below.

- July 2016 – June 2019 – implementation at 700 sites through the SPP funding arrangements.
- July 2019 – June 2022 – implementation at the remaining 450 sites.

Commonwealth Supply or Constraint Measure Funding

The F4F project business case (SPP) has been developed from funding provided through SPP funds. The Commonwealth will assess the business case for SPP funding of approximately [redacted] against the agreed SPP due diligence criteria. The SDL adjustment funding of [redacted] being sought is to extend the F4F project for an additional three years at the completion of the SPP funding program. The SDL adjustment mechanism funding will ensure that full implementation of the project can occur and that the water reaching the River Murray is maximised.

4 Phase 2 SDL adjustment evaluation criteria

The key business case and other relevant documentation that support the EMLR F4F project (SPP and SDL project) are listed below. The relevant sections within each document that satisfy the Phase 2 SDL assessment criteria are described in Table 1.

Table 1. Relevant documents and documents that address Phase 2 SDL evaluation criteria

Evaluation Criteria	Guideline Reference	Relevant document and section of document	
		This SDL Adjustment Supply Measure Phase 2 Submission	SPP Business Case
Eligibility	Section 3	Section 3	N/A
Project Details	Section 4.1	Section 2	Section 3 - The Problem and Investment Rationale Section 4 – Defining the Proposal Section 5 – Strategic Response Section 6 – Auction Design Section 8 – Project Scope Section 9 – Accountabilities and Governance Section 10 – Project Implementation
Ecological values of the site	Section 4.2	-	Section 2.3 Water Dependant Ecosystems in the EMLR Section 2.4 – Environmental Water Requirements in the EMLR
Ecological objectives and targets	Section 4.3	-	Section 4.1 Objectives and Outcomes
Anticipated ecological benefits	Section 4.4.1	-	Section 4.3 'Benefits of Returning Low Flows in the EMLR Region
Potential adverse ecological impacts	Section 4.4.2	None	None
Current hydrology and proposed changes to the hydrology	Section 4.5.1	Section 5 and Attachment 1	-

Environmental water requirements	Section 4.5.2	-	Section 2.4 Environmental Water Requirements in the EMLR Section 2.6 The Basin Plan Section 2.7 Water Allocation Planning in the EMLR Section 2.8 Consumptive Use Limits (CUL)
Operating regime	Section 4.6	-	Section 2.9 Securing Low Flows Section 3.1 The Case for Change Section 3.2 Evidence of the Problem Appendix 3 Design Library
Assessment of risks and impacts of the operation of the measure	Section 4.7	Section 6 Risk Management	Section 12 Identification and Management of Risks
Technical feasibility and fitness for purpose	Section 4.8	-	Section 6.2 Auction Design and Implementation Appendix 3 Design Library (including recommended option decision tree)
Complementary actions and interdependencies	Section 4.9	Flows for the Future Project SPP funding is a predecessor to SDL adjustment funding.	
Costs, benefits and funding arrangement for new unfunded projects	Section 4.10.1	Costs and Funding: Section 7	Section 7 – Assessment of Investment Scenarios Section 11 – Financial Estimates of Preferred Option
Costs, benefits and funding arrangement for Projects not seeking Commonwealth Supply or Constraint Measure Funding	Section 4.10.2		Section 11 Financial Estimates of Preferred Option

5 Hydrology

Proposed changes to hydrology

Modelling previously undertaken for the period 1971 to 2006 estimated that 1.6GL of average annual flows would be returned within the two Prescribed Water Resource Areas (PWRA) (EMLR and Marne Saunders) under low flow release scenario compared to current conditions. The models, and the assumptions and limitations are described in the following reports:

- Alcorn M. R., 2010, Updates to the Capacity of the Surface Water Resource of the Eastern Mount Lofty Ranges: 2010 DFW Technical Note TN2010/04, Department for Water, Adelaide.
- Alcorn M. R., 2011, Hydrological Modelling of the Eastern Mount Lofty Ranges: Demand and Low Flow Bypass scenarios, DFW Technical Note 2011/02, Department for Water, Adelaide.

Rainfall and evaporation data sets for the reference period (1895 to 2009) were incorporated in the models previously setup in WaterCRESS platform for the Bremer River, Angas River, Finniss River, Tookayerta Creek, and Currency Creek catchments.

Scenario modelling was undertaken to represent current conditions and low flow releases from in-scope dams[1] and watercourse extractions. The flows that would be returned to the system under a low flow release scenario were calculated by subtracting modelled mean annual flow from data under base scenario (current conditions) from the modelled mean annual flow under low flow release scenario.

Analysis of the modelled flow data indicate that the mean annual flows returned to the system in the two PWRAs under low flow release scenario for the period 1895 to 2009 is around 1.53GL, which is similar to the 1.6GL previously estimated for the period 1971 to 2006.

The change in hydrology for the River Murray was modelled as being end of system flows. For the EMLR-Ungauged and Marne-Saunders catchments the contribution to the River Murray is assumed to be zero as losses over the plains capture all of the flows in the majority of years. For the remaining catchments, the end of the system occurs at Lake Alexandrina, and the increase in mean annual flows within the catchments is assumed to equal the increase in flow contributing to River Murray system. The data indicates that around half of the returned flows are from the Finniss and the Bremer rivers. Bremer, Angas, Finniss, Currency and Tookayerta that drain to the Lakes contribute up to 1.3 GL of the total modelled mean annual flows returned from the two PWRAs.

More detailed descriptions of this modelling including context, assumptions, methodology and results is provided in Attachment 2.

6 Risk Management

Project development and delivery, and environmental and ecological risks and their management are described in the F4F business case (DEWNR 2016a).

Operational, maintenance and management risks post completion / commissioning of the threshold flow diversions delivered by the F4F project have been provided in Attachment 3.

[1] In-scope dams – Farm dams used for licensed water consumption and all other dams that are greater than 5ML in capacity.

The residual risks with treatments are considered acceptable (low or moderate severity ratings).

Risks have been identified, assessed in raw state, risk treatments proposed and residual risks rated using the DEWNR risk management procedure, which complies with AS/NZS 31000:2009 Risk Management Principles and Guidelines.

7 Costs and Funding

Cost Estimate

The total cost of the F4F projects is [redacted] The following table breaks down the contribution by year from the respective funding sources:

Funding Source	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total
SPP	[redacted]						
SDL							
Total							

Funding

The SDL project proposal is to extend the F4F project to deliver threshold flow diversion to the predicted remaining 480 'critical site' licenced dams in the EMLR and the Basin Plan that were not considered feasible to complete within the SPP funding program timeframes. It is proposed to use the same project team and project delivery methodology of grants to landholders through reverse discriminatory auctions and subsequent design and construction of devices by landholders at their dam(s).

Funding of [redacted] will be required from 1 July 2019 to 30 June 2022.

8 References

DEWNR (2015) Sustainable diversion limit supply measure proposal: Flows for the Future

DEWNR (2016a) Flows for the Future, Reforming flow management in the Eastern Mount Lofty Ranges Region

DEWNR (2016b) Flows for the Future Project Hydrology Modelling

Attachments

Attachment 1 Flows for the Future Project Hydrological Modelling

ATTACHMENT 2: *Modelled estimates of flows returned under low flow release scenario for the Eastern Mount Lofty Ranges for inclusion of Flows for the Future in SDL Adjustment*

Prepared by: Kumar Savadamuthu, Tom Stewart
Surface Water, SMK, DEWNR

1. Context

The Surface Water Science unit was approached by Water and Climate Change (WCC) Branch to extend the modelling period to 1895 to 2009 for the catchment models established previously for Eastern Mount Lofty Ranges (EMLR) Prescribed Water Resources Area (PWRA) and the Marne-Saunders Prescribed Water Resources Area (M-S PWRA). The objective of this work is for the Flows for the Future project to be assessed through the SDL Adjustment Mechanism, which requires assessment of the impact of the project on flows into the River Murray and Lake Alexandrina from the Eastern Mount Lofty Ranges (EMLR).

This work is a continuation of previous work by Alcorn (2011) to provide modelled estimates, for the period 1971 to 2006, of returned flows under low flow release scenarios compared to that of current conditions. It is to be noted that the same models were also used in:

- Determination of surface water resource capacity and consumptive use limits in Water Allocation Plans (WAP) for the two PWRAs.
- Provision of annual estimates of modelled water use from the PWRAs to the Murray Darling Basin Authority (MDBA) as part of the Section 71 Basin Plan Reporting requirement.

The current work involved extending the model run period to 1895 to 2009, which is the reference period for the SDL adjustment mechanism, and estimating the flows returned under low flow release scenarios for the reference period.

2. Assumptions

Modelling undertaken previously by Alcorn (2011) and further analysis resulted in estimation of mean annual flows (MAF) returned to the EMLR PWRA and M-S PWRA under low flow release scenario to be around 1.6GL for the period 1971 to 2006. The models, assumptions and limitations are described in the following reports:

- Alcorn M. R., 2010, Updates to the Capacity of the Surface Water Resource of the Eastern Mount Lofty Ranges: 2010 DFW Technical Note TN2010/04, Department for Water, Adelaide.
- Alcorn M. R., 2011, Hydrological Modelling of the Eastern Mount Lofty Ranges: Demand and Low Flow Bypass scenarios, DFW Technical Note 2011/02, Department for Water, Adelaide.
- Alcorn M.R., Savadamuthu K, Cetin L, Shrestha P, 2013, Strategic approach to location of Low Flow Releases in the Mount Lofty Ranges – Feasibility Study, DEWNR Technical Report 2013/21, Department of Environment, Water and Natural Resources, Adelaide

3. Modelling methodology

3.1. Gauged catchments in the EMLR PWRA

SILO rainfall and evaporation data was extracted for the relevant stations and appended to the five models representing the EMLR catchment to cover the period 1895-2009. The appended models were run for the Angas, Bremer, Currency, Finniss and Tookayerta catchments under both the base scenario ('BASE') and under low flow release conditions ('BASE_LFB'). For quality assurance, the models were initially run from 1971 to 2006 to replicate results of the previous report and to ensure that the output was not influenced by any changes in the updated SILO data (Table 1). The difference between outputs was negligible (<0.05%) and once satisfied, the catchment models were run for the period 1895 to 2009. From this, a data subset (1971 to 2006) from the long-term model was compared to the previous run and there was found to be a difference of approximately 5% between the two modelled outputs, which can be attributed to the change in the initial conditions in the model as a result of an extended temporal period.

Table 1. Comparison of flows from two modelled runs

	Modelled mean annual flows (ML)					
	1971 TO 2006 (Old Run)			1971 TO 2006 (New Run)		
	BASE	BASE_LFB	DIFFERENCE	BASE	BASE_LFB	DIFFERENCE
ANGAS	8196	8397	201	8196	8397	201
BREMER	15159	15520	362	15159	15521	362
FINNISS	35224	35771	547	35231	35771	540
CURRENCY	7138	7295	157	7138	7295	157
TOOK	20427	20538	111	20427	20538	111
TOTAL	86143	87520	**1377**	86151	87521	**1370**

The long-term mean annual flow (MAF) data of the gauged catchments for the 1895-2009 dataset was extracted and compared to the MAF the period 1971-2006 and the difference between the two scenarios was calculated to give a value representing estimated MAF returned to the system (Table 2). There was found to be a difference of less than 1% between the two outputs indicating that the modelling period (1971 to 2006) used in the previous work by Alcorn (2011) is a good representation of the long term flow within the catchments.

Table 2. Short and Long term modelled mean annual flows

	Modelled mean annual flows (ML)					
	1971 TO 2006 (subset)			1895 TO 2009		
	BASE	BASE_LFB	DIFFERENCE	BASE	BASE_LFB	DIFFERENCE
ANGAS	8254	8447	194	9069	9255	186
BREMER	15217	15567	350	16808	17164	356
FINNISS	35288	35812	524	42920	43424	504
CURRENCY	7132	7285	152	7266	7417	150
TOOKAYERTA	20579	20676	97	19910	20027	117
TOTAL	**86470**	**87787**	**1317**	**95974**	**97287**	**1313**

3.2. Ungauged catchments in the EMLR PWRA and Marne-Saunders PWRA

It should be noted that the ungauged catchments in the EMLR PWRA and Marne-Saunders PWRA contribute flow to the River Murray extremely rarely, and as such this contribution has been assumed to be zero for the purposes of the SDL Adjustment Mechanism.

The results of the updated models of the EMLR gauged catchments indicate that there was negligible influence on the overall MAF for the combined EMLR catchments. There was also found to be no significant effect on the subsequent flows returned to the system as a results of extending the modelling. Due to this, the methodology and results of the previous work (Alcorn et al., 2013) undertaken for the ungauged EMLR and Marne-Saunders PWRA catchments was used for this study. Since hydrological models are not available for the ungauged catchments, a generalised regression relationship (Alcorn et al., 2013, Equation 1, page 41) was developed from a sub-set of modelled sub-catchments to represent the relation between the level of development and percentage of adjusted flow recovered under a low flow release scenario. The MAF returned to the system (i.e. within the catchments, as opposed to the River Murray) from the ungauged catchments in the EMLR PWRA and the Marne-Saunders PWRA under low flow scenario were estimated to be 54ML and 160ML respectively using the above mentioned relation.

3.3. Rainfall

Give that the MAF for the two time periods were similar, further investigation of rainfall data was undertaken to verify this. Rainfall data from a representative rainfall station was analysed in order to assess the long term variability of rainfall within the region. Data from a Macclesfield BOM rainfall station (23728PPD) was analysed for both modelled periods, 1895-2009 and 1971-2006, and the results indicate that the difference in the mean annual rainfall between the two periods is 25mm (less than 5% difference) (Figure *1*). The rainfall decadal average was also calculated to assess long term rainfall variability (Figure *2*). The results show that the previous three decades (1980-2009) were drier than average, whereas the decades at the start of the century (1900-1930) were above average rainfall. However, despite the wet start to the century, the period 1930-1960 were below average rainfall and are comparable to decadal averages experienced between 1971-2006 and hence representative of long-term mean annual rainfall patterns.

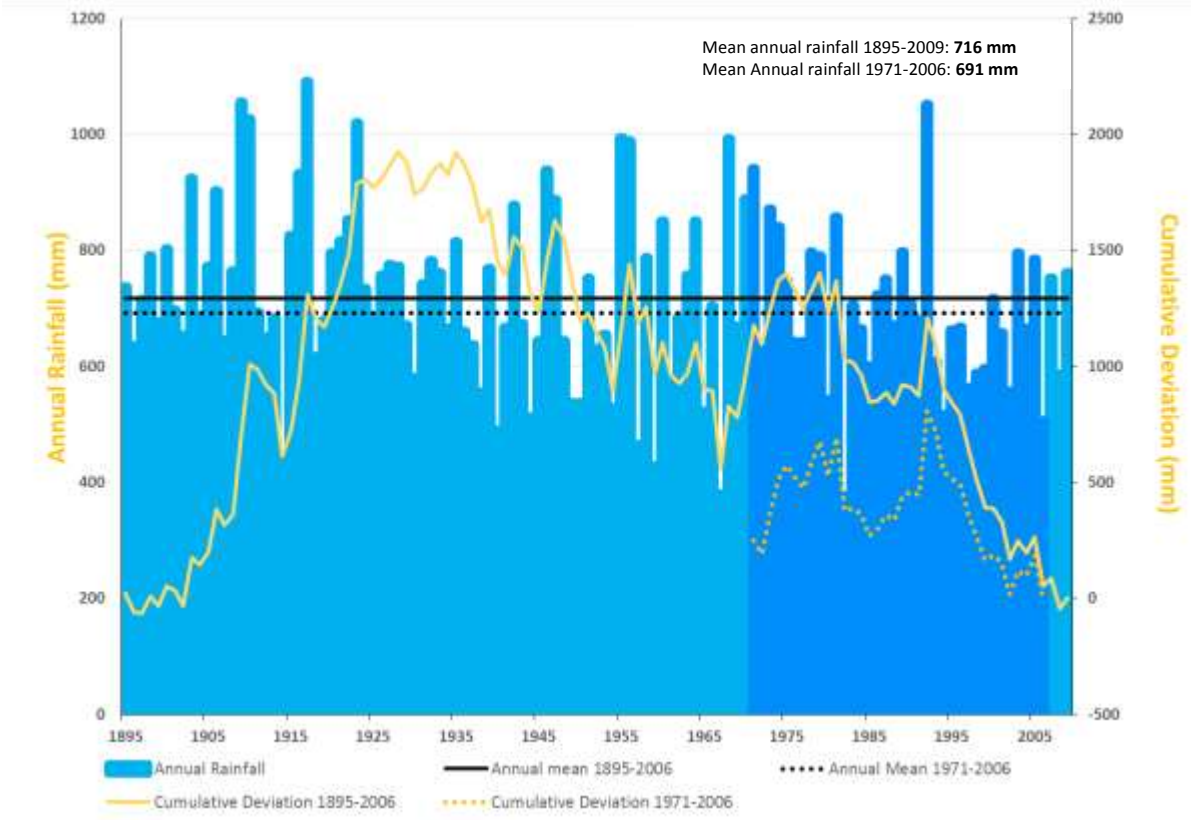

Figure 1. Comparison of long-term and short-term rainfall

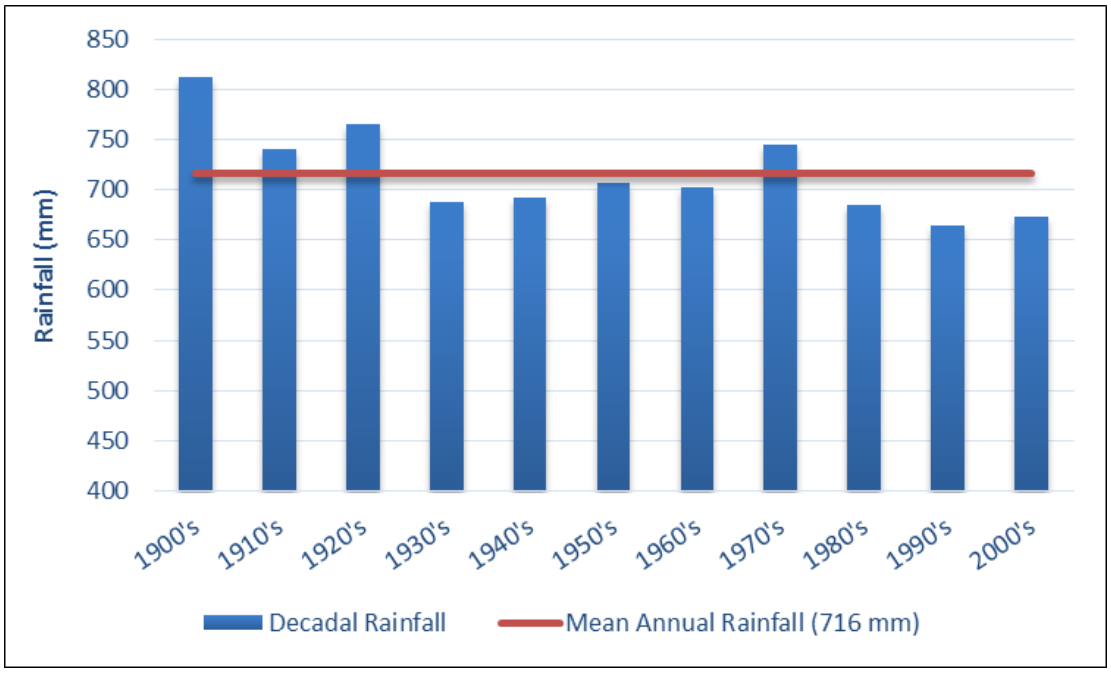

Figure 2. Decadal rainfall

4. Results

Analysis of the modelled results indicate that the modelled MAF returned to the system under low flow release scenario for the two EMLR and M-S PWRAs is 1.527 GL for the period 1895 to 2009 and 1.531 GL for the period 1971 to 2006, the difference in returned flow between the two periods being less than 1%. This is comparable to the 1.6 GL of returned flows reported from earlier studies. The proportional contribution of returned flows from the different catchment with the two PWRAs is tabulated in Table *3*.

Table 3 presents the flow calculated at the end of the system. For the EMLR-Ungauged and Marne-Saunders catchments this is located at the end of the MLR, and losses over the plains capture all of the flow in the majority of years, and hence the contribution to the River Murray is assumed to be zero. For the remaining catchments, the end of the system occurs at Lake Alexandrina, and the increase in MAF within the catchments is assumed to equal to the increase in flow contributing to River Murray system. The data indicates that around half of the returned flows are from the Finniss and the Bremer rivers. Bremer, Angas, Finniss, Currency and Tookayerta that drain to the Lakes contribute to around 86% (~1.3 GL) of the total modelled MAF returned from the two PWRAs.

Table 3. Proportional catchment contributions. Catchments shaded grey assumed not to contribute flow to the River Murray system.

Catchment	Proportional of MAF returned under low flow release scenario.
Angas	12%
Bremer	23%
Finniss	33%
Currency	10%
Tookayerta	8%
EMLR-Ungauged	4%
Marne-Saunders	10%

Attachment 2 Future operation Risk Register

Risk ID	Risk and Consequence Description	Category	RAW Likelihood	RAW Consequence	Raw Risk	Risk Treatment Plan / Monitoring	Managed Likelihood	Managed Consequence	Residual Risk
1	**Semi or fully automatic system failure** results in threshold flow diversion not occurring and landholder storing more than their entitlement under their licence.	Operational (business performance and service delivery)	(B) Likely	Moderate (3)	High	Licence conditions mandating landholder operation (semi-automated systems) and regular maintenance. DEWNR monitoring flows throughout each catchment. Inspections to verify diversions are operating. Enforcement by DEWNR of the NRM Act against licensees for non-compliance.	(D) Unlikely	Moderate (3)	Medium
2	**Manually operated systems not operated correctly by landholder(s)** and results in threshold flow diversion not occurring and landholder storing more than their entitlement under their licence.	Operational (business performance and service delivery)	(A) Almost certain	Moderate (3)	High	Licence conditions mandating landholder operation (semi-automated systems) and regular maintenance (automated systems) DEWNR monitoring flows throughout each catchment with inspections to verify diversions are operating Enforcement by DEWNR against licensees for non-compliance.	(C) Possible	Moderate (3)	Medium
3	**Failure of one or more diversion in a catchment** results in threshold flow diversion not occurring downstream to (Water Dependant Ecosystem)	Environment	(A) Almost certain	Moderate (3)	High	Landholders to include fencing or other barriers in their design or accepting risk of damage. Licence conditions mandating landholder operation (manual and semi-automated systems) and regular maintenance (automated systems) DEWNR monitoring flows throughout each catchment with inspections to verify diversions are operating DEWNR monitoring condition of WDE. Enforcement by DEWNR against licensees for non-compliance. Asset is handed overed to landholder and security and insurance for new assets is their responsibility.	(C) Possible	Moderate (3)	Medium

Government of South Australia
Department of Environment,
Water and Natural Resources

Flows for the Future

Reforming flow management in the Eastern Mount Lofty Ranges Water Resources Area

A business case prepared for the Australian Government

March 2016

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Department of Environment, Water and Natural Resources

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Abbreviations used throughout this report

CUL	Consumptive Use Limit
DEWNR	Department for Environment, Water and Natural Resources
EMLR	Eastern Mount Lofty Ranges
EWR	Environmental water requirement
MS	Marne Saunders
NRM	Natural resource management
PWRA	Prescribed Water Resource Area
SA Government	Government of South Australia
SAMDB	South Australian Murray Darling Basin

SPP	State Priority Projects
WAP	Water allocation plan
WDE	Water Dependent Environment
WRA	Water Resource Area

Units of Measurement (SI and non-SI Australian legal)

Name of unit	Symbol	Definition in terms of other metric units	Quantity
day	d	24 h	time interval
gigalitre	GL	10^6 m^3	volume
gram	g	10^{-3} kg	mass
hectare	ha	10^4 m^2	area
hour	h	60 min	time interval
kilogram	kg	base unit	mass
kilolitre	kL	1 m^3	volume
kilometre	km	10^3 m	length
litre	L	10^{-3} m^3	volume
megalitre	ML	10^3 m^3	volume
metre	m	base unit	length
microgram	μg	10^{-6} g	mass
microliter	μL	10^{-9} m^3	volume
milligram	mg	10^{-3} g	mass
millilitre	mL	10^{-6} m^3	volume
millimetre	mm	10^{-3} m	length
minute	min	60 s	time interval
second	s	base unit	time interval
tonne	t	1000 kg	mass
year	y	365 or 366 days	time interval

Executive Summary- the compelling case for change

The Murray-Darling Basin is undergoing a once in a generation reform brought about by the adoption of the Murray-Darling Basin Plan (Basin Plan). The Basin Plan changes how the system is managed and brings into place new demands on the users and operators of the water resources in the Basin.

The reforms of the Basin Plan are expected to have a substantial impact on how the irrigation sector conducts profitable, sustainable and viable business in the context of a new basin-wide focus on maintaining river health.

In order to assist in the dual goals of environmental condition enhancement and sustainable irrigation development, the Government of South Australia has developed the *Flows for the Future* project. The project aims to bypass low flows at around 1100 strategically located dams and water course diversion across the Eastern Mount Lofty Ranges Water Resource Area (EMLR WRA), which will enable environmental flows to be provided at critical times.

Low flows are naturally occurring, regular, small flow events that are part of the annual water pattern of a catchment. They are a small but essential fraction of water that needs to flow across land through watercourses to maintain natural processes and catchment health. Securing low flows is about re-establishing more natural flow patterns. The aim is to maintain the necessary balance between water for productive purposes and water for the environment.

Water-dependent ecosystems in seasonally flowing streams of the EMLR WRA are degraded. The reduction in low flows as a result of interception by thousands of farm dams and watercourse diversions has been identified as a key driver of this degradation. Installation of low flow devices will contribute to maintaining water-dependant ecosystems, such as essential dry-season refuge pools, and to provide a pattern of flow to support plant and animal life cycles. It would support the meeting of local environmental flow provision targets that aim to provide a flow pattern that balances social, economic and environmental water needs.

There are no large public water storages that can be used to release environmental water allocations across the EMLR WRA. Instead, the cumulative impacts of the many small interceptions of surface water into existing dams can be reduced to an acceptable level by returning low flows.

Flows for the Future aims to:

- Ensure that the creeks and waterways leading to the River Murray and Lower Lakes are able to flow.
- Return a long-term average annual volume of up to 1.6 GL of additional flows into EMLR WRA riverine environments and 1.3 GL reaching the Lower Lakes.
- Protect nationally threatened species, the Environment Protection and Biodiversity Conservation Act listed critically endangered Fleurieu Peninsula Swamps, threatened ecological systems, and internationally significant Ramsar sites.
- Enable the existing $439 million per annum of agricultural production in the Eastern Mt Lofty Ranges area to continue to be productive, clean, green and resilient.
- Achieve a better balance between social, economic and environmental water use by shifting the way water is taken to ensure environmental flows are provided at critical times, as well as allowing harvesting of higher flows for consumptive use.
- Support future security of the local economy for an area that is a prime tourism destination for food, wine, and the rural lifestyle which is so valued by Australians when close to cities such as Adelaide.
- Implement an innovative market based solution that allows the community to choose the best solution for their circumstances.

- Ensure the EMLR WRA can meet an environmentally sustainable level of take, as required by the Basin Plan, without reductions to licence holders' water allocation entitlements.

If these critical low flows are returned to the environment then the water-taking limits allocated to users in the EMLR WRA can support providing an equitable balance between the social, economic and environmental water use. In other words there is an environmentally sustainable level of take, as required under the Basin Plan.

It is widely acknowledged and understood that the adoption and implementation of the Basin Plan will have many positive impacts upon the environmental condition of the riverine environment. It is also acknowledged that for many communities within the Basin there is a need to support them in the difficult transition to meet these new requirements.

By shifting the way water is taken to ensure the provision of environmental flows at critical times, it will also allow harvesting of higher flows for consumptive use. Modelling has shown that this solution is expected to return an annual average of up to 1.6 GL of environmental flows to the system. It has been estimated that without this solution, returning the required flows to support the water dependent ecosystems (and meet the current sustainable diversion limits set out in the Basin Plan) will require irrigation entitlements to be reviewed with significant reductions possible. Reductions to entitlements would be a significant impact on the surface water irrigation industry in the WRA. The return of low flows will minimize the risk for water licence holders to have further cuts to their current entitlements.

Implementing the required infrastructure on existing dams and diversions to return low flows is costly. Without investment to offset some of these costs, it has been estimated it could take over 20 years to achieve. This time line fails to meet the objectives of the Basin Plan and puts at risk many of the water dependent ecosystems, threatened species and wetlands in the area. It also continues to degrade the ecosystem services which local industries and communities rely on.

In summary, *Flows for the Future* will deliver increased flows to the system, contribute to the Basin Plan and support the health of the environment. *Flows for the Future* proposes an innovative market driven auction that is considered to be the most effective, fair and market based value for money option. The auction encourages participants to offer their best bid and solution in consideration of their circumstances.

A number of investment options have been investigated. South Australia's preferred option seeks investment of $25.6 million over six years (ending 30 June 2022). This option has the greatest net present value of $109.9 million and is expected to return an annual average of 1.6 GL of water to the EMLR WRA and 1.3 GL to the Lower Lakes.

1. Overview of Business Case

1.1. Purpose

This business case has been prepared by the SA Department of Environment, Water and Natural Resources on behalf of the South Australian Government.

The preferred investment option is [redacted]. Funding is sought from both the Australian Government's SRWUIPs State Priority Projects and Sustainable Diversion Limit supply measure funds.

Flows for the Future will be delivered by the South Australian Department of Environment, Water and Natural Resources (DEWNR) in partnership with the South Australian Murray-Darling Basin Natural Resources Management Board (SAMDB NRM Board).

1.2. Overview of Business Case Document

This Business case includes two documents. This document includes the main body of the business case; being 17 Parts. The appendices referred to throughout this document are contained within a separate document titled 'Flows for the Future Business Case – Appendicies'.

Part 1 and Part 2	Includes the introduction, context and drivers for the project
Part 3	Outlines the problem and rationale for the investment
Part 4	Provides an overview of the project and its benefits
Part 5	Outlines the decision making process to determine the best approach.
Part 6	Outlines the proposed auction approach which is a core plank in the proposal
Part 7	Provides a cost benefit analysis of various investment options
Parts 8-10	Outlines in detail the proposed project including its scope, governance, and approach to implementation
Part 11	Provides an overview of the investment model and budget for the proposed project
Part 12	Outlines the key risks and mitigation strategies
Part 13	Describes how the community will be informed, engaged and involved in the project
Parts 14-16	These parts provide information about the implementation of the project, specifically the monitoring and evaluation, approvals compliance and audits
Part 17	Provides details regarding project closure and transition

1.3. Due Diligence

Funding of the State Priority Projects (SPP) investment component is conditional on the Commonwealth undertaking an assessment of projects. The agreed due diligence criteria are set out in item B.3.1 of the SA-09 South Australian SPP Project Design Funding project schedule.

Table 1 below outlines the due diligence criteria and the key sections within the business case that address the criteria.

Table 1: Summary of Commonwealth Due Diligence Criteria and relevant section within this Business Case.

Criteria	Section/s within Business Case
There is evidence of clear economic benefits, environmental benefits and social benefits (particularly for irrigation communities) demonstrable over a 20 year horizon (particularly through quantitative data), including a positive cost-benefit outcome for a range of feasible investment and water availability parameters for each recommended scenario, compared with a no change option.	Part 3.2 provides evidence of environmental decline and Part 4.3 provides evidence of environmental benefits. Part 7 includes a summary of a cost benefit analysis of investment scenarios over a 20 year horizon. Appendix 4 provides a full copy of the CBA report from EconSearch
There is written evidence of broad support for the proposals from within South Australia including communities and other stakeholders.	Appendix 6 provides written support from key stakeholders and community members
Effective governance, financial accountability and risk management structures (including possible roles for the State, industry bodies and the Australian Government) are proposed.	Part 9 outlines the governance and project management for the project Part 10 provides an overview of the implementation approach and key milestones Part 12 provides a detailed risk register and approach for managing and mitigating risks
Mechanisms for determining successful proponents and awarding funding are equitable and transparent and align with the Commonwealth Grant Guidelines;	Part 6 provides an overview of the auction process Appendix 7 provides a copy of the Probity Plan Appendix 5 provides a copy of the Grant Agreement template which has been developed using the Grant guidelines
Proposed contractual arrangements between the funder and the delivery body are rigorous and address risks (including those relating to financial viability) and ensure appropriate project management to deliver agreed outcomes (including appropriate timing of delivery of water entitlements against receipt of funding).	Part 9 provides details on accountabilities and governance supporting the project management of the program. Part 12 provides a risk register and mitigation actions Part 15 provides a monitoring and evaluation framework to monitor outcomes of the program
Project activities (both on ground activities and project support costs) are fully costed, with budgets justified against industry standards.	Part 11 provides detail budget and investment costs. Further detail is provide din the appendices including budgets for other investment options considered
There is technical evidence that all proposed water savings (including environmental flows) can be achieved through the proposed activities against baseline data, with projections to take into account the potential impacts of climate change.	Parts 2, 3 and 4.3 outlines the benefits that can be achieved through the delivery of the project. Included within this part are significant references providing the technical justification.
There is confirmation that the water entitlements realised through proposals would be secure, unencumbered, transferable to the Commonwealth and capable of being used for purposes that reflect the Commonwealth's environmental priorities. Details of the long term average annual yield of water entitlements and proposed mechanism of transfer to the Commonwealth will need to be provided and acceptable to the Commonwealth.	Not applicable
There is analysis of the likely take up of funding including whether funding recipients are likely to be irrigation trusts, members of trusts or private diverters, reference to current on and off farm efficiency levels and consideration of irrigation modernisation plans.	Part 14 details communications and community engagement research and planning Appendix 8 includes the Communications and Engagement Plan which includes market research outlining probable uptake

Cost sharing arrangements with the State and/or irrigators and/or any others are proposed and enhance value for money outcomes for the Commonwealth	Part 11 provides an overview of the contributions from partners
Confirm that overall, in return for Commonwealth funding, the State will return Class 3a water or equivalent, at a market multiple of no greater than 2.5.	Not applicable
There is consistency with intergovernmental agreements, Commonwealth and State legislation, and linkages with existing programs.	Part one and two provides an overview of links to context and drivers of the project.
There is confirmation that ongoing operations and maintenance costs will be met by proponents.	Part 11 provides an overview of the budget while Parts 14 and 15 outline the monitoring and compliance arrangements

2. Context & Drivers

2.1. The Eastern Mount Lofty Ranges

Flows for the Future covers the Eastern Mount Lofty Ranges (EMLR) Water Resource Area (WRA) as defined in the Murray Darling Basin Plan. It includes two Prescribed Water Resource Areas (PWRA's) declared under the SA *Natural Resources Management Act 2004*; the Marne Saunders (MS) and the Eastern Mount Lofty Ranges (EMLR). Throughout this document the project area is referred to as the EMLR WRA.

Figure 1 provides a map of the EMLR PWRA and the Marne Saunders PWRA.

The EMLR WRA is predominately a rural landscape dominated by grazing and cropping. Other land uses include irrigated horticulture and pasture production; tourism, eco-tourism and lifestyle, conservation and remnant vegetation; intensive uses, which include urban areas and to a lesser extent mining, industrial and manufacturing land uses and forestry (SAMDB 2013).

The EMLR is part of the Mount Lofty Ranges which is world renowned for its food, wine and tourism – all located less than an hour's drive from Adelaide. The Mount Lofty Ranges is currently seeking National Heritage and UNESCO listing for its unique agricultural landscape[1].

The EMLR WRA contains over 8,000 farm dams, with a total storage capacity of 21.6 GL, a further 17 GL of water is diverted directly from creeks and permanent pools for irrigation use. Water consumed for irrigation purposes is allocated through a licencing system, with surface water consumption for stock and domestic purposes remaining unlicensed.

Rainfall in the WRA, and therefore streamflow, is highly variable. For example in the Marne Catchment, since 1973, when streamflow's were first recorded, annual streamflow has ranged from 80 megalitres (in 1982) to 33,500 megalitres (in 1974). The EMLR and the MS PWRAs contribute about 0.5% of the total annual runoff to the Murray-Darling Basin (CSIRO 2007, 2013).

[1] *www.mountloftyranges.org*

Figure 1: The EMLR PWRA and the Marne Saunders PWRA

2.2. Industries and Communities Reliant on Surface Water

The surface and ground water resources of the EMLR WRA are vital to its communities - particularly the agricultural and rural industries. A recent economic survey undertaken by EconSearch (2016) showed that irrigated agriculture alone contributed $218 million per annum in 2013/14 to local and state economies, highlighting the importance of providing high quality and reliable water to users.

The predominant irrigated agriculture industry is wine grapes, followed by dairy, olives, pasture, apples, pears, berries, lucerne, vegetables and cereal. The WRA also supports many businesses such as livestock production, industrial and recreation businesses (e.g. golf courses), community facilities and domestic properties that are reliant on dams and watercourse diversions (EconSearch 2016).

The WRA is home to over 74,000 people with the main townships being Mount Barker, Nairne, Mannum, Murray Bridge, Strathalbyn, and Eden Valley (EconSearch 2016).

Some key economic facts for the EMLR WRA are provided in Table 2.

Table 2: Key economic facts for EMLR WRA (EconSearch 2016)

Gross WRA product of tourism	$161 million per annum
Farm gate value of production of irrigated agriculture	$117 million per annum
The gross value added product of this irrigated production to the WRA in 2013/14	$218 million per annum
Gross WRA product value of all agriculture in 2013/14	$439 million per annum
Total area of agricultural holdings	277,818 hectares
Irrigated horticulture, viticulture and dairy	4,102 hectares
Main irrigated agricultural and horticultural crops	Dairy, wine grapes, olives, vegetables, fruit/nuts, nurseries, hay/silage.
Dominant livestock production	Sheep and lambs for wool and meat Cows for milk and meat Intensive agriculture of chickens and pigs

2.2.1 Tourism

Tourism is an important contributor to the local economy, estimated to be in the order of $161 million per annum and expected to grow strongly over the next ten years (EconSearch 2016). The Adelaide Hills (in which the EMLR is part of) generally are seen as an important destination with significant future tourism potential (RDA 2014). The significant tourism and recreation appeal of the area relies on the combination of natural, agricultural and small town landscapes that provide an aesthetic backdrop for visitors. Therefore in the broadest sense, these industries will be adversely impacted if the balance between environmental, social and economic sustainability is not maintained.

2.2.2 Cultural Values

The EMLR WRA covers two Aboriginal Nations being the Peramangk and the Ngarrindjeri.

The Peramangk people lived on the eastern side of the escarpment of the Adelaide Hills in the districts surrounding Mount Barker. The Ngarrindjeri people are the Traditional Owners of the lands and waters of the

River Murray, Lower Lakes and Coorong and adjacent areas. According to their traditions, customs and spiritual beliefs its lands and waters remain their traditional country.

Water is a central feature of both of these cultures. Maintaining the health of waterways is critical component of maintaining their connection with land.

> *The land and waters is a living body. We the Ngarrindjeri people are a part of its existence. The land and waters must be healthy for the Ngarrindjeri people to be healthy.*

2.3. Water-dependent Ecosystems of the EMLR

Water-dependent ecosystems (WDE's) comprise an array of plant, animal and microorganism communities with their non-living environment, whose functions are dependent upon water. These ecosystems have a complex dependence on water availability, quality and water flow. Changes to the water regime are likely to lead to changes in the types of ecological communities present and/or their condition and function (e.g. Lloyd et al 2004).

The EMLR WRA supports a wide variety of water-dependent ecosystems and habitats including drainage paths and streams, riparian zones, floodplains, wetlands and estuaries, and numerous permanent pools and springs.

The riverine habitats of the EMLR WRA are mostly seasonally flowing small watercourses, wetlands and floodplains that support important ecological assets such. These assets include the Fleurieu Peninsula Swamps (listed as a critically endangered community under the Australian Government's *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*) and highly threatened populations of fish species protected under the SA *Fisheries Management Act 2007*. Of the fish species recorded in the EMLR WRA, three (3) are nationally threatened and sixteen (16) are protected or considered threatened at state level, according to the Action Plan for SA Freshwater Fish (Hammer et al. 2009). Other locally important assets include the red gum swamps located on the Angas and Bremer plains.

The streams of the EMLR WRA are also critical to a functioning and healthy environment beyond the WRA. For example, they create unique habitats at the interface between the EMLR WRA and Lake Alexandrina as part of the Ramsar-listed Coorong and Lakes Alexandrina and Albert Wetlands. The streams also provide flowing habitats, required by a range of migratory River Murray fish species and are important refuge habitats when conditions in the Lower Lakes are poor (increasingly so under predicted climate change).

In addition to their intrinsic values, healthy and functional water-dependent ecosystems provide supporting ecosystem services and other community values- such as nutrient cycling and water cleaning, erosion control, and cultural services such as educational, inspirational and aesthetic values. These services and values underpin the communities and businesses of the EMLR.

Various studies have documented the poor or declining condition and/or reduction in distribution of water-dependent ecosystems at many locations in the EMLR, including local extinction of fish species in some catchments[2]. Changes in the water regime and reduction in flows have been identified as key contributors to these declines (Alcorn 2004, 2006 and 2008, Savadamuthu 2002, 2003, 2004 and 2006).

2.4. Environmental Water Requirements in the EMLR

The environmental water requirement (EWR) is the water regime needed to sustain the ecological values of water-dependent ecosystems, including their processes and biological diversity, at a low level of risk.

[2] *e.g. Goonan et al 2003a and 2003b (macroinvertebrates), Hammer 2004 (fish), Harding 2005 (wetlands) Marne River Environmental Flows Technical Panel (MREFTP) (2003) and SA Murray Darling Basin NRM Board (2009)*

EWRs are commonly described in terms of the system's flow components (e.g. zero flows, low flows, freshes (short pulses of higher flow that remain in the channel), high flows, bank full and overbank flows), together with season, duration and frequency required to support different ecological processes.

Most of the seasonally flowing watercourses of the EMLR WRA naturally shrink back to permanent pools during the drier summer and autumn seasons. Naturally occurring low flows are critical to top up and refresh these pools. These pools provide essential aquatic refuge habitat that maintain core populations of plants and animals during the drier seasons and droughts, enabling species to recolonise other areas of the catchment when wetter conditions return. These low flows are also important throughout the year to allow species to access different habitats for feeding, breeding and shelter, and local-scale movement to recolonise vacant areas.

Extensive investigations have been undertaken to describe and quantify the EWRs of the water-dependent ecosystems in the EMLR WRA and how they have been influenced by surface water resource development (VanLaarhoven and van der Wielen 2009, MREFTP 2003, Doeg and van der Wielen 2007). As part of this process, the EWRs have been expressed as a series of flow metrics or statistics that represent parts of the flow pattern that strongly influence water-dependent ecosystems (e.g. number of zero flow days over the low flow season). Limits or targets have also been set for the metrics that indicate acceptable values expected to support water-dependent species.

2.4.1 The impact of surface water development on the EWR of the EMLR

The impact of water resource development on the flow pattern in the EMLR WRA has been demonstrated by flow modelling that accounts for water resource development (Alcorn 2004, 2006 and 2008, Savadamuthu 2002, 2003, 2004 and 2006). These models have showed an overall reduction in average annual flow of 13-46% (varying between catchments), under current water resource development compared with the same catchment conditions but no water resource development ('adjusted runoff').

The impacts in the low flow seasons is much greater than in the high flow seasons. For example, in the Finniss catchment, modelled median summer flows are reduced by 72% while median winter flows are reduced by 7% (Savadamuthu 2003). **Error! Reference source not found.** shows a stylised diagram of the impact of dams on he annual flow pattern in the EMLR.

The impact on downstream flow is particularly apparent during drier seasons when there is little water in the dam following use, seepage and evaporation, and so flow will be captured by the dam rather than pass by to the streams below. This means dams typically create an earlier start of the cease to flow period in watercourses, and a late start to the commencement of flows. Thus the natural environment is forced to endure longer periods of no flow, and shorter flowing periods. This is further exacerbated by direct extraction from streams and rivers for irrigation, particularly when this occurs during periods of low or no flow.

High flows are less affected by water resource development, as these flows allow dams to fill quickly and pass water downstream.

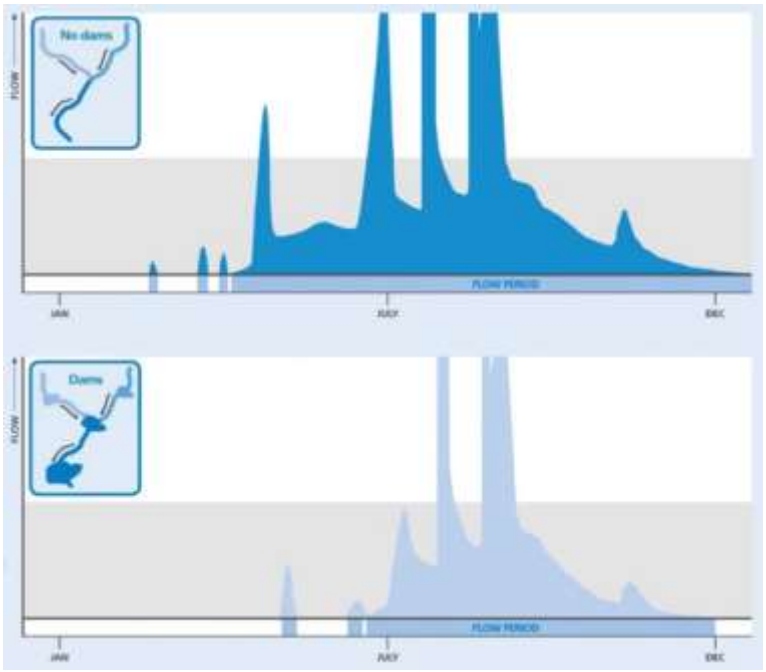

Figure 2: Impact of dam development on low flows

These flow models have been used to assess the impact of current water resource development on the environmental flow metrics described above. This assessment shows that environmental flow requirements are not being met in the EMLR WRA (VanLaarhoven and van der Wielen 2009, MREFTP 2003), placing critical ecosystems under threat. Metrics associated with low flows throughout the year and smaller freshes have been particularly affected.

The reduction in low flows and small freshes is expected to have contributed to the observed decline in water-dependent ecosystems in the EMLR WRA in different ways, including:

- Increasing the length of the low flow period increases the risk that essential refuge pools dry up or become uninhabitable due to poor water quality
- Increasing the duration of pool isolation exacerbates the stresses imposed by shrinking pools on reduced habitat availability, leading to increased exposure to predators within pools and competition for resources
- Shortening the length of the flowing period reduces the time available for water-dependent organisms to complete their life-cycle and carry out key ecological processes such as recolonisation and reproduction. This means that communities are less resilient to the stresses of the drier seasons
- Repeated failure to breed or survival to adulthood may lead to extinctions of local populations over time
- Reducing access to important habitats. Reduction in low flows during the flowing period is likely to have reduced the extent, frequency and duration of inundation of in-stream habitats such as shallow fast-flowing sections (riffles), bars and edge vegetation. Some types of plants and animals are primarily found in these habitats, and so are less likely to occur if these habitats are reduced by less low flow. Other species rely on access to these habitats for feeding, spawning, juvenile conditioning and predator avoidance. Reduced opportunity for conditioning, recruitment and predator avoidance makes such populations less resilient to other stresses
- Reducing the opportunity for organisms to move around the catchment. Reduction in low flows during the flowing period is likely to have reduced the connection of flow across reaches and catchments. Some species need to move between habitats (e.g. Some fish move between freshwater and saltwater at different parts of their life). Migration also increases the resilience of populations by allowing recolonisation of habitats where species have been lost or greatly reduced through water

regime stress or other factors. Maintaining multiple populations of a species across a landscape means it can persist even if individual populations are lost in the short term. Reducing the opportunities for migration through reductions in flow means that local losses are less likely to be replaced

- Allowing invasion of terrestrial plants into watercourses, which may displace more aquatic species

(MREFTP 2003, VanLaarhoven and van der Wielen 2009)

These investigations into impacts on the flow pattern and environmental needs are corroborated by landholder's observations on reductions in duration of flow, pool permanency and declines in water-dependent ecosystems, such as local loss of recreationally-caught fish species (e.g. Hammer 2004).

Without a re-set and the return of reliable flows, it is expected that local ecosystems and the ecosystem services they provide to the area's economy and communities will continue to decline in quality. The volume of water taken for consumptive purposes in the WRA would not be considered to be an environmentally sustainable level of take, as required under the Basin Plan and WAPs.

2.5. Climate Change Current and Future Impacts

Climate modelling indicates that the South Australian Murray Darling Basin Natural Resource Management region (in which the EMLR is part of) will be even drier and hotter in the future, with the speed and severity of the change dependent on the amount of global greenhouse gas emissions and their mitigation by management actions. Declines in average annual rainfall could be in the order of 10-20% by the end of the 21st Century. All seasons are expected to be affected with the greatest impacts occurring during spring (Charles and Fu, 2015).

Annual rainfall in south and south-eastern South Australia has declined over the past 100 years (Chowdhury et al. 2015). Changes in rainfall are generally amplified in streamflow due to associated changes in potential evapotranspiration and soil moisture, such that in ephemeral catchments with low runoff coefficients (such as the EMLR) the percentage change in runoff can be more than four times the percentage change in rainfall (Chiew and McMahon, 2002).

Rainfall in the southern Murray-Darling Basin during the period 1997-2006 has declined by 13% compared with long-term averages (1895 to 2006), leading to extreme declines in modelled annual streamflow of over 40%. Streamflow reductions observed during the recent Millennium Drought (1997-2006) were significantly greater than those observed in comparable droughts of the 20th Century, due to disproportionately large rainfall declines in autumn, resulting in dry soil conditions at the start of the runoff season; rainfall decline in winter-spring when most streamflow occurs; a lack of high rainfall years in the past decade; and higher temperatures (CSIRO, 2010). For the same period rainfall was 7% lower and surface water availability was 26% lower than the historical average in the EMLRs (CSIRO, 2007).

Patterns of variability in low flows in the Mount Lofty Ranges area are related to climatic variability (such as periods of drought), however low flows in ephemeral catchments have suffered a steady decrease since the 1970s, particularly in the increase in the number of zero-flow days, consistent with regional and wider drying trends (Potter et al. in press, Subtask b, Assess temporal trends in low flows in MLR).

Assessments of the impacts of climate change on streamflow in the Mount Lofty Ranges indicate that low flows are likely to decline under a changing climate. By 2030 water availability could be reduced by 18%, and dry periods in some ephemeral stream would protract (CSIRO, 2007). Potter et al. (in press,) found that low flows as represented by base flow index would decrease over the period 2006 to 2100 under different greenhouse emission scenarios, while Westra et al. (2014) found that low annual flows would suffer greater relative decreases by 2100 (-47%) than mean annual flows (-37%) relative to 1976 to 2005.

The project outlined within this business case has been designed to contribute to the mitigation of the impacts from climate change. Under the project proposed, low flows will be returned to the system as they occur, and so the volume returned to the environment will vary from year to year depending on rainfall and runoff patterns.

Future revisions of the WAPs will need to consider climate change impacts as predictions are refined, which may require review of water sharing arrangements and the low flow rates provided to the environment.

2.6. Water Allocation Planning in the EMLR

The water resources in the EMLR were prescribed on 8 September 2005 under the SA *Natural Resources Management Act 2004 (*NRM Act). The Marne Saunders was prescribed on 20 March 2003.

A water allocation plan (WAP) is a statutory instrument under the NRM Act. The MS Prescribed Water Resource Area (PWRA) WAP was adopted in 2010 and, the EMLR PWRA WAP was adopted in 2013.

The purpose of a WAP is to provide for the sustainable taking and use of prescribed water resources to meet present and future needs of the WRA. A WAP guides the granting of licences and allocations to take and use prescribed water resources, for allocations made once existing user entitlements have been considered. It also guides transfer of licences and allocations, ongoing management of water allocation, and the granting of permits for relevant water affecting activities. There is a separate, but linked, process under the NRM Act for allocating water to existing water users when an area is first prescribed. This process considers existing users' reasonable requirements, environmental water needs and water resource capacity.

The NRM Act requires a water allocation plan to set out principles for allocating water so that an equitable balance is achieved between social, economic and environmental water needs, and that the rate of taking and use of water is sustainable.

2.7. The Basin Plan

The *Flows for the Future* project area aligns with the Eastern Mount Lofty Ranges Water Resource Plan Area under the Basin Plan, and incorporates the Eastern Mount Lofty Ranges (SS13) and Marne-Saunders (SS12) surface water SDL resource units.

Prior to 2012, broader Murray-Darling Basin policy had a limited role in water resource management in the EMLR WRA. This changed with the development of the Basin Plan under the *Water Act 2007* in 2012.

The Basin Plan provides for long-term sustainable management of all the Basin's water resources, including the EMLR WRA. The Basin Plan sets new long-term average sustainable diversion limits (SDLs) that reflect an environmentally sustainable level of water use (or 'take') for each catchment and aquifer in the Basin, including the EMLR WRA[3]. The SDLs regulate the amount of water that can be used for consumptive purposes in the Basin.

The SDLs will commence in 2019, by which point they will be incorporated in state water resource plans. A water resource plan is a key tool for implementing the outcomes of the Basin Plan at both a local and Basin-wide level. Each Basin State is responsible for developing a plan for each of their water resource plan areas. These plans demonstrate how a Basin State is managing the water resources within the Murray-Darling Basin in a way that is consistent with the requirements of the Basin Plan, including meeting the SDLs.

The SA Government is in the process of developing a water resources plan for the Eastern Mount Lofty Ranges Water Resource Plan area. The state EMLR and Marne Saunders WAPs will form a significant component of the water resource plan for the area.

[3] *An environmentally sustainable level of take is the amount of water that can be taken for town water supplies, industry, agriculture and other human or consumptive uses, while ensuring there is enough water to achieve healthy river and groundwater systems.*

The SDLs for the EMLR and Marne-Saunders surface water SDL units are based on the quantity of surface water that could be taken under the EMLR[4] and Marne Saunders Water Allocation Plans (WAP), as determined over historical climate conditions (as per schedule 2 and 3 of the Basin Plan).

The current water taking limits in both the EMLR and Marne-Saunders WAPs have been developed based on a premise that low flows will be returned.

The project outlined within this business provides assistance to irrigators within the EMLR to adjust to the requirements and meet the SDLs outlined within the Basin Plan.

2.8. Consumptive Use Limits and Threshold Flow Rates

Both the Basin Plan and the NRM Act requires an equitable balance between social, economic and environmental needs for water, and to provide for sustainable water taking and use. As part of developing the EMLR and MS WAPs, extensive investigations were undertaken into water resource availability and behaviour, and environmental and consumptive water needs.

These investigations confirmed demand for water for consumptive purposes is high in some parts of the WRA, leading to water-sharing issues between users and degradation of water quality and water-dependent ecosystems (refer to Part 3 of this business case for more information). The SAMDB NRM Board worked closely with the community to develop water-sharing limits and policies that would support healthy working catchments, and the businesses and communities that rely on the natural resources and ecosystem services they provide. As part of this work, environmental water provision targets were set that aim to balance social, economic and environmental water needs while maintaining the environment at an acceptable level of risk. These provisions were expressed in the form of environmental flow provision targets to be met across the majority of the WRA.

The fundamental requirement from an environmental flows perspective is to have the right amount of water available at the right times, rather than an overall volume requirement. The investigations showed that capture and use of water by dams and watercourse diversions has most affected the low to medium components of the flow pattern required to support water-dependent ecosystems (refer to Part 2.3 and 2.4 above). High flows are less affected by water resource development, as these flows allow dams to fill quickly and pass water downstream. Hence returning the low to medium components of the flow pattern was identified as the key priority.

During the development of the draft WAPs three (3) potential options were identified for managing surface water:

1. Setting consumptive use limits (CULs) to meet environmental flow targets. This option would require consumptive use to be limited to 5% of long-term average runoff for the EMLR PWRA, and 0% in the MS, in order to ensure that dams fill and spill early enough to provide an adequate downstream flow pattern. This approach would require a reduction in current allocations of around 21.6 GL. These CULs however would result in most irrigation properties using dams and watercourses having a water allocation that is significantly below their reasonable needs. This option was considered unacceptable as it did not meet the needs of existing users and would have disastrous economic and social outcomes.

2. Setting consumptive use limits (CULs) to be sufficient to include the majority of existing consumptive demand (20-30% of long-term average annual adjusted[5] runoff, with additional provision for

[4] *The BDL for the EMLR was been set based on the draft EMLR WAP. The surface water limits and associated taking rules in the subsequent final EMLR WAP are equivalent to those in the draft EMLR WAP, but have been expressed in a different way.*

[5] *Adjusted flow is the modelled runoff adjusted to remove the impacts of dams, watercourse diversion, significant urban runoff and plantation forestry*

opportunistic flood diversion). This option was considered to be unacceptable because although existing consumptive water needs would be largely met, the environmental flow targets would not.

3. Setting consumptive use limits at 20% of the long-term average annual adjusted runoff across the EMLR PWRA (with additional provision for opportunistic flood diversion), and 30% of the long-term average adjusted May to November runoff in the MS (SAMDB NRMB 2013, SAMDB NRMB 2010) coupled with a requirement to return low flows, at or below threshold flow rate, when these flows occur. These CULs were considered sufficient to include the majority of existing consumptive demand. This option would support self-sustaining water-dependent ecosystems at an acceptable level of risk. Ultimately securing low flows was considered the only acceptable option. It balanced the needs of the environment, community and industry. It ensured the future of the environment, agricultural and tourism industries that all rely on water.

Option 3 was chosen as the basis for the MS and EMLR WAPs, and the associated existing user licensing processes. That is, the limits set in the water allocation plans and the volumes that have been allocated to existing users are premised on the basis of returning low flows.

The limits and taking rules outlined in option 3 are based on flows at or below the threshold flow rate[6] being returned around existing scope dams and diversions[7] when flow occurs. All new dams are required to install a low flow device as part of its approval. It is not sufficient to return low flows only at new dams, as the existing network of dams and diversions is already significantly affecting achievement of environmental flow provision targets.

2.9. Securing Low Flows

Dams act as a physical barrier, and low flows will not pass by to the streams below until the dams fill and spill. Taking less water out of a dam (by limiting allocation volumes that can be taken from the dam) means the dam fills and spills sooner, but there is still a significant delay before flow can pass the dam. Diverting low flows from watercourses at times of low flow similarly affects movement of water down the catchment. Returning low flows directly to the system as they occur is a much more effective way of providing low flows to the environment. (Refer to Figure 3)

[6] *The threshold flow rate has been set to encompass the key parts of the environmental flow pattern that have been most affected by water resource development, which includes low flows throughout the year as well as small pulse flows outside the high flow season (VanLaarhoven and van der Wielen 2012). The threshold flow rate at any point is calculated on the basis of the upstream catchment area and a factor that reflects the relevant flow rate and local climate and runoff conditions.*

[7] *Scope dams include all licenced dams and watercourse diversions. In addition, this includes large unlicenced (generally stock and domestic) dams with a capcity of 5 ML or more.*

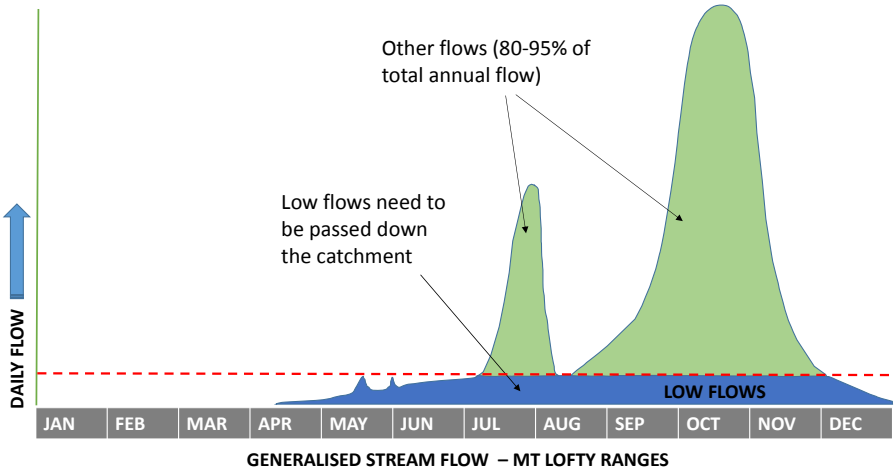

Figure 3: Impact of low flows

The impact on downstream flow is particularly apparent during drier seasons when there is little water in the dam following use, seepage and evaporation. This means dams typically create an earlier start of the cease to flow period in watercourses, and a late start to the commencement of flows. Thus the natural environment is forced to endure longer periods of no flow, and shorter flowing periods.

This is further exacerbated by direct extraction from streams and rivers for irrigation, particularly when this occurs during periods of low or no flow.

Low flows (at or below threshold flow rate) occur for much the flowing period, but only account for a small proportion of the total flow volume. Flows above the threshold flow rate that can be harvested generally account for around 80-95% of the total flow (Refer to Figure 4) (SAMDB NRMB 2013).

The alternative approach of limiting consumptive use to ensure dams fill and spill soon enough is a very inefficient way to ensure low flows get back into the system when they occur. This alternative approach means a large volume of water needs to be left unused in dams so that they fill and spill soon enough, significantly reducing the amount of water available for consumptive use.

2.9.1 Impact of returning low flows on security of supply

The reliability of water supply to farm dams and watercourses varies from property to property. It is affected by a complex range of interacting factors including climate variability, dam capacity, upstream water use and on-farm water management practices, including access to alternative water supplies and the amount of water captured used relative to the amount available. While returning low flows adds to the complexity of water management, it is difficult to predict its likely effect at any particular property or location.

The effect of returning low flows on reliability of supply was investigated in four locations in the Mount Lofty Ranges by Alcorn (2009). The study needed to make a number of assumptions to provide a reasonable assessment. One assumption was that a reliable supply was provided from a dam in a year if it was at least 85% full as of 31 October. Inflows and assumed patterns of water use were modelled over a period of 36 years, with and without returning low flows. The change in reliability of supply as a result of returning low flows was assessed for each dam, by dividing the current reliability by the reliability returning low flows, and expressing the change as a percentage[8]. The work found that 54% of sites experienced a decrease in reliability of supply of 10% or less (meaning potentially 3 years out of 36[9]) with 84% of sites experiencing a decrease in reliability of supply of 20% or less.

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[8] *For example, a dam with a current reliability of 33 years out of 36 (ie dams is at least 85% full on 31 October in 33 out of 36 modelling years), and a reliability of 30 out of 36 years when returning low flows, would have a reduction of (33-30)/33 = 10% reduction in reliability of supply.*

[9] *54% of sites tested experienced a decrease in reliability of supply of 10% or less as a result of returning low flows, and that 84% experienced a decrease of 20% or less.*

This small reduction in reliability of supply for some users is significantly smaller than the impact on production if entitlements were reduced in order to meet sustainability targets without low flows.

2.9.2 Design Options to secure low flows

There are a range of design options that can be used to secure low flows, these are described in more detail in Appendix 2.

Costs per site can range from a few hundred dollars to $30,000 and more. Known potential solutions include:

- Dam by-pass, siphoning or pumping solutions
- Removing or decommissioning dam
- Water course diversion solutions
- Using alternative water sources to allow dams and diversions to be removed;
- Storing water in other ways besides dams (e.g. aquifer storage and recovery), allowing dams to be removed
- A supporting strategy to reduce losses from dams (e.g. evaporation and seepage), which improves efficiency of water availability in dams and reduces potential impacts of returning low flows on reliability of supply

Above: *Landholders of the Marne Saunders investigating options for returning low flows*.

2.10. Community Involvement

2.10.1 Water Allocation Planning

The SA Government and the SAMDB NRM Board has been engaging with the EMLR community over a 10-year period to find the balance between social, economic and environmental water needs. The SAMDB NRM Board established community based advisory committees for direct community input to the process. These worked together closely with agency staff and technical experts to help understand and reconcile the wide range of views, and to shape the policies in the WAPs to balance those perspectives together with science and legal needs. These committees were made up of voluntary community members selected following an open call for membership nominations representing different industries, geographic areas, stakeholder groups and water resources.

Through the draft WAP consultation periods (January-April 2009 for MS, and May to August 2011 for EMLR), stakeholders were invited to make written submissions on the draft WAPs, to discuss the content, clarify any questions they had about the draft WAPs at public meetings, workshops and individual discussions, and to provide feedback about the consultation process.

Throughout these conversations the community demonstrated their support for a solution to return low flows to achieve the desired environmental objectives whilst minimising the disruption to productive agriculture in the WRA.

This early engagement also highlighted concerns about the costs of implementing the program and who pays, and the impact of any potential reduction in available water, particularly during dry years. These conversations have provided the impetus for the SAMDB NRM Board and the SA Government to investigate innovative options to delivering these outcomes.

2.10.2 Securing Low Flows Project work

The SA Murray Darling Basin NRM Board has been engaging with landholders throughout the eastern Mount on how best to secure low flows on properties through a broader project, called Securing Low Flows (SLF). This included:

- A Low Flows Design Competition, which saw farmers, inventors, engineers, entrepreneurs and designers propose new ways to secure low flows around dams and watercourse diversions in the Mount Lofty Ranges. A library of ideas, including technical drawings, can be found at: www.naturalresources.sa.gov.au/samurraydarlingbasin/water/low-flows-design-library.
- The setting up of eight trial sites: four in the EMLR – Paris Creek, Mount Barker, Bugle Ranges and Mount Jagged, and; four in the Western Mount Lofty Ranges (WMLR) – Oakbank, Biggs Flat, Myponga and Back Valley.

Both of these projects further reinforce that many landholders agree with the concept of securing low flows. They need however:

- details on how low flows solutions will be rolled out on their own property in terms of cost and practicalities;
- more information in relation to security of water supply; and
- demonstrated science and evidence that show that low flows can/will work in practice.

All of the work to date with the community has informed the project outlined within this business case and the community engagement and marketing plan provided in Part 13.

3. The Problem and Investment Rationale

3.1. Evidence of the Problem

3.1.1 Decline In Water Quality and Flow Impacting Business

Dam owners at the top of EMLR catchments have first access to run-off, and because they are able to capture and store large volumes of water, those further downstream have access to less water less often to sustain their businesses and the health of their landscapes, watercourses and wetlands. During consultation on the draft EMLR and Marne Saunders WAPs, landholders further down in catchments have raised concerns that their access to water has been reduced by water resource development upstream (e.g. SAMDB NRMB 2012)..

As the ecosystem services provided continue to degrade, further decreases in flow and water quality, more erosion and less productive land is expected. This degradation will have a direct impact on the agricultural business in the WRA as well as tourism and population growth as they becomes less desirable.

3.1.2 Environmental Decline

Monitoring data and anecdotal evidence has shown a concerning and persistent long-term decline in the condition of water-dependent ecosystems in the EMLR WRA. An independent assessment by the South Australian Environment Protection Authority (EPA) identified that 30 of the 39 riverine sites in the EMLR WRA were in 'poor' or 'fair condition' (EPA 2010).

Historical and current records shows that a number of fish species have become locally extinct (Hammer 2004), and for many of those that remain, their extent has contracted dramatically (refer to figure 4).

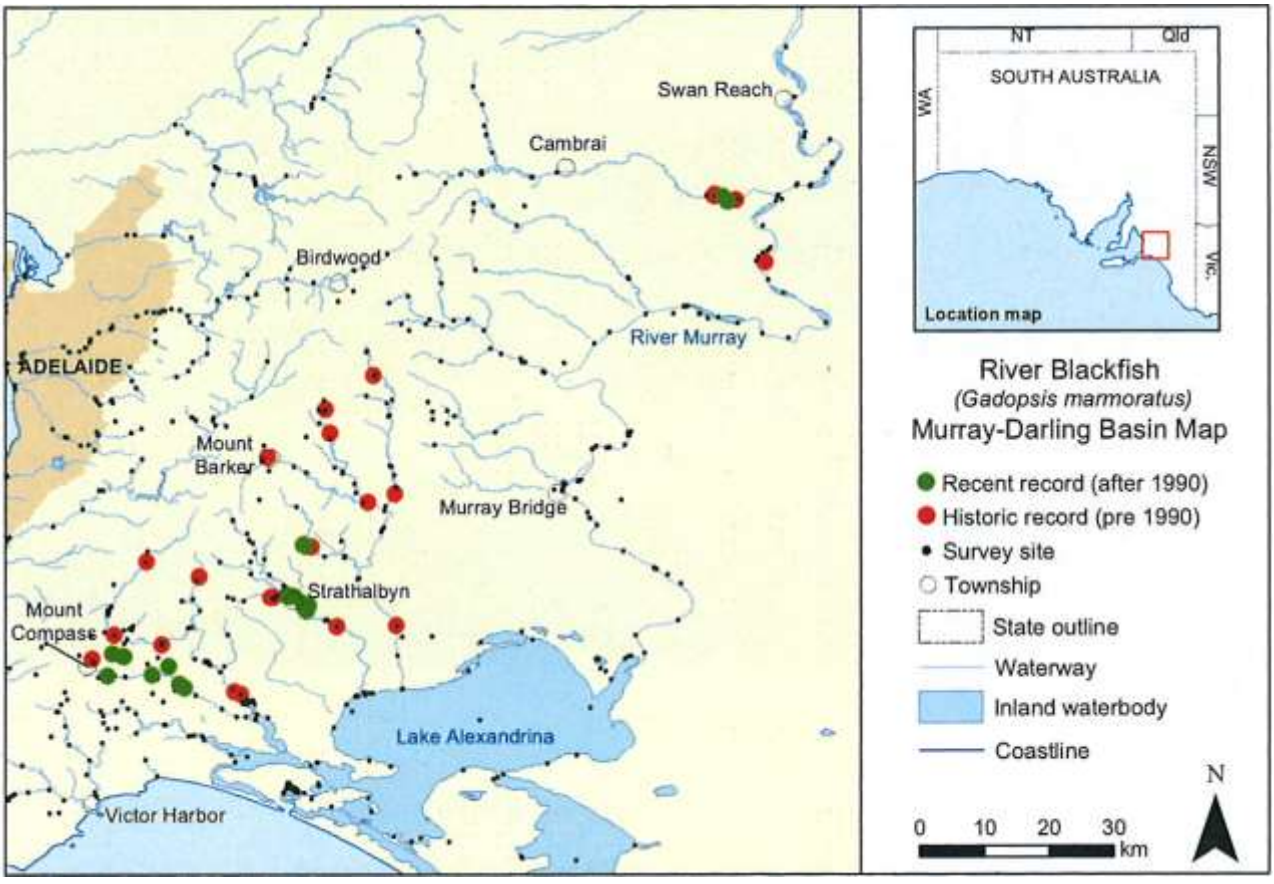

Figure 4: Historical and current distribution of river blackfish in the EMLR WRA, showing a strong contraction over time including total loss from one catchment (Hammer et al 2009)

Long-term fish monitoring has shown that, despite some improvement in habitat condition and fish populations following increased rainfall conditions after the 'millennium drought', 32% of fish populations in monitored reaches are in poor condition and only 14% are in good condition (figure 5).

Figure 6 shows a comparison of the reach and catchment level performance against fish indicators between 2009 and 2013. Condition scores (out of 9) are defined as good (>6, ##), moderate (3 to 6, ##) and poor (<3, ##). Reaches are headwaters (HW), upper pool-riffle (UC), mid pool-riffle (MC), and gorge (GO), lowland (LO) and terminal wetlands (TW) with reaches not sampled highlighted (with n/s).

No	Catchment	Condition							
		Reach						Overall	
		HW	UC	MC	GO	LO	TW	2013	2009
1	Angas	n/s	8.5	4.5	n/s	5.0	1.5	4.8	4.0
2	Bremer	n/s	1.0	n/s	n/s	3.0	3.0	3.0	1.0
3	Currency	n/s	3.0	7.0	n/s	3.5	3.5	3.5	3.5
4	Finniss	n/s	8.5	3.8	n/s	1.0	3.0	4.0	4.3
5	Inman	n/s	n/s	3.5	n/s	n/s	n/s	3.5	6.0
6	Marne	n/s	7.5	0.0	0.0	2.0	n/s	1.0	0.0
7	Reedy	n/s	n/s	3.5	4.5	2.0	n/s	3.5	2.5
8	Salt, Premimma & Rocky Gully	n/s	n/s	n/s	n/s	n/s	1.0	1.0	2.5
9	Saunders	n/s	n/s	n/s	n/s	2.0	n/s	2.0	0.0
10	Tookayerta	n/s	n/s	3.0	n/s	3.0	3.5	3.0	4.0
	2013	n/s	7.5	3.5	2.3	2.5	3.0	3.3	
	2009	n/s	3.0	4.3	1.6	3.8	0.5		3.0

Figure 5: Overall status of reaches and catchments of the EMLR in 2013 (Source: Whiterod and Hammer 2014)

There are a range of factors influencing the condition of water-dependent ecosystems in the EMLR including water quality, land use impacts and influence of weeds and pests. However, impacts on EWRs as a result of water capture by dams and watercourse diversions has been identified as an important driver of the current degraded condition (EPA 2010, Hammer et al 2009, VanLaarhoven and van der Wielen 2009, Whiterod and Hammer 2014).

The impact of water resource development on the flow pattern in the EMLR WRA has been demonstrated by flow modelling that accounts for water resource development (Alcorn 2004, 2006 and 2008, Savadamuthu 2002, 2003, 2004 and 2006). Low to medium flows have been particularly affected.

Landholder's have observed reductions in duration of flow, pool permanency and declines in water-dependent ecosystems, such as local loss of recreationally-caught fish species (e.g. Hammer 2004).

The reduction in low to medium flow components throughout the year leads to many impacts on water-dependent ecosystems including:

- Increasing the length of the low flow period increases the risk that essential refuge pools dry up or become uninhabitable due to poor water quality.
- Increasing the duration of pool isolation exacerbates the stresses imposed by shrinking pools on reduced habitat availability, leading to increased exposure to predators within pools and competition for resources.

- Shortening the length of the flowing period reduces the time available for water-dependent organisms to complete their life-cycle and carry out key ecological processes such as recolonisation and reproduction. This means that communities are less resilient to the stresses of the drier seasons;
- Repeated failures to contribute to the seedbank, or for juveniles to survive to adulthood, as a result of a truncated flowing period may lead to extinctions of local populations over time.
- Reducing connectivity, and associated ecological processes, at a range of scales. At a local scale, reduction in low flows during the flowing period is likely to have reduced the extent, frequency and duration of inundation of in-stream habitats such as riffles, bars, benches and edge vegetation. This is likely to lead to reduced diversity of functional groups that are primarily found in these types of habitats. Other species rely on access to these habitats for feeding, spawning, juvenile conditioning and predator avoidance. Reduced opportunity for conditioning, recruitment and predator avoidance makes such populations less resilient to stress.
- Reducing low flows throughout the year is likely to have reduced the opportunity for organisms to move around the catchment as propagules (eggs or seeds), juveniles or adults. Some species need to move between habitats (e.g. Some fish move between freshwater and saltwater at different parts of their life). Migration also increases the resilience of populations by allowing recolonisation of habitats where species have been lost or greatly reduced through water regime stress or other factors. Maintaining multiple populations of a species across a landscape means it can persist even if individual populations are lost in the short term. Reducing the opportunities for migration through reductions in flow means that local losses are less likely to be replaced.

Without a re-set and the return of reliable flows, it is expected that local ecosystems and the ecosystem services they provide to the WRA's economy and communities will continue to decline in quality. The volume of water taken for consumptive purposes in the WRA would not be considered to be an environmentally sustainable level of take, as required under the Basin Plan and WAPs, and would need to be dramatically reduced.

4. Defining the Proposal

Flows for the Future implemented in full will significantly contribute to creating a suitable environmental flow pattern to WDEs and returning a long-term average annual volume of between 0.8 - 1.6 GL of additional flows into riverine environments. *Flows for the Future* will also enable the $439 million per annum of agricultural production in the EMLR WRA to continue to be productive, clean, green and resilient, whilst

Without this project, and without low flows returned in the EMLR waterways, the systems upon which agriculture, tourism and regional values rely on will continue to decline and eventually collapse.

This project will ensure that the creeks and waterways leading to the River Murray and Lower Lakes are able to flow, protecting nationally threatened species, ecological systems and internationally significant Ramsar sites.

This project will achieve a better balance between social, economic and environmental water needs by shifting the way that water is taken to ensure environmental flows are provided at critical times as well as allowing harvesting of higher flows for consumptive use.

This project will support future security of the local economy for an area that is a prime tourism destination for food, wine, and the rural lifestyle which is so valued by Australians when close to the cities such as Adelaide.

Finally, this project will foster and encourage the mind set of community innovation by implementing an innovative market based solution that allows the community to choose the best solution for their circumstances.

4.1. Objectives & Outcomes

Flows for the Future aims to reinstate more natural flow patterns in South Australia's EMLR, particularly during periods of low flow, to keep these catchments healthy and provide a viable future for its communities and industries.

Flows for the Future will specifically address elevated levels of risk to water-dependent ecosystems (WDEs) arising from unsustainable levels of water resource development by restoring low flows to streams at a landscape scale.

4.1.1 Objectives

Flows for the Future key objectives are:

1 To protect, sustain and enhance water dependant ecosystems of the EMLR WRA of the Murray Darling Basin by:

- providing adequate flows for the environment during periods of low flow; and
- lengthening the period of time, throughout the year, when waterways in the EMLR WRA have flowing water and permanent pools.

2 To help protect the future of water dependent nationally and state threatened species and ecosystems in the EMLR and associated environments such as the Coorong and Lower Lakes Ramsar site.

3 To improve the condition of the EMLR landscape to support vibrant growing communities, improve tourism opportunities and protect and grow rural productivity and lifestyles through:

- improving in stream water quality, for agriculture and the environment; and
- maintaining and improving ecosystem services on which these values depend.

4 To secure existing water allocations and sustainable diversion limits which will:

- ensure adequate and reliable water for primary producing industries and communities; and
- assist in growing the productivity of agricultural and tourism industries in the EMLR WRA.

5 To build an engaged and involved community through:

- providing opportunities for the community to decide how low flows can best be returned;
- implementing a community driven and market based approach that drives best practice;
- stimulating innovation regarding irrigation, agricultural production and solutions to allow flows; and
- providing an opportunity for the community to develop solutions that suit their own circumstances.

4.1.2 Outcomes

Flows for the Future aims to deliver the following outcomes for the Australian Government.

1 A long-term average annual volume of between 0.8 - 1.6[10] GL of additional flows into riverine environments in the project area to secure the future of water dependent threatened species and nationally listed wetlands in the system.
2 An environmental outcome equivalent to that achieved by a reduction of current consumptive (mainly agricultural) demand by 21.6 GL.
3 Ensure the ongoing viability of agriculture in the WRA whilst meeting environmental outcomes. A more engaged, knowledgeable and involved community.
4 A world-first catchment scale low flows project that is community driven, utilising an auction approach that will drive innovation and best practice.

4.2. Approach

Flows for the Future proposes an innovative community driven auction. This auction encourages participants to offer their best bid in consideration of their circumstances. The auction provides for:

- landholders to offer bids for a variety of low flow diversion methodologies that best suit their situation;
- in-kind contributions towards the implementation of the flow diversion; and
- economic efficiency by placing competitive market pressures on the implementation of flow diversion.

Part 7 of this business case outlines the auction approach and process for *Flows for the Future* and Appendix 2 contains a low flows design library and decision tree to support fit for purpose design implementation.

[10] *The long-term average annual volume to be returned to the EMLR and Marne Saunders system is expected to be approximately 1.6 GL., based on returning low flows across the whole EMLR WRA.. This value is based on calculated volumes returned for Marne Saunders and unmodelled EMLR catchments in accordance with Alcorn et al 2013, plus data for modelled catchments as above*

4.3. Benefits of Returning Low Flows in the EMLR WRA

There are a number of significant benefits to the environment, industry and community of implementing *Flows for the Future* and restoring low flows to the EMLR waterways.

4.3.1 Improves the Condition of Water-dependent Ecosystems

Returning low flows throughout the year, will help halt the decline, and improve the condition, of water-dependent ecosystems in the EMLR.

It is expected that returning low flows will reduce the risk to existing water-dependent ecosystems and support restoration, including:

- Allowing refuge pools to last longer, and be inhabitable for longer, over the drier seasons. This will allow plants and animals such as fish that need to live in water to survive over summer and autumn at more locations across the landscape.
- Promoting a more diverse aquatic macroinvertebrate community by wetting up, flushing and connecting a broader range of habitats for longer, and reducing stressful periods of zero flow.
- Supporting persistence and expansion of native fish, including threatened species protected under state and national legislation, by improving persistence of usable refuge habitat over drier seasons, providing better access to a range of habitats for feeding, conditioning and reproduction during the flowing period, and supporting movement across reaches and catchments.
- Increasing the cover and species diversity of aquatic vegetation in streams by wetting up, flushing and connecting a broader range of habitats for longer, reducing stressful periods of zero flow and reducing invasion by terrestrial species.

Maintaining low flows is expected to be particularly important for supporting Fleurieu Peninsula Swamps, recognised as a critically endangered community under the EPBC Act. The EMLR WRA is the only place in the Murray Darling Basin where these communities are found. Many Fleurieu Peninsula Swamps have a highly organic or peaty substrate (VanLaarhoven 2010), which is very sensitive to water stress, to the point that they can be irreversibly impacted if excessively dried. Ecosystems and species that depend on the conditions in these organic substrates can be lost, and the risk of erosion is increased (Charman 2002),

Ensuring low flows to pass through the EMLR catchments is also expected to have benefits outside the WRA. For example, Yarra pygmy perch (vulnerable under the EPBC Act) in the terminal wetland of the EMLR Finniss River where it meets Lake Alexandrina are thought to be supported by tannin-rich, clearer inflows from the Finniss into the more turbid waters of Lake Alexandrina (Hammer 2009).

It is important to note that the condition of water-dependent ecosystems is also influenced by a range of other factors in addition to water regimes. This project aims to provide a suitable pattern of flow to support water-dependent ecosystems, while management of other influences such as pests, pollution and land management will be addressed through other state programs.

These expected outcomes are supported by the process to identify environmental water requirements linked to flow metrics and modelling of flow outcomes from returning low flows for the EMLR WRA (Alcorn 2011, MREFTP 2003, Savadamuthu 2007, SAMDB NRM Board 2010, VanLaarhoven and van der Wielen 2009 and 2012).

This work has included extensive scenario testing with flow models showing that returning low flows (at or below threshold flow rate), coupled with limits on the volume that can be taken for consumptive use (as already set out in the WAP), will meet environmental flow provision targets. These environmental flow provision targets have been set to balance social, economic and environmental water needs, while maintaining the environment at an acceptable level of risk. The environmental flow provision targets have been set based on observed relationships between ecological condition at monitoring sites in the EMLR WRA (aquatic macroinvertebrate condition, success of native fish recruitment) and the flow metrics for those monitoring sites (VanLaarhoven and van der Wielen 2012).

The scenario testing was modelled over a minimum 30 year period and included dry through to wet conditions, including part of the millennium drought for the EMLR PWRA modelling. This data used in the models gives confidence that a suitable environmental flow provision will occur over the long term.

The volume returned to the environment will vary from year to year depending on rainfall and runoff patterns. If there is a year of less rainfall then a smaller volume should be expected to be returned to the catchment, but water-dependent ecosystems will still have first access to the critical low flows essential for maintaining dry season refuge areas and other important ecological processes.

These expected outcomes based on identification of environmental water requirements, relationships between ecological condition and flow metrics, and flow scenario modelling, are supported by other work within the WRA and in similar areas elsewhere.

There is a significant body of work demonstrating the importance of low flows and flow intermittency in structuring water-dependent ecosystems (e.g. Datry et al 2014, Rolls et al 2012 and references therein). For example, Marsh et al (2012) undertook a synthesis of 11 case studies of responses to low flow across Australia and found that changes to low flow hydrology are likely to cause predictable changes in macroinvertebrate community composition, and recommended that water management policy should avoid creating create-to-flow conditions in streams that previously flowed permanently.

This broad understanding is supported by recent work in the Mount Lofty Ranges that has used empirical data to develop response models of relationships between target biota and hydrological variables (Maxwell et al in prep). Modelling for aquatic macroinvertebrates suggested that by making flow more regular in Mount Lofty Ranges streams (i.e. reducing the number of zero flows days, and a general increase in flow) would increase taxonomic diversity, promote species with resilient traits, and overall maintain a more balanced, functioning ecosystem that is resilient to future degradation. Modelling for vegetation suggested that restoring low flow components of the natural flow regime will also result in improvements to aquatic vegetation communities.

A study of the local-scale environmental benefits of returning low flows was carried out in the Marne catchment. This study looked at dams before and after installation of a low flow bypass (Lee 2009). This work found that returning low flows reduced the artificially-increased period of zero flow downstream of dams, and gave an improvement in macrophyte cover and an increase in the abundance and diversity of aquatic macroinvertebrate taxa. In addition, a greater number of flow-loving aquatic macroinvertebrate species were found downstream of dams bypassing low flows, and a corresponding decrease in still-water species was observed. Importantly, the landholders did not report any issues with impacts on water supply from the dams returning low flows at these trial sites.

It is believed that the approach of retrospectively returning low flows at many dams and diversions across a catchment is a novel approach. However, the environmental outcome should be much the same as the outcome where the water is provided by releasing environmental low flows and small freshes from reservoirs or other large water supply impoundments. It could be expected that the flow outcome is similar – it is just the delivery mechanism that is different.

Environmental releases into headwater streams in the Grampians in Victoria, which would be expected to be similar to the EMLR WRA, found that releasing low flows into streams that had previously dried increased the diversity of the downstream macroinvertebrate community within four weeks (Mackie et al 2013).

Monitoring the conditions in streams receiving releases of low flows and small pulse flows from reservoirs in the Western Mount Lofty Ranges (adjacent to the EMLR WRA but outside the Murray Darling Basin) has shown maintenance of pools over summer, improved water quality in autumn (e.g. increasing dissolved oxygen), and establishment of riffle (shallow, fast flowing) habitat. Increases in abundance and diversity of flow-loving macroinvertebrate species have been observed. In addition, the observations suggest that maximising diversity of self-sustaining macroinvertebrate populations is most likely to be supported by a flow regime that supports maintenance of moist sub-surface habitats when flow has stopped, and long periods of riffle habitat creation over the flow season. Environmental flows also supported fish breeding and movement along rivers (Muller and Love 2013, Muller in prep).

Returning low flows and small freshes is a common component of environmental watering programs in other areas that include smaller streams comparable to the EMLR WRA, particularly to support refuge habitats during drier seasons and to support in-stream ecological processes during flowing periods (e.g. VEWH 2015).

4.3.2 Avoids the Need to Reduce Water Entitlements

As outlined earlier in this document, there are a number of options for achieving the environmental flow targets. The most drastic is to reduce water allocations to entitlement holders until there is sufficient guaranteed environmental flows during the drier seasons and low flow periods.

Such an approach would likely require a significant reduction of water entitlements. The impact of this would be expected to expose the irrigation agriculture industy to an unacceptable risk with signidicant impacts expected on agricultural production and employment and economic activity in the WRA.

Under the scenario of reduced water entitlments, licenced users will bear the brunt of reductions as they hold a defined entitlement, resulting in inequity between licenced and unlicenced water users.

Flows for the Future provides a solution that will enable the current volume of entitlements to remain, while still achieving the environmental low flow targets.

4.3.3 Assists the community in meeting Basin Plan Requirements

As outlined, the current SDLs within the Basin Plan reflects the consumptive use limits set out within the EMLR and MS WAPs. If low flows are not returned then these consumptive limits would need to be reviewed and would likely result in a significant cut to allocations as outlined above.

Implementing low flows is a way of assisting landowners in the EMLR to adjust to the Basin Plan.

4.3.4 Provides Additional Environmental Flows

Water recovery for environmental use provides benefits to wetland and floodplain ecosystems that have been parched of water for extended periods. The Basin Plan supports water recovery endeavours that are able to provide tangible and transferable water rights while reducing the adjustment burden to the human users of the resource.

The expected net average annual increase in volume returned to the system is up between 0.8-1.6 GL. This flow, although highly dependent of seasonal conditions and rainfall events will provide outcomes for downstream areas of the Basin, including the River Murray, Lower Lakes and Coorong.

The amount returned will also varies depending for each of the investment option considered in this business case.

4.3.5 Climate Adaptive

The approach of the *Flows for the Future* project takes into consideration the impacts of a changing climate. The basic premise is to reinstate key parts of the environmental flow pattern by returning low flows to the catchment as they occur, rather than releasing water under an artificial regime or pre-determined volume. This approach aligns with the natural flow paradigm (Poff et al 1997) that informed the determination of EWRs in the WRA (VanLaarhoven and van der Wielen 2009), where the natural flow paradigm states that the integrity of water-dependent ecosystems depends largely on the dynamics of the natural flow regime.

4.3.6 Engaged Communities

The *Flows for the Future* program outlined within this business case is built around a community driven, voluntary auction.

The auction approach has been designed to harness the creativity, commitment and knowledge of the local community to co-design the solution of how to return low flows in a way that has the least impact on agricultural production, and the lowest cost to the broader community. As such, it is an exemplar of how to encourage localism in the implementation of environmental restoration programs.

Part 13 of this business case outlines the approach to community engagement as part of implementing *Flows for the Future*

5. Strategic Response

5.1. DEWNR Approach to Developing Responses

The SAMDB NRM Board, SA Government and the community have been working through a number of options to determine the best solution that provides for the optimum mix of outcomes.

Figure 7 provides an overview of the various options that have been explored, discussed with the community, and how and why decisions have been made in the development of the *Flows for the Future* project. Options 1-3 in Figure 7 were introduced in detail in part 2.8 of this business case.

As this decision process has been worked through, some outcomes have been clearly unacceptable. Others strategies are acceptable but have sub optimal outcomes on delivery or are not achievable within SPP funding timeframes.

Critical to the process of working through these options has been collaborating with the local community and industries within the WRA. The three community advisory committees set up as part of the development of the WAPs played a large part in canvassing a wide range of views and shaping the outcomes (refer to part 2.10 for more information). This process of collaboration and involvement continues today and is central to the process outlined in implementing *Flows for the Future*.

5.1.1 Current Operating Conditions

Providing CUL's and restoring flows according to Option 3 in figure 7 is the goal of the *Flows for the Future* project. The current operating environment in the EMLR WRA is CUL's set at 20-30% of runoff with a plan to return future low flows, but with low flows yet to be returned. As a result, the current situation fits within the limits of Option 2, which is a non-acceptable option due to environmental risk and degradation. If low flows are not secured, CUL's will need to be reviewed to reconsider options to achieve an environmentally sustainable level of take, negatively impacting social and economic conditions and creating a scenario closer to option 1. This is the Base Case scenario outlined in part 7 if low flows are not returned, short term environmental degradation with existing CUL's, but then a review of CUL's, with improved environmental flows and CUL's for production reduced.

It is important to note that Option 3 can provide environmental outcomes and sustainable production (and existing CUL's) without a reduction or change of surface water entitlements (CUL's).

5.2. Delivery Options

Following the decision that returning low flows was the most acceptable approach (part 2.8) that balanced the needs of the environment, industry and community (Option 3 in Figure 7), there were a number of scenarios explored as to how best to implement the required infrastructure to achieve low flows.

As set out in Figure 7, these are:

- Option 3A - Mandate Devices;
- Option 3B – Voluntary Community Grant Program with investment from State Government and Community; and
- Option 3C – Voluntary Community Grant Program with investment from the Australian Government, State Government and Community.

5.2.1 Option 3A - Mandate Devices

The SA Government could mandate low flow devices for all landholders with in scope dams and water diversions, and have all the cost borne by the landowners, SA Government and Board (Option 3A). This cost would have a significant short to medium term impact on the viability of many businesses and due to funding availability be delivered over a long timeframe (up to 20 years). It should be noted that any new dam development in the PWR areas require the landholder to install low flow devices as a condition of approval for the new dams.

The advantages of mandating implementing low flow devices include:

- low flows would be returned in the long term (estimated 20 plus year window); and
- cost model would reduce cost to government to deliver project.

The disadvantages of mandating implementing low flow devices include:

- the responsibility for identifying the appropriate device would likely become a role for government;
- the cost for the devices may not be 'cost effective'; as there are no market forces to drive prices down;
- long time period for implementation based on available resources, likely completion outside of Basin Pan timeframes;
- potential equity issues with a large range of costs associated with devices (ranging from a few hundred to thousands);
- the cost to the landowner could be significant (in some cases up to $30,000 for installation and construction, in addition to annual operations and maintenance costs);
- lack of landholder ownership over project outcomes and infrastructure as there are no incentives provided to landholders to comply; and
- social and economic outcomes of model would impact landholders and industry depending on cost sharing model adopted.

The disadvantages of delivering this option are considerable and creates a potential significant loss of relationship trust with the community. Key operations and maintenance requirements are tasked to the landholder and it is considered a mandating process will place compliance with these requirements by the landholder at risk.

5.2.2 Option 3B – State Government and Community Approach

The SA Government works with landholders operating in scope dams and water diversions to install low flow devices, and have costs shared between the landowners, SA Government and Board (Option 3B). A shared cost model will be developed, with landowners still bearing a proportion of the cost for installation and responsible for operations and maintenance of devices. Due to state and community resources, this option would have some impact on the viability of businesses and be delivered over a long timeframe (up to 20 years).

The advantages of this option:

- low flows would be returned in the long term (estimated 20 plus year window);
- cost sharing model would reduce cost to government to deliver project;
- government works collaboratively with community to determine device type;
- improved landholder ownership over project and devices installed; and
- voluntary program to maintain community relationship with government.

The disadvantages of this option:

- long time period for implementation based on available resources (20 year window), completion outside of Basin Pan timeframes;
- main barrier to uptake identified as cost to landholder, this model retains significant costs for landholder in addition to operations and maintenance;
- challenges with landholder uptake and success of project and obtaining low flows with shared costs model;
- continue degradation of WDEs over long term timeframe of project
- review of CUL's if low flows are not beginning to be returned in medium term (5-6 years)
- potential equity issues depending on cost sharing model and large range of costs associated with devices (ranging from a few hundred to thousands); and
- social and economic outcomes of model would impact landholders and industry depending on cost sharing model adopted.

Option 3B has more advantages than 3A, but still contains a number of key disadvantages, particularly the delayed environmental benefits that don't fit Basin Plan timeframes, and issues with community uptake. The protection of the WDE's and uptake are critical components to this project and with this option not providing these elements it was determined to be not acceptable.

5.2.3 Option 3C – Australian Government, State Government and Community Approach

Australian Government investment in a project where SA Government works with landholders operating in scope dams and water diversions to install low flow devices. Costs for the provision of low flows are shared between the Australian Government, landowners, SA Government and Board (Option 3C). This model removes a major inhibiter to landholder adoption, being installation costs, and allows alignment with Basin Plan timelines. Government would provide for the cost for installation and construction of devices and landholders would be responsible for the operations and maintenance of devices. Australian Government investment in the project would allow this option to have no impact on viability of business through installation costs, and provide for it to be delivered over a much shorter timeframe.

The advantages of this option:

- only option that provides for a sustainable level of take aligning with Basin Plan requirements;
- deliverable within Basin Plan timeframes;
- provides best environmental impact of all options in the shortest timeframe;
- government works collaboratively with community to determine device type;
- no requirement to review CUL's
- strengthened shared responsibility and landholder ownership over operations and maintenance responsibilities with Government investment in installation of devices;
- voluntary program to maintain community relationship with government; and
- Landholder uptake with be considerably higher with Australian Government investment in installation of devices.

The disadvantages of this option:

- Requires significant work and heightened delivery risks to return the whole 1.6 GL to the system by June 2019.

Australian Government investment would allow Option 3C to be a viable alternative that is able to significantly reduce implementation timeframes, ensuring the key environmental outcomes of the project are accomplished to protect the WRA's WDEs and fit within Basin Plan timelines. As a result this is seen as the most Acceptable Option to proceed with securing low flows in the EMLR WRA.

The disadvantage of the implementation timelines and SPP funding timelines is interrogated by a further three Investment Scenarios, which investigate how to best implement a project of this type with the funding timeline options available to the project. These options are displayed in Figure 6 and outlined in part 5.3.

5.3. Investment Scenarios

5.3.1 Option 3C1 – Investment Scenario 1 - [redacted]

Investment Scenario One provides for a limited rollout of the *Flows for the Future* project in two catchments over three years. This scenario has a total project investment by government of [redacted] and proposes installation of low flow devices on up to 500 dams in the Angus and Bremer Catchments. The cost benefit analysis and accompanying economic information regarding this investment scenario can be found in Part 7, Assessment of Investment Scenarios. Part 6.3 provides the reason for focussing on the Angus and Bremer Catchments.

Being the smallest scenario in scope and cost, it has limited efficiencies and economies of scale in comparison to the other investment options. This scenario provides focussed low flow returns limited to two catchments, leaving large areas of the EMLR WRA continuing to impacted by the forces that are resulting in environmental degradation. It is estimated this scenario would return up to 0.56 GL to the system. Therefore this scenario has the lowest positive environmental impact on WDEs in the EMLR WRA.

For these reasons it is an acceptable scenario as it achieves a certain level of low flows, but it is not preferred due to its comparatively less efficient delivery.

5.3.2 Option 3C2 – Investment Scenario 2 - [redacted]

Investment Scenario Two provides for full implementation of the *Flows for the Future* project. This scenario has a total project investment by government of [redacted] and proposes installation of low flow devices on up to 1,100 sites in the EMLR WRA. The cost benefit analysis and accompanying economic information regarding this investment scenario can be found in part 7.

This scenario has the greatest efficiencies and economies of scale over both of the other investment scenarios and provides for a far greater positive impact on environmental conditions across the whole project area. This scenario is estimated to return 1.6 GL to the system and 1.3 GL to the Lower Lakes.

Considering the SPP timeline of project close by June 2019, it has been estimated that up to 1,100 sites in three years would not be possible. The project covering the whole WRA and having the greatest environmental impact for WDEs is the preferred option, but as this Investment Scenario is not achievable over three years, it is therefore not the proposed option under SPP funding. It is the proposed option under the six year project with funding from both SPP and the SDL adjustment mechanism.

5.3.3 Option 3C3 – Investment Scenario 3 - [redacted]

Investment Scenario Three provides for a EMLR WRA wide rollout of the *Flows for the Future* project, focussing in three high priority catchments initially (part 6.3) and then WRA wide focussing in priority and strategic locations over three years. This scenario has a total project investment by government of [redacted] and proposes installation of low flow devices on up to 680 sites in the EMLR WRA. The cost benefit analysis and accompanying economic information regarding this investment scenario can be found in part 7.

This project has improved efficiencies and economies of scale over Investment Scenario One and provides for a far greater impact to environmental conditions across the whole project area. This investment scenario will focus in highest priority zones initially and then move to key strategic locations across the project area to engage sites that will have the biggest impact in the available time and investment.

Considering the SPP timeline of project close by June 2019, it has been estimated that up to 680 dams is the most efficient and risk controllable number of sites that be be completed in the timeframe. This scenario is estimated to return 0.8 GL to the system. As a result of the efficiencies and opportunities to hit strategic sites and have maximum environmental impact to the WRA's WDEs with this scenario, it is considered the Acceptable and Proposed investment option for SPP investment.

5.3.4 SDL Option

An investment option involving an extension of timeframes and funding via the Sustainable Diversion Limit (SDL) Adjustment Mechanism is also being sought. Given the potential of this project to contribute a sustainable diversion limit adjustment to the River Murray, the remaining three years of implementation seeks funding as a supply measure. This will allow for SPP to fund the [redacted] investment option and the SDL funding to provide for three extra years of funding to provide for the full implementation of the project to 1,100 sites through the EMLR WRA. On 19 February 2016, Basin Officials Committee has agreed to *Flows for the Future* progressing to Phase 2 Assessment on Class B timeframes.

This opportunity does not remove the merits of the proposed [redacted] SPP project in isolation and the positive environmental impacts to the WRAs WDEs it will provide. Additional information that is required for the SDL Business Case assessment process is provided with this Business Case to pursue that opportunity.

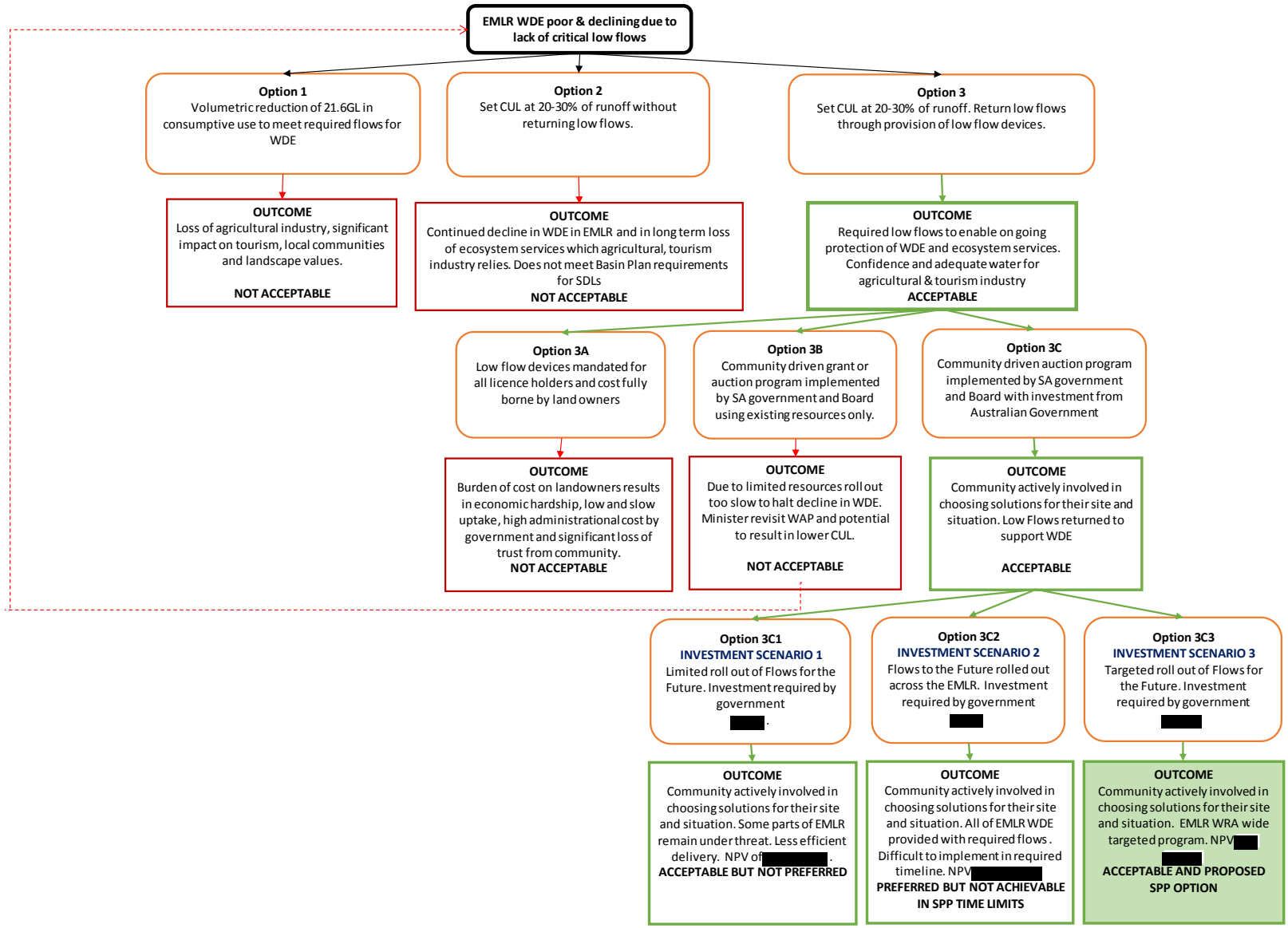

Figure 6:Decision Making Options for Securing Low Flows in the EMLR

6. Auction Design

6.1. Reverse Auction

Flows for the Future proposes a market based solution which involves encouraging landowners to bid for funds to install low flow devices. This can be described as a competitive tender or auction process. Under this approach value for money is achieved by assessing costs against catchment benefits determined by an auction metric (refer to 6.4).

Reverse auctions have been successfully implemented with landholders in the Mount Lofty Ranges through both the Catchment Care and BushBids Programs for management of native vegetation.

The reverse auction approach allows landholders to offer innovative flow diversion methodologies, in-kind contributions towards the implementation of the flow diversion, place competitive market pressures on the implementation of flow diversion and ensure that ongoing legacy and maintenance issues are seen as the landholder's responsibility.

An auction approach goes further than a traditional grant approach in that it does not set fixed price for devices or mandate the type of prices. Instead:

- ***It identifies the price landholders are prepared to accept for surrendering storage capacity, extraction volumes or providing low flows***

  If the government was to set the price, two outcomes are likely: 1) Either the price is too low and/or there is a risk of generating considerable community anger at being forced to adopt an environmental improvement measure that benefits the broader community at an unacceptably low recompense; or 2) the government sets the price too high and pays too much to solve a problem that could have been addressed for a lower cost.

- ***It identifies and supports those landholders who are willing participants***

  An auction is voluntary. Only landholders who are willing to participate will do so - the early adopters. Implementation of the project will build community norms around water sharing and allowing flows through the catchment. By supporting early adoption, we ensure these expectations are clear to all landholders and further tools of compliance to ensure flow are in fact strengthened through neighbour's involvement and expectations.

- ***It encourages innovation***

  By allowing individuals to identify their preferred solution to enable flow, we encourage community innovation, competition on market forces to ensure cost effective solutions and we open the doors to new ideas that are not necessarily known to government but are accepted by the community. By supporting innovation in this aspect of water ownership and rewarding it through the auction system we can give signals to landholders of the Eastern Mounty Lofty Ranges that innovation is encouraged, and this enthusiasm for innovation is then transferrable to marketing, business planning and building productive futures.

- ***It involves the community in creating the solution***

  The SAMDB NRM Board, scientists and the community have collectively defined the problem. This project will then enable the community an opportunity to contribute to the solution in a manner that works best for them. This will create greater community ownership and pride in the final outcome, helping to ensure an enduring legacy and maintenance of results.

A 'discriminatory price' or 'reverse' auction has been identified as the most appropriate form of auction as it can be tailored to optimise environmental and consumption benefits within a fixed budget.

In this type of auction, bidders submit bids to provide the desired environmental service for a nominated level of payment. The auction creates competition between bidders, and only those offering the highest value for money in terms of benefits per unit cost (e.g. reduced risk to WDEs per dollar) will be likely to be selected for contracting and payment. Well known examples of these approaches include the Conservation Reserve Program in the USA (Kirwan et al. 2005; Ferris and Siikamäki 2009; Cowan 2010) and the Higher Level Stewardship Schemes in the UK (2009).

Some of the challenges inherent in the *Flows for the Future* Project make a reverse auction well suited. These include:

- the heterogeneous distribution of benefits from returning low flows across the catchments
- the spatial separation of prioritised management zones (where low flow benefits will occur) from where low flow return is required
- the benefits of spatial coordination of low flow provision
- uncertainty about the impact of low flow provision on water security
- uncertainty about the private opportunity costs of provision of low flows.

Previous work and programs also provide an excellent starting point for the design and implementation of a reverse auction for procuring provision of low flows. These advantages include:

- a financial incentive for landholders to participate in a voluntary program to provide low flows
- high quality science on the environmental flow needs of WDEs
- high quality spatial and hydrological modelling of priorities
- an established relationship between the delivering agency and bidders
- a design library of options for provision of low flows
- familiarity of the EMLR landholder community with previous reverse auctions for ecosystem service provision
- previous experience and evaluation information on the design of reverse auctions for the EMLR landholder community.

The design of the reverse auction uses these advantages to overcome the challenges of incentive design for the provision of low flows.

6.2. Auction Design and Implementation

The design for the proposed auction has the primary aim of maximising the environmental benefit for the available budget within the constraints of a voluntary incentive program.

Key design features seek to provide sufficient information to bidders to induce participation while limiting opportunities for over inflating prices (often termed rent seeking). A critical element is the use of iterative bidding through an undisclosed number of bidding rounds. This approach has been trialled experimentally (Shogren et al. 2000, Reeson et al 2011) and implemented to improve coordinated bidding and agglomerated bidding as well as landscape outcomes (Rolfe et al 2009 and Hill et al. 2011). The approach allows landholders

to revise bids with (potentially) multiple opportunities to resubmit bids to improve the accuracy of bidding costs. Bid revision and resubmissions can improve a landholder's chances of selection, improve auction efficiency by allowing learning about benefits of coordinated bidding and reduce the costs of procurement. While rent seeking by bidders is likely in a reverse auction, an iterative bidding format enables amelioration of the degree to which participants can exploit their private information advantage.

Figure 7 and Table 3 provide a summary of the key Auction stages of the *Flows for the Future* Project.

A working draft of the Auction Implementation Plan and Guidelines are included at Appendix 1. The Auction Implementation Plan and Guidelines will provide the overall guidance for how an auction round will be implemented, and will undergo a review following each round. The Auction Implementation Plan and Guidelines for the first round will be finalised in the early stages of project implementation to ensure that any matters arising through the Australian Government's assessment of this business case are appropriately recognised.

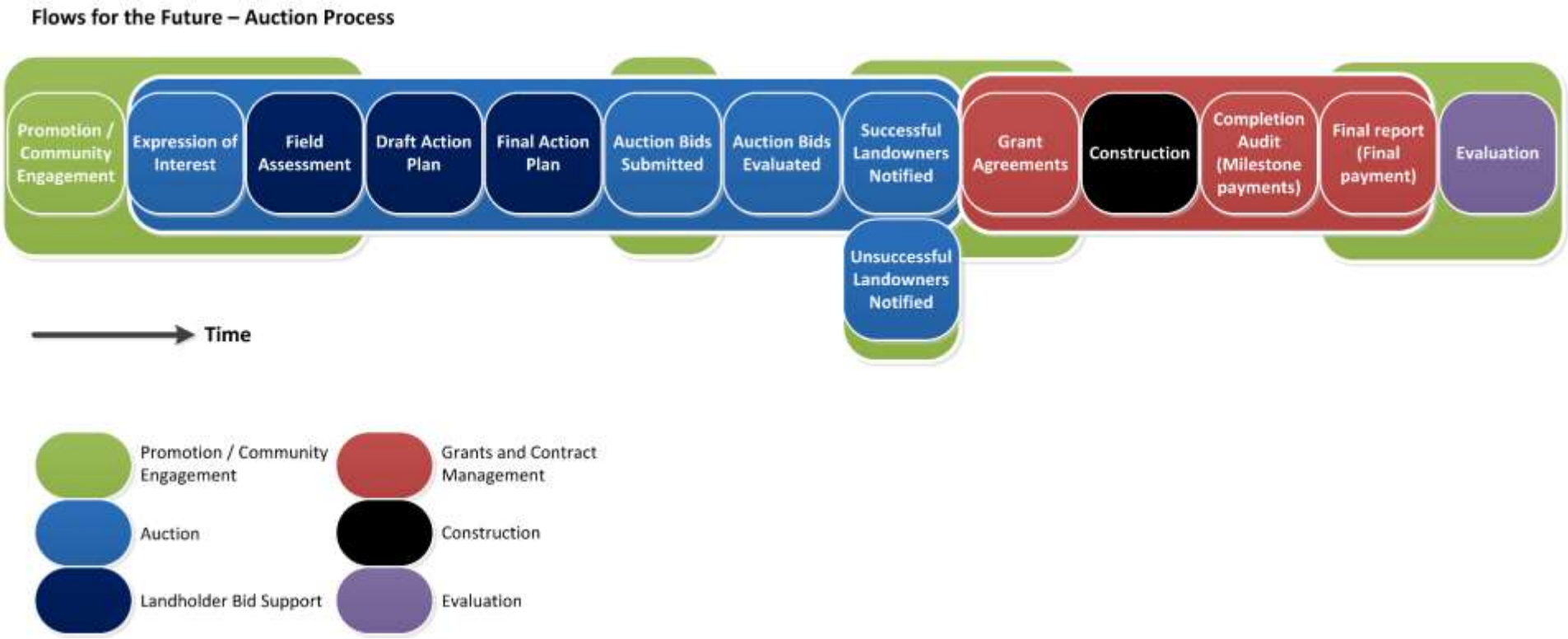

Figure 7: Flows for the Future Auction Process

Table 3- Summary of Key Auction Stages

Stage	Element
Promotion and Community Engagement period, Communications, Marketing, Market Preparation	Communications, Engagement, Promotion and Marketing of the project to Landholders with in scope dams to increase participation and directly mitigate the risk of low uptake of the project by landholders. See section 13 and Appendix 8 for greater detail. Communications and engagement to reduce delivery risks also includes briefing and preparing the supply market. Market Preparation – this includes a number of aspects to reduce project risks: 1/ Building supply market capacity and capability in advance – It is proposed the project identify market suppliers early and communicate a clear project brief to increase supplier interest and knowledge of the project before delivery begins. This would promote supplier preparedness for on ground implementation of the project. The process would involve active market research by the project and an expression of interest in supplying for the project will be advertised to seek potential suppliers to brief regarding the impending project. This process will supply the market information on the project's goals, timeline, and the types of projects that will be funded. This will enable forward planning for the market to be prepared for increased demand for goods and services in relation to the implementation of the project. This would not result in a list of government preferred suppliers for landholders, but simply to communicate to all potential suppliers early of the project. 2/ Engaging a suitably capable and qualified service provider to supply the Specialist Field Officers. This arrangement will ensure an arm's length arrangement so it is not government providing advice and support for a competitive funding program that it is administering.
Expression of Interest	Landholders register their interest during an Expression of Interest period where the program will determine their eligibility against the Eligibility Criteria. Eligible expressions of interest are approved to move to the next stage.
Field Assessment	Field Officers will be outsourced through suitable contractors. A Field Officer will visit each site and discuss the process and options for low flow returns with the landholder. The final decisions for types of devices and how many dams will be involved in the project will be determined by the landholder. From the field visit and discussions, the Field Officer will begin developing an Action Plan based on the design library and landholder meetings.
Draft Action Plan Developed	An Action Plan will be developed using an approved template. The Action Plan will contain all key information regarding the landholder's specific project, including but not limited to, the in scope dams in the property, the designs considered within the design library and the final designs and why they were chosen. It will also outline the timelines for the project delivery. During the development of the Action Plan the landholder can seek independent advice on design of low flow devices specific to their property.

Action Plan Finalised	The landholder and program agree on a final version of the Action Plan which will become the proposal for the competitive tender. Finalising the Action Plan may require review by an engineer and a surface water hydrologist to ensure the design will work and assess any changes from designs in the design library due to site conditions or landholder innovation. Information contained in the Action Plans support the calculation of the Catchment Benefits score utilized as part of the Auction Metric. Once the Action Plan is finalized, the landholder is free to contact low flow device suppliers to seek 3rd party information regarding costs to support their bid preparation.
Auction Bids Submitted	Landholders submit sealed bids (acknowledged by the program) for inclusion in the Auction Metric calculation of Catchment Benefit and cost to determine value for money.
Auction Bids assessed	All eligible bids assessed against the metric to determine which bids offer value for money. For more information regarding the Auction Metric, please see Section 6. Approvals/Recommendations – Evaluation of all bids with the Auction Metric will be guided by a Probity Plan, Probity Advisor, State Government Procurement support, a Surface Water Hydrologist, and an Evaluation Panel.
Landholders notified of outcomes	Successful landholders will be notified of the outcome of the bidding and negotiations for a Grant Agreement will begin. Unsuccessful landholders will be notified of the outcome of their bid. They will be informed that their proposed project and Action Plan are still valid, and they are encouraged to submit another bid in a further Auction Round to increase their competitiveness in regards to value for money.
Grant Agreement	Successful bidders will be offered Grant Agreements, including an Action Plan with an implementation schedule and milestone payments for completion.
Construction and Installation	The landholder will have an agreed time period for the construction and installation of the low flow device. Risk of non-performance during the construction and installation phase, such as landholder difficulty in delivering and requesting further government investment, will be managed by installing a risk based approach up front and early in the process, and instilling a clear contract resolution process. The process of site assessment by field officers, accompanied by landholders during the planning phase, will provide an opportunity to pick up site issues before development of an action plan and supply of any funding. The use of an engineer to review any deviations from the design library, as well as the opportunity by landholders to engage their own third party expertise to assess their design are further elements to reduce risk of installation surprises. As it is a competitive auction and value for money is a critical element, the process will be designed to provide the landholder with enough accountability to make it 'not easy' to get a variation, but where we are open to a fair discussion on how to resolve the issue.

	This may be the project is cancelled, we resolve to provide extra money to complete the project, or it is determined the landholder has not hit any issues that warrant a variation (like any other contract or grant).
Completion and Audit	The landholder notifies the completion of a project or Milestone. This will trigger a site visit and audit of the works against the specification set out in the Action Plan and Grant Agreement.
Final Report	The program accepts a final report, makes final payment and closes the project. Project information is passed to licensing and compliance to support future monitoring and compliance against required landholder operations and maintenance.
Evaluation	After each Auction Round the project will undertake an evaluation of program effectiveness, efficiency and success. A process of continuous improvement and adaptive management will be undertaken.

6.3. Strategic and Prioritized Approach to Maximise Auction and Catchment Benefits

Modelling to set consumptive use limits for the WAPs showed that the environmental flow provision targets could be met by returning low flows at all licensed dams and watercourse diversions, plus for the EMLR PWRA, at all existing large unlicensed dams (capacity of 5 ML or more) (Savadamuthu 2007, SAMDB NRMB 2010, Alcorn 2011). These types of dams and diversions are referred to as '**in scope'**.

There are almost 1,400 in scope sites across the EMLR WRA. Due to the number of sites it is important to determine where and how many low flow devices may be required to maximize the catchment benefits, provide value for money for the project, and allow for a staged implementation. Subsequent work has explored:

- where priority areas are within the EMLR WRA (DEWNR in prep, available on request)
- whether a priority order for staged rollout of implementation, prioritizing areas with important flow-responsive water-dependent species that are most threatened by the current level of water demand can be achieved (DEWNR in prep, available on request); and
- whether the strategic location of a select few dams within management zones could deliver the low flow benefits required at the management zone scale (Alcorn et al. 2013, available on request).

6.3.1 Management Zone Prioritisation

Management Zones are the myriad of smaller sub catchments that make up the major catchment areas of the EMLR WRA. A prioritisation process has been undertaken to give a relative ranking of urgency of action for surface water management zones across the WRA (DEWNR in prep).

The size of the project area and resources required means the *Flows for the Future* project must prioritise early action in those areas with important water-dependent ecosystems that are most threatened by a high level of water-resource development.

This prioritisation is based on the risk assessment approach described in DEWNR 2015. It assigns a score to each zone based on:

- the volume of water demand as a proportion of long-term average adjusted runoff volume (including upstream demand and runoff for zones that receive flow from upstream zones); and
- the nature of water-dependent ecosystems known or likely to be present in the zone being assessed, with higher values assigned to flow-responding species or communities that are protected under state or national legislation.

Thus a high priority zone is one with a high level of water demand and threatened, flow-responsive water-dependent species or communities.

The prioritisation process helps to guide the order in which to treat management zones. The prioritisation process does not identify zones that require treatment and those that don't.

The process identified the Angus and Bremer Catchment WRAs as priorities for initial project delivery.

6.3.2 Strategic location

Work has been undertaken to determine if it is feasible to strategically locate low flow devices within a surface water management zone, so that fewer devices are required to achieve the low flow targets.

An initial exploration of the strategic location approach used farm dam scale modelling in 10 (headwater) surface water management zones (from a total of 584 zones across the WRA) was carried out in 2013. This

study tested nine different scenarios of rules to include or exclude scope sites from returning low flows. As a result of this work, the technical working group responsible for supporting the implementation of the EMLR WAP recommended the modelling work of Alcorn et al. (2013) be extended to cover at least a complete catchment during 2015.

Adjusted modelled streamflow used to develop the WAP (see Alcorn, 2006; 2008; Savadamuthu, 2003; 2006, in Alcorn et al., 2008) was routed through the farm dams and watercourse diversions in purpose-built Source (Welsh et al. 2013) models for the upper Angas catchment and for the Rodwell Creek sub-catchment in the Bremer, with the capability of incorporating a low-flow diversion at each dam. These locations were chosen for the 2015 modelling based on results of the prioritization process outlined in section 6.3.1 (DEWNR December 2015).

Different low flow release scenarios were simulated by turning on/off low flow diversions at pre-determined dams and the resulting flow data was used to test the environmental metrics that define the environmental flow provision targets in the WAPs. The results of the scenarios were then compared to the metrics results obtained from returning low flows at all scope sites, to select appropriate strategic scenario(s) that required low flows to be returned at fewer sites while still meeting the environmental flow provision targets.

This work found that it is in fact feasible to determine strategic locations of low flow devices within management zones, but not possible to identify a generic, systematic pattern of strategic rules that could be used across other catchments.

Preliminary analysis of the modelling results provide an indication of the parameters that might be used in developing generic rules of thumb for scoping future strategic modelling exercises for other catchments in the WRA, and more importantly, is expected to provide critical information supporting the auction process and metric. Further work would be carried out as part of the *Flows for the Future* project to test the preliminary rules of thumb to ensure they apply in other catchments, and to develop models for other parts of the WRA. This will ensure provision of a sound technical basis for (I) development of generics rules for strategic location of returning low flows across the other un-gauged catchments in the WRA, (ii) development of parameters that define the prioritization criteria for the auction process and (c) future use of the catchment models, built under a nationally recognized modelling platform, for further analysis and reporting on the surface water resources of the WRA, including the reporting requirements of the Basin Plan.

Results from this modelling undertaken in the Angus and Bremer catchments (DEWNR December 2015) indicate that 70% of in scope dams within a management zone can provide the zones total required low flows.

6.4. Auction Metric – Assessment Criteria

The purpose of the auction metric is to quantify a measure of catchment benefit provided by each bid, relative to the cost, so that the bids can be ranked and successful bids determined.

The catchment benefit provided by a bid is measured in terms of its successful contribution of sufficient low flow to points of interest, weighted by the priority of the point of interest. These elements are discussed below.

6.4.1 Points of interest

The water planning processes in the EMLR WRA have identified that the appropriate scale of management and measurement of outcomes is the surface water management zone, defined to represent different types of water-dependent ecosystems and the catchment areas of the local stream network. That is, the outlet of each management zone is a point of interest where the benefit of returning low flows will be assessed.

Each catchment in the EMLR WRA has been divided into multiple management zones as a mechanism to provide for an appropriate flow regime across the catchment, rather than only at the end of the catchment. The taking rules and limits set out in the WAPs apply at the scale of the management zone, which aims to ensure that the outflow from one management zone to the next downstream will be an appropriate flow regime that supports downstream environmental water needs.

The nature of surface water catchments means that management zones flow into those downstream, giving rise to a nested or cumulative arrangement where downstream management zones include those upstream. That is, the management of a 'receiving' zone that receives water from upstream zones considers the total runoff received from the whole upstream catchment area, the total demand against that runoff, and the low flows returned across that whole upstream catchment area. This means that a given dam or diversion returning low flows will contribute to multiple points of interest, including the outlet of the zone it is located in, and the outlet of any downstream zones.

6.4.2 Determining priority of points of interest

A process has been used to define priority scores for management zones based on the nature of water-dependent ecosystem present and the level of water resource development. Sites in high priority management zones, or that contribute flow to high priority management zones, would be weighted more highly in the auction metric.

The priority score for a zone is based on the environmental assets present in that zone, but the demand component is based on total upstream demand and runoff. This means an individual zone may have a low priority score, but also contributes low flow to a higher priority zone downstream. This also means that treating a high priority zone further down in the catchment is likely to require low flows to be returned from upstream zones.

6.4.3 Successful contribution of sufficient low flow to points of interest

Proportional contribution

Dams and diversions block low flows generated in their catchment areas from reaching downstream points of interest. The contribution of low flows from a local catchment area to a point of interest is assumed to be of the same proportion as the runoff from that catchment area compared to the total runoff to the point of interest. This means that the runoff from the local catchment area of a dam or diversion as a proportion of the total runoff to a point of interest can be used as a measure of the potential benefit that returning low flows past that dam or diversion will provide to the point of interest.

'Sufficient' low flows

The strategic location work (as described above) has shown that the environmental water provision targets can be met by returning low flows from a sub-set of 'scope' dams and diversions in a management zone in some cases, rather than all scope dams and diversions. Initial scenario testing of strategic location options in the Angas catchment has indicated that returning low flows from at least 55% of the catchment area above the point of interest generally allowed the environmental water provision targets to be met.

This means that once 'sufficient' low flows have been returned to a point of interest, then it would be better to put aside bids that add more low flows to this point of interest, and instead prioritise bids that return low flows to a different point of interest that is not yet receiving sufficient low flows.

Connectivity and degree of blocking

Connectivity is another key consideration. Low flows returned at one dam may be blocked from reaching the point of interest by the next dam downstream. The degree that a given dam will block low flows from

passing downstream will depend largely on the capacity of the dam relative to the volume of runoff generated upstream. That is, small dams with a large amount of upstream runoff will fill and spill faster (and hence block flows less) than a large dam with a small amount of upstream runoff.

Connectivity and the degree of blocking give rise to several elements influencing the benefit provided by returning low flows at a given site:

- A site that has a highly blocking dam between it and the point of interest provides less benefit to the point of interest than a similar site that isn't blocked. All other things being equal, a site that is lightly blocked downstream would provide an intermediate benefit. The degree of downstream blocking may change as the auction progresses, when downstream blocking sites have bids accepted to return low flows.
- A site that blocks low flows returned from successful auction bids upstream becomes more important as the auction progresses. That is, returning low flows at this key blocking site will provide higher benefit, because it allows the benefits of low flows returned upstream to reach the point of interest.
- The points above consider the impact of downstream blocking dams on the benefit provided by a given site. In addition, consideration would be given to how the degree of blocking of the site itself influences the improvement in benefit that would occur by returning low flows there. All other things being equal, lower flows will already be getting past a small dam compared to a larger dam prior to action to return low flows, as the small dam will fill and spill faster. So returning low flows at the larger dam would result in more additional low flows (and higher benefit) at the point of interest.

Permanent Infrastructure removal

Removal of a dam or diversion will return all flows from its catchment area, not just those at or below threshold flow rate. This provides benefit for the whole flow regime at the point of interest, although the primary target of the proposal is to return low flows.

6.4.4 Provisional auction metric

The general form of the provisional metric is given below, based on the elements discussed in sections 6.3 and 6.4 above. (See Table 4 for descriptions of each element)

$$\text{Total Catchment Benefit Score} = (\text{pri} \times \text{CFA} \times \text{blk} \times \text{key} \times \text{add} \times \text{rem})$$

$$\text{Auction metric} = \text{total catchment benefit score} / \$$$

An optimisation process will be undertaken to select the best combination of bids, based on the most cost effective approach to return sufficient low flows to points of interest. This will include calculating auction metrics per site (or group of sites) based on the various combinations available from auction bids from the given round, those accepted in previous rounds, and those rolled over from previous rounds. The metric value for a given site will depend on which other bids have been accepted (or will be accepted). This optimisation process will also consider when there is 'sufficient' low flow being returned to a point of interest, and not include additional sites contributing to that point of interest once sufficient low flows have been returned.

The metric will be refined through the first auction round.

Table 4 : Metric Elements

Element	Description
pri	Does it return low flow to a high priority point of interest? Score based on priority value for zone the site is located in and highest priority zone it contributes flow to (high score = high priority)
CFA	How much low flow could this site potentially return to the point(s) of interest, in combination with other connected sites? Score based on volume of runoff from the low-flow-unimpeded catchment area connected to the site (including upstream and downstream sites returning low flow or free-to-flow, directly linked to the site), as a proportion of runoff to the point of interest (high score = large proportion of connected low-flow-unimpeded area)
blk	Is the low flow returned from this site likely to get blocked before it gets to the point of interest? Score based on number of blocking sites between it and point of interest and the degree those sites are blocked (dam capacity or watercourse allocation volume : upstream runoff for blocking sites downstream) (high score = less blocked downstream)
key	Is the site of key importance? Score based on whether the site blocks low flows from upstream; or has otherwise been identified as a site of key importance (high score = key importance)
add	Is the site already likely to be contributing some flow to the point of interest? Score based on dam capacity or watercourse allocation volume : upstream runoff for the site (high score = site more likely to be blocking low flow currently, so returning low flow there will return more additional low flow to point of interest)
rem	Is the proposed solution to remove a dam or watercourse diversion? Yes / no (high score = removing dam or diversion)

6.5. Australian Government Grant Guidelines

The auction design and the administrative arrangements that will support the management of the grants have been designed with both the Australian Government Grant Guidelines and DEWNR's Grants Policy in mind.

7. Assessment of Investment Scenarios

In preparing this business case four (4) investment scenarios were analysed by EconSearch (2016) against a base case scenario. Cost benefit analysis (CBA) was used to assess whether the investment options were an efficient and appropriate use of government resources, that is, whether the project provides a positive net benefit to the community. Secondly, an impact analysis using the input-output method was used to assess the economic impact on the WRA economy.

A key objective of the analysis was to undertake a CBA to determine the net benefit of undertaking the *Flows for the Future* project.

The investment scenarios do not include all of the options outlined in Part 5- Figure 7 as some were considered unfeasible.

The investment scenarios investigated by EconSearch include:

1. Base Case
2. Limited *Flows for the Future* auction in 2 catchments at a cost of $10.88 million.
3. Roll out of the full *Flows for the Future* auction across all catchments at a cost of $25 million;
4. Strategic Roll out *Flows for the Future* in 3 catchments as well as high priority sites across the WRA at a cost of $15.2 million to government; and
5. Roll out of full *Flows for the Future* auction across all catchments, but over a six year period utilizing SPP funding for the first three years and SDL funding for the final three years at a cost of $25.6 milion

7.1. Scenarios

7.1.1 Base Case

The base case, or business-as-usual scenario, is defined as an alternative approach to achieving environmental flow provision targets in the absence of the *Flows for the Future* project. It would require implementation of the alternative approach to securing low flows identified in the EMLR and Marne Saunders WAPs in order to deliver the agreed environmental water flows. In the EMLR PWRA the total consumptive use would be capped at 5 per cent of mean annual adjusted runoff (SAMDBNRMB 2013, p. 66) which means water would only be available for forestry and stock and domestic use. As a result all other water licence allocations would be reduced to zero to achieve the cap. Likewise, to achieve the required cap on water extractions in the Marne Saunders PWRA, licensed allocations would be reduced to zero (note water for stock and domestic use is not a formal entitlement, so there are limited legislative tools to reduce this form of use).

In the base case scenario it was assumed that water allocations would remain unchanged for the first five years of the analysis period whilst WAPs for both PWRAs are revisited and allocations are revised. From the 6th year onwards licenced allocations are reduced to zero but use for stock, domestic and forestry remains. As a consequence, for the first five years there will be a continuing deterioration in the health of water-dependent ecosystems (WDEs), then an improvement thereafter across all catchments in the two PWRAs after the entitlements are reduced to zero.

7.1.2 Investment Scenario 1 ($10.88m)

In this scenario there is a $10.88 million government investment over 2016/17-2018/19 financial years to secure low flows for the environment. Installation of low-flow devices on dams and watercourse diversions (WCDs) in the Angas and Bremer catchments only would be implemented. It is expected that through this project approximately 500 dams and WCDs will participate in this scheme.

As a result, the health of WDEs in the Angas and Bremer catchments is improved and the health of WDEs in rest of the EMLR and all of the Marne Saunders PWRA continues to deteriorate. Current water allocations are maintained across the entire WRA.

7.1.3 Investment Scenario 2 ([redacted])

Investment Scenario 2 is defined by a [redacted] government investment over 2016/17-2018/19 financial years to secure up to 1.6 GL of low flows within the system for the environment. Installation of low-flow devices on dams and watercourse diversions would occur in all catchments within the EMLR and MS PWRAs, and end of system flows of 1.3 GL to the Lower Lakes would be achieved. It is expected that through this project 70 per cent of dams within scope and 100 per cent of watercourse diversions in the EMLR PWRA and 100 per cent of dams within scope and watercourse diversions in the MS PWRA will participate in this scheme equating to 1,100 dams and WCDs (refer part 6.3 for strategic implementation detail). As a result, the health of WDE's in all the catchments within the EMLR and MS PWRAs is improved. Current water allocations are maintained.

As a result, the health of water-dependent ecosystems (WDEs) in all the catchments within the EMLR and MS PWRAs is improved. Current water allocations are maintained.

7.1.4 Investment Scenario 3 ([redacted]m)

Investment Scenario 3 is defined by a [redacted] government investment over 2016/17-2018/19 financial years to secure low flows for the environment. Installation of low-flow devices on dams and WCDs in all catchments within the EMLR and Marne Saunders PWRAs would be implemented, with the Angas and Bremer catchments being prioritised. It is expected that through this project approximately 500 dams and WCDs in the Angas and Bremer catchments and 180 dams and WCDs from the rest of the project area will participate in this scheme. As a result, the health of WDEs in the Angas and Bremer catchments is improved and the health of WDEs in rest of the EMLR and the Marne Saunders PWRA will show some areas of improvement and other areas of decline. Current water allocations are maintained.

Scenario 3 includes setting consumptive use limits (CUL) at current limit (plus additional allowance for opportunistic flood diversion) and rolling out a WRA wide Low Flows program in focussed catchments and at priority sites across the whole project area, returning an additional 0.8GL of water to the system.

7.1.5 Investment Scenario 4 ([redacted])

Investment Scenario 4 is defined by a [redacted] government investment over 2016/17-2021/22 financial years to secure low flows for the environment. This scenario targets the same level of scope dams and watercourse diversion as Investment Scenario 2. However, implementation is over six years so as to maximise landholder uptake of the program and to reduce the administrative overhead of administering up to 1100 individual grant agreements over three years.

7.2. CBA Results

Table 5: Cost benefit Analysis Findings (EconSearch 2016)

	Scenario 1 ($m)	Scenario 2 ($m)	Scenario 3 ($m)	Scenario 4 ($m)
Residual value of Flows for the Future Project capital	[redacted]			
Increase in native fish populations				
Increase in native riparian vegetation				
Avoided costs of revising WAPS and water licences				
Avoided loss of profits from agricultural production				
Avoided loss of GOS for local businesses				
Government investment in Flows for the Future project				
Operating and maintenance costs associated with LFB devices				
Change in compliance costs				
FLOWS FOR THE FUTURE PROJECT NET PRESENT VALUE				

Appendix 4 provides a more detailed summary of the CBA results.

7.2.1 Investment Scenario 1

Investment Scenario 1, relative to the base case, provides overall benefit to the community with an estimated NPV of [redacted]. In this scenario there are both improvements (in the Angas and Bremer catchments) and declines (rest of the catchments) in the health of WDEs, with the net effect of an overall and substantial loss of value. This 'cost' to the environment plus the investment in the *Flows for the Future* project is, however, offset by the 'benefits' to the local farming and business community (avoided losses to production and their flow-on effects on the local economy) and to government (avoidable revision of water allocation planning).

For every dollar invested, [redacted] is returned in avoided costs to government (avoidable revision of water allocation planning), avoided costs to the local community (avoided loss of profit by local farmers and local businesses) and environmental gains benefiting the local and broader community (healthy WDEs in part of the WRA).

7.2.2 Investment Scenario 2

Investment Scenario 2 has an estimated NPV of [redacted] million. Relative to the base case, it is apparent that this scenario provides substantial benefit to the community.

For every dollar invested, [redacted] is returned in avoided costs to government (avoidable revision of water allocation planning), avoided costs to the local community (avoided loss of profit by local farmers and local businesses) and environmental gains benefiting the local and broader community (healthy WDEs).

7.2.3 Investment Scenario 3

Investment Scenario 3 has an NPV of [redacted]. Relative to the base case it is apparent that this project does provide an overall substantial benefit to the community.

In this scenario there are both improvements and declines in the health of WDEs, with the net effect of a loss of value (present value of [redacted]). This 'cost' to the environment plus the investment in the *Flows for the*

Future project is, however, offset by the 'benefits' to the local farming and business community (avoided losses to production and their flow-on effects on the local economy) and to government (avoidable revision of water allocation planning).

For every dollar invested, [redacted] is returned in avoided costs to government (avoidable revision of water allocation planning), avoided costs to the local community (avoided loss of profit by local farmers and local businesses) and environmental gains benefiting the local and broader community (healthy WDEs in parts of the WRA).

[redacted]

7.3. Considerations

The CBA demonstrates that Investment Scenario 2 provides the greatest NPV and return on investment. However, other considerations outside of the economic analysis must also be considered in determining the 'best' approach. The State's preferred option is Scenario 2 as it maximises benefits for all stakeholders. However, work undertaken to determine an achievable program schedule has revealed that Scenario 2 is not able to be implemented within the SPP funding program timeframes. A subsequent scenario was modelled that extended the timeframes by a further three years. This scenario is Scenario 4.

The NPV for Scenario 4 is not materially different from that of Scenario 2. As Scenario 2 is not able to implemented within three years, the feasible preferred option for the State is Scenario 4.

This should not though take away the merit of Investment Scenario 3 and the positive environmental impact it would achieve in isolation.

7.3.1 SDL Investment Scenario

The SDL investment scenario was modelled as Scenario 4 and comprises the full implementation of the project over a six year period. The first three years of the project being the [redacted] option funded by SPP, and the final three years, the project would continue but funded by [redacted] of SDL funding. The slight increase in project cost is related to project management costs covering six years instead of three years under the SPP [redacted] (scenario 2).

For scenario 4, relative to the base case it is apparent that this project provides substantial benefit to the community, estimated to have a NPV of [redacted], and is a worthwhile investment by the government. For every dollar invested by government and farmers, [redacted] is returned in avoided costs to government (avoidable revision of water allocation planning), avoided costs to the local community (avoided loss of profits by local farmers and local businesses) and environmental gains benefiting the local and broader community (healthy WDEs). The findings are outlined in Table 6.

Table 6 over the page provides a summary of the overall costs and benefits of the investment options.

Table 6: Summary of the Costs and Benefits of each SPP Investment Scenario

Overview of Investment Scenario	Assessment Criteria	Benefits	Disadvantages	Recommendation
Base Case In the EMLR PWRA the total consumptive use would be capped at 5 per cent of mean annual adjusted runoff which means allocations would only be available for forestry and stock and domestic use. As a result all other allocations would be reduced to zero to achieve the cap.	**Economic**	No cost to the Australian Government Improvements in water quality, bank stabilisation and vegetation benefiting farming in all catchments	Costs of revising WAP and allocations Foregone profits from agricultural production Foregone GOS of local businesses from reduction in agricultural production A significant shift from irrigated agricultural production to dryland production in the two PWRAs, resulting in an overall reduction in farm receipts and profits.	**Not acceptable**
	Ecological	Improvement in fish populations in all catchments Improvement in riparian vegetation in all catchments Improvements in water quality, bank stabilisation and vegetation benefiting farming in all catchments		
	Social (and Community)		Breakdown of communities as many are forced to leave unprofitable farms	
	Other		Community discord with declining water resources and potential of an environmental crisis leading to mandated license revocations	
Investment Scenario 1 [redacted]government to secure 0.56 gigalitres (GL) of low flows for the environment.	**Economic**	Realistic time frame for implementation Less cost to Government NPV [redacted] [redacted] return for every $1 invested	Operating and maintenance costs associated with low flow devices On-going monitoring and compliance associated with low flow devices	Acceptable but not preferred

A competitive tender scheme, installation of low-flow bypass devices on dams and watercourse diversions in the Angas and Bremer catchments (only).		Current allocations are maintained Improvement in bank stabilisation and vegetation benefiting farming in Angas and Bremer catchments	Foregone GOS of local businesses from reduction in agricultural production Foregone profits from agricultural production	
	Ecological	Low Flows returned in 20 years if other funding secured 0.56 gigalitres (GL) of low flows for the environment. Improvement in fish populations, riparian vegetation, water quality, bank stabilisation and vegetation benefiting farming in Angas and Bremer catchments	Remaining parts of EMLR remain under threat Decline in fish populations riparian vegetation water quality, bank stabilisation and vegetation all other catchments within project area	
	Social (and Community)	Community actively involved in choosing solutions for their site and situation.	Some parts of community feel dis-engaged as not able to be involved	
	Other	Ability to test process and approach before further roll out	On-going monitoring and compliance associated with low flow devices	
Investment Scenario 2 A [redacted] government investment to secure 1.6 GL of low flows for the environment. The project will fund, through a competitive tender scheme, installation of low-flow devices on dams and watercourse diversions in all catchments within the EMLR and MS PWRAs.	**Economic**	NPV of [redacted]. [redacted] return for every $1 invested Current water allocations are maintained. Improvement in bank stabilisation and vegetation benefiting farming across EMLR WRA	Operating and maintenance costs associated with low flow devices On-going monitoring and compliance associated with low flow bypass devices Foregone profits from agricultural production Foregone GOS of local businesses from reduction in agricultural production	Preferred but not proposed
	Ecological	1.6GL of low flows for the environment. Low Flows returned in 3 years. Improvement in fish populations, riparian vegetation, water quality, bank stabilisation and	None	

		vegetation benefiting farming in Angas and Bremer catchments and other parts of EMLR		
	Social (and Community)	Community actively involved in choosing solutions for their site and situation.		
	Other		Difficult to implement in a short time frame Arguably unrealistic targets that would not be achieved in time frame.	
Investment Scenario 3 [redacted] government investment The project will fund, through a competitive tender scheme, installation of low-flow devices on dams and WCDs in all catchments within the EMLR and Marne Saunders PWRAs, with up to 500 sites in Angas and Bremer and 180 sites from the rest of the project area.	**Economic**	NPV of [redacted] [redacted] return for every $1 invested Supports a vibrant and innovative farming community with wise water use Maintains the lifestyle and aesthetic property values of the EMLR Current allocations are maintained Improvement water quality, bank stabilisation and vegetation benefiting farming across parts of the EMLR	Operating and maintenance costs associated with low flow devices On-going monitoring and compliance associated with low flow devices Foregone profits from agricultural production Foregone GOS of local businesses from reduction in agricultural production	**Acceptable and Proposed**
	Ecological	Improvement in fish populations, riparian vegetation, water quality, bank stabilisation and vegetation benefiting farming within the priority catchments and sites. Return of pools for refuges along priority creek and river systems of the EMLR, with flows for maintaining water quality. Return of 0.8GL flow dependent on seasonal conditions	Continued decline in fish populations, riparian vegetation water quality, bank stabilisation and vegetation in some lower priority catchments.	

	Social (and Community)	Community actively involved in choosing solutions for their site and situation. Maintenance of healthy waterways for lifestyle, recreation and community values		
	Other	Can realistically be implemented within the time frame Can be the first stage of a scalable project if further investment will show a high return from providing low flows across other areas of the EMLR and MS catchments.		

8. Project Scope (Proposed SPP Option)

The preferred option reflects Investment Option 3.

The *Flows for the Future* project proposes to fund, through an auction scheme, installation of low-flow devices on dams and WCDs in all catchments within the EMLR WRA, focusing on the Angas and Bremer catchments plus 180 dams and WCDs from the rest of the project area.

8.1. Inclusions

The Preferred Option for SPP component of *Flows for the Future* includes the following key elements:

- [redacted] investment from government.
- Implementing the community driven auction process.
- Targeting the installation of 500 in scope dams and water diversions in the Angas and Bremer catchments and 180 in other strategic locations across the EMLR WRA.
- Community engagement and marketing program to potential program participants to encourage highest up take and awareness of the program.
- Engagement and marketing to all program stakeholders, including potential suppliers of goods and/or services/
- Detailed auction implementation program.
- Information and support for landholders in choosing and implementing the low flow devices through ensuring appropriately competent and qualified field officers and providing a low flow device library.
- Monitoring and evaluation program of the impact of the devices.
- Compliance and audit program.

8.2. Exclusions

The *Flows for the Future* project outlined within this business case does NOT include the following:

- Activities that are the responsibility of the Water Allocation Planning process. There will be significant amounts of information and knowledge sharing between the South Australian WAP program and Flows for the Future.
- Activities that are the responsibility of Water Licensing requirements. However opportunities to value add and work with the Water Licensing Branch of DEWNR will be explored for efficiencies in future delivery of the proposed auction.
- Long term monitoring of waterway health, but will explore opportunities to link to existing monitoring systems that are currently operational.

8.3. Assumptions

There are a number of assumptions relating to this project:

- Modelled flow patterns are reasonably indicative of actual flow patterns.
- The community wants water catchments to be managed in a sustainable way.

- That the majority of the community seeks to be involved in developing strategies to secure low flows.
- Water is a valued and valuable commodity.
- There is sufficient community demand and interest to generate suitable returns of water to the environment.
- There are, and will be developed, viable design solutions that can be implemented at a wide enough scale, and for a low enough cost, to enable this auction process to achieve the majority of the low flows returned required with the budget resources available (Appendix 2).
- Government, both state and national, are focused on assisting the creation of employment opportunities and viable economic developments in the EMLR.
- The assets and operational management of remnant infrastructure will fall to a private third-party releasing both the Government of South Australia and the Australian Government from all future obligations.
- That building resilience to climatic extremes is desirable to enhance the value of recovered and delivered water.

8.4. Dependencies and Related Projects

This project will work closely with the following:

- Other SA-09 SPP projects and already funded water related projects for Irrigation Efficiency and WMS – sharing knowledge, efforts and feedback to ensure that all three projects are working in line to achieve the Australian Government's due diligence criteria.
- Water resources planning for the Eastern Mount Lofty Ranges, a concurrent project run through Natural Resources SAMDB delivering the legislation and regulatory needs for water sharing in the EMLR.
- Water licensing roll out of self-metering and further reforms.
- Water-dependent ecosystem monitoring projects undertaken by Natural Resources SAMDB and the Environmental Protection Authority.

8.5. Constraints

Key constraints in relation to this proposition include:

- Ability to quickly resource and undertake project work in an extremely short timeline.
- Ability to leverage expert advice and support with a short lead up time.
- Project direction needs to be informed using the 'community at the centre' philosophy, this requires a proactive response to community engagement and may constrain planning timelines.
- Community engagement needs to be sought, but also carefully managed for future probity issues during the implementation of Flows for the Future.
- The project needs to be designed, and delivered, as quickly as possible to minimise adverse environmental impacts because water licence allocations have been based on the premise that low flows will be secured.

8.6. Management Targets

The project has the following management targets:

- Informing landholders in the EMLR WRA of the auction, its timeframe, eligibility criteria and assessment criteria.
- Finalising consistent assessment tools to be able to compare different flow solutions, so that all applications from landholders can be compared on a common 'cost per benefit' basis.
- Preparation of a detailed assessment and evaluation plan for the program.
- Preparation of all contract and grant materials.
- Opening the first Expression of Interest within four months of project initiation.
- Completion of Auction process in priority Angus Bremer WRA, with applications for infrastructure, water security, water manipulation or on ground works investment assessed and initiated within the first 12 months.
- Secure low flow devices in the Angus Bremer and Marne Saunders WRAs within the first 2 years.
- Implementing a monitoring program to regularly evaluate the impact of the investment made to landholders through the auction to return flow contributions.
- Supporting continuity of existing monitoring of flow and water quality at key points in the EMLR WRA's catchments.

9. Accountabilities and Governance

9.1. Governance Structure

The proposed governance structure for the implementation phase is outlined in Figure 9 below. The roles and responsibilities of each party is described in Table 7.

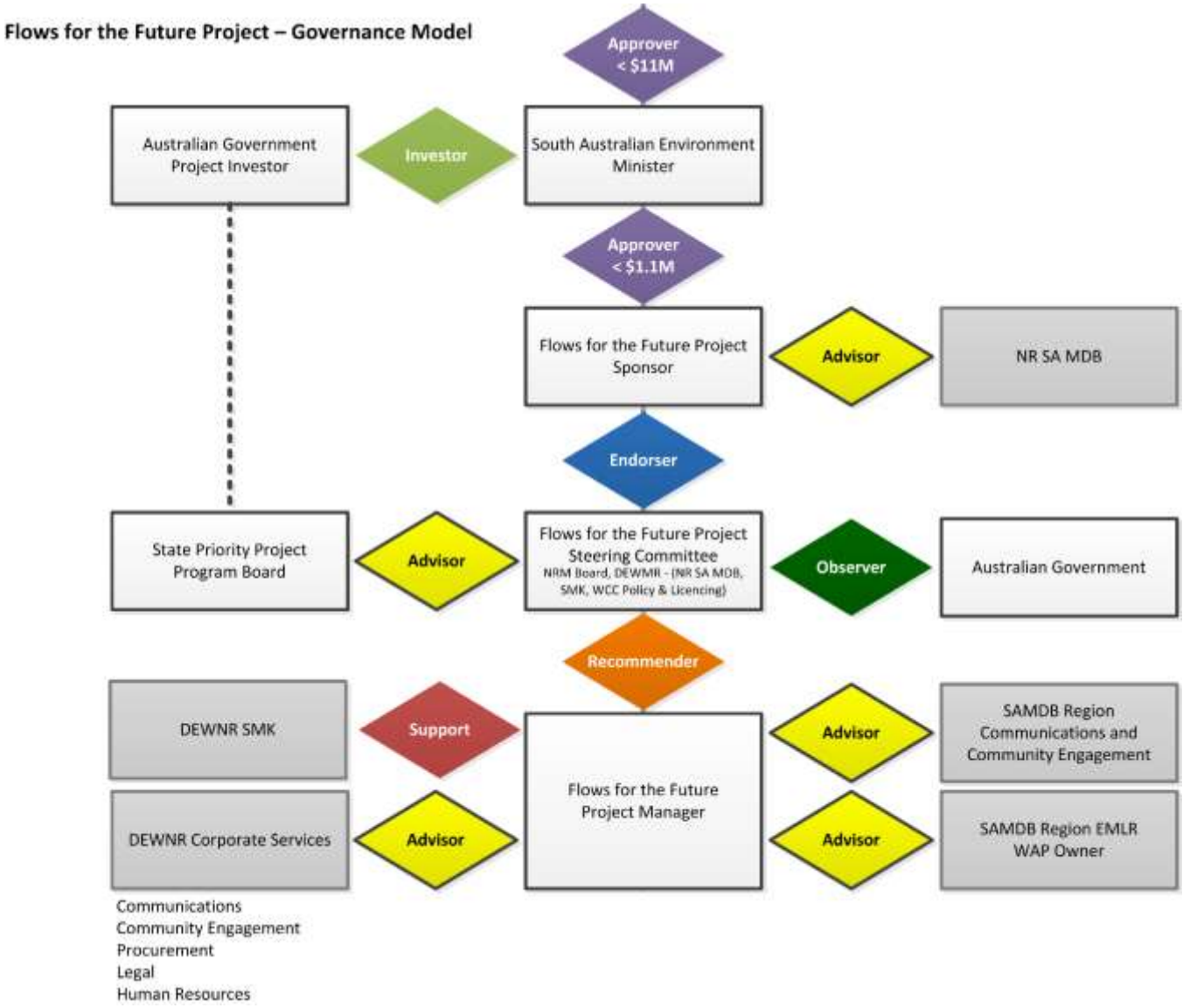

Figure 8: *Flows for the Future* Governance Model

Table 7: Governance Roles and Responsibilities

Role	Responsibilities
Minister/ Delegate	Responsible for high level and high value funding approvals. Provide high level leadership and direction to the project Sponsor. Provides high level negotiations with Australian Government if required.
Sponsor/Business Owner	**Sponsor** – Group Executive Director, Partnerships and Stewardship. The Project Sponsor is responsible for final project outcomes, project decisions and commissioning the business owner and project manager to undertake the project in accordance with the project implementation plan. **Business Owner** – Natural Resources SAMDB. The business owner is the section of the Department that is responsible for the high level management and implementation of the project. As the project is being delivered in collaboration with the SA MDB community, the SA MDB Board will have an advisory role through the NR SAMDB WRA Director and the *Flows for the Future* Project Manager.
SPP Steering Committee	Manages the project direction and delivery in accordance with the objectives outlined in the Funding Agreement Supports, advises and directs the Project Managers to ensure that SPP projects are progressing acceptably Provides advice regarding sign off on Approvals documentation before submitting to relevant authorities.
Project Manager	Facilitate linkages and integration within, and across, sub-projects, and with service partners Report to the SPP Steering Committee through the Program Manager on sub-project progress, issues, and risks. Approves Work plan Oversees engagement with contractors/consultants Coordinates information and data requirements with other works. Ensures that all available information is provided. Provides team with up to date program planning information. Ensures the project is delivered to time, budget and quality standards. The PM ensures effective resources and manages key relationships and stakeholders of the project.
Project Steering Committee	Provides direction and leadership to the Project Manager during the implementation of the project. Provide a forum for finding solutions to complex implementation issues and endorse project direction. Ensure implementation processes are in place to meet the business requirements of the project and ensure the project is following effective and efficient project management practices.
Project Advisory Support	There are a number of sections within the Department and including the SAMDB NRM Board that will support the project with expertise to ensure transparency, particularly in regard to financial accountability, procurement, legal guidance, technical basis and communications.
Australian Government	Is the majority funding partner and has specific roles and responsibilities outlined in the Commonwealth and State funding agreement. Is invited as an observer on the Project Steering Committee. The Commonwealth and the State may wish to establish its own information sharing forum for the purposes of the efficient administration of the funding agreement.

10. Project Implementation

Flows for the Future will be rolled out over three years and with the delivery model set out in figure 9. It is envisaged the auction program will include three rounds, but this will be determined by participation and uptake during the initial rounds. Figure 10 provides an overview of the Auction Stages for the Program, and figure 11 outlines project activities that will be required to be performed during the different stages of the program.

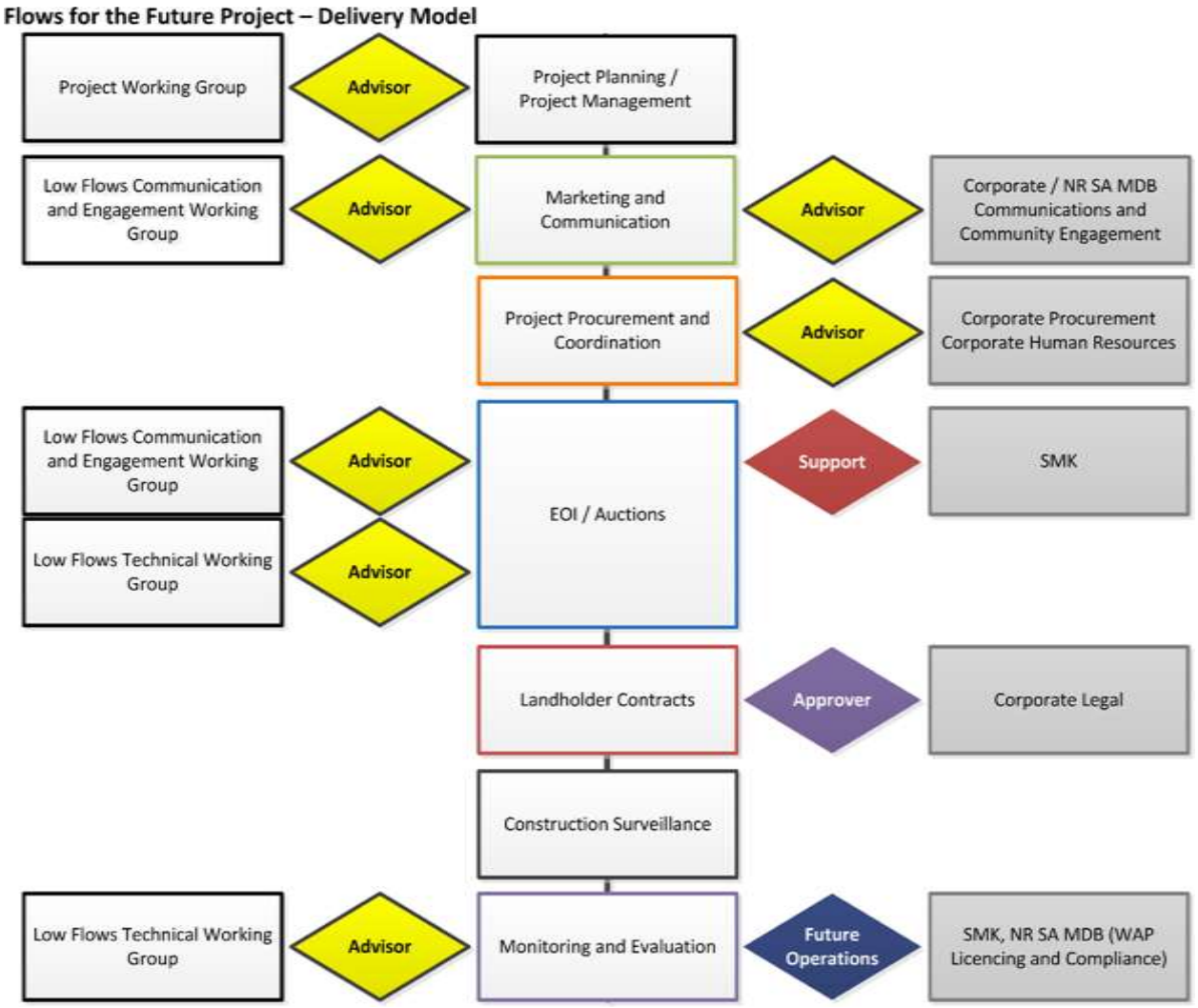

Figure 9: *Flows for the Future* Delivery Model

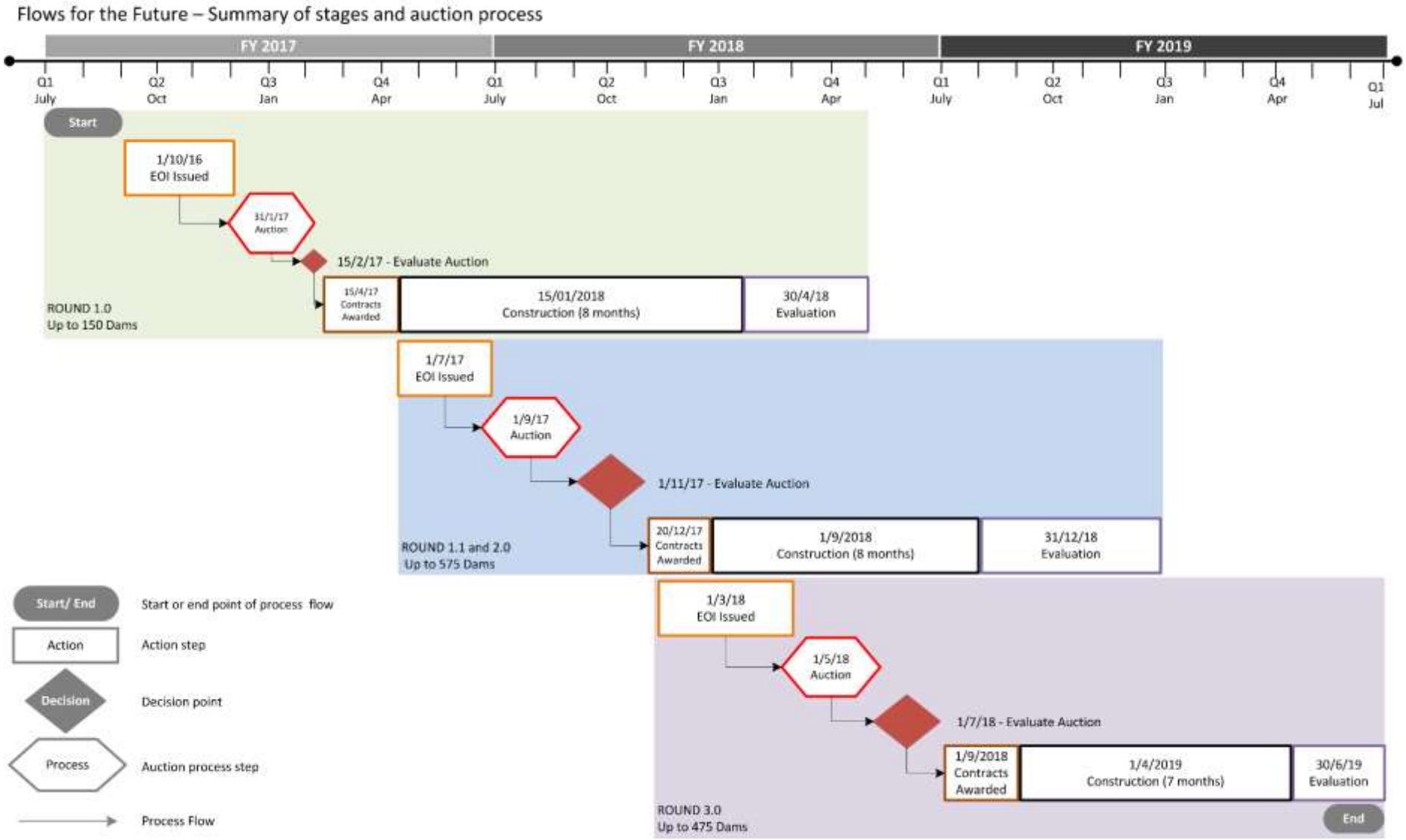

Figure 10: *Flows for the Future* Summary of Stages and Auction Process

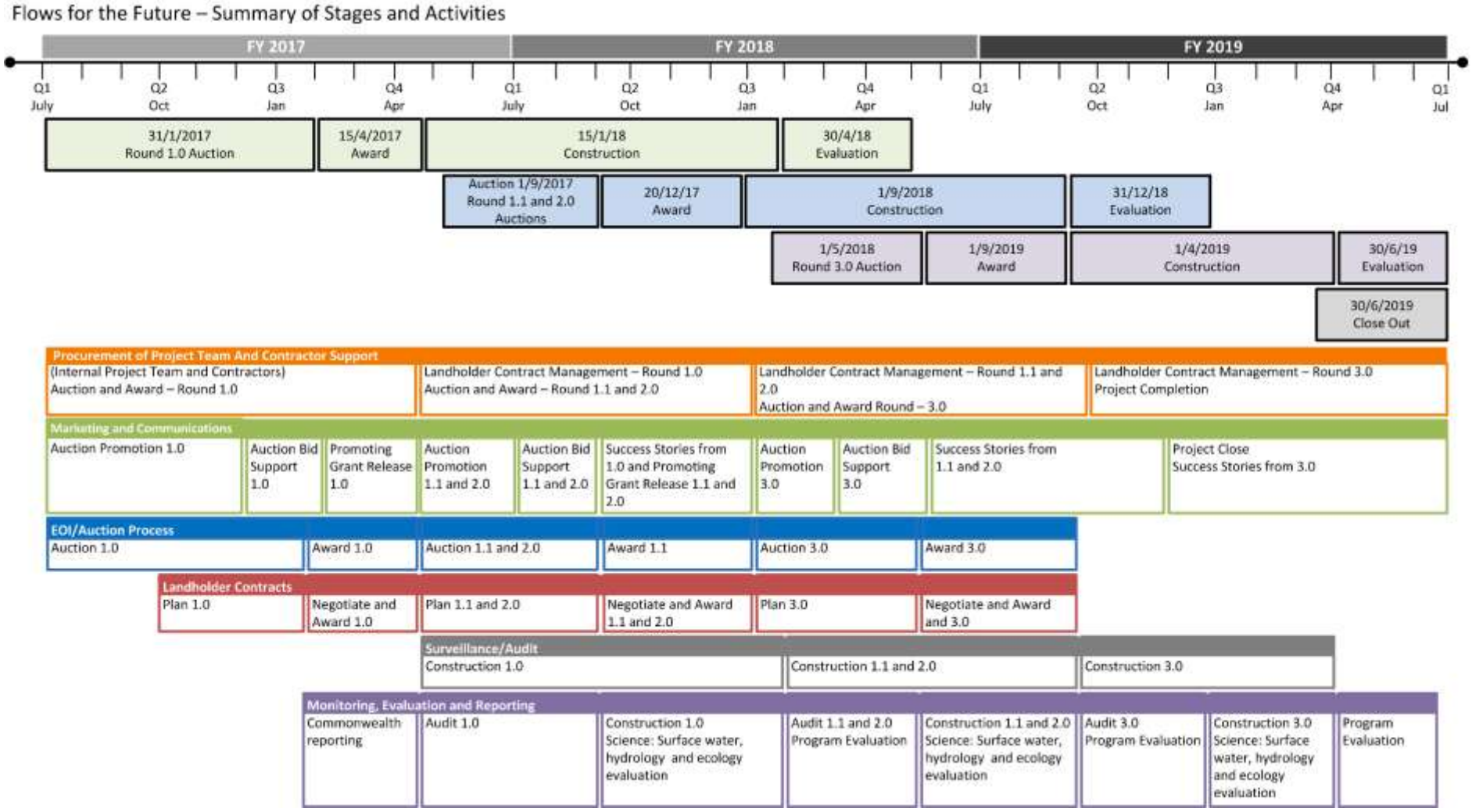

Figure 11: *Flows for the Future* Stages and Key Activities

A breakdown of the key activities are outlined below. As the program will be cyclical depending on how many Auction rounds are required, one cycle of the full implementation process is provided.

Table 8: *Flows for the Future* Activities

Key Activity	Description	Responsibility	Dependency	Timeline
Project Management and team development	HR and Procurement - Engage Project Team and delivery contractors	PM	Funding application successful. Department has resources in place to develop specifications and engage team and contractors	June-July 2016
Marketing, Communication and Community Engagement	Targeted program of messages and engagement regarding project to maximize participation	PM, C&CE Officer	Appropriate resourcing for strong engagement process	July – October 2016
Auction EOI and Auction Process	Expression of Interest, landholder engagement, development & approval of Action Plans, assessment of bids, procurement approval.	PM, Project Coordinator, Project Officer	Timely and adequate resourcing and team construction. Engagement of field officers and auction delivery contractor.	October 2016 – April 2017
Contracting and Construction auditing	Contracting of successful auction applicants. Auditing of finished devices against contracts.	PM, Project Coordinator, MEA&R Officer	Timely delivery of round one auction and contracting of participants for delivery. Appropriate resourcing for appropriate contracting and audit services.	April 2017 – January 2018
Monitoring, Evaluation and Reporting	Surface Hydrology monitoring, Ecological response monitoring and program delivery and Australian Government reporting.	PM, Project Coordinator, MEA&R Officer	Timely delivery of round one auction and contracting of participants for delivery. Appropriate resourcing for appropriate contracting and audit services.	Reporting as required by Australian Government, M&E as set out in M&E Framework.

11. Financial Estimates of Preferred Option

11.1. Investment Model for Preferred Option

The budgets for both the SPP and SDL proposals are provided together in this section. The preferred SPP project option (See Parts 8-10) is seeking funding from July 2016 to June 2019, with the proposed SDL project continuing the implementation over the period July 2019 to June 2022. This model provides for implementation of a *Flows for the Future* project over a six year period.

The preferred SPP funded *Flows for the Future* project option seeks a total investment of [redacted] and the proposed SDL component seeks a total investment [redacted].

Consistent with the *Murray Futures* Program arrangements, cost sharing arrangements for project funding shared on the basis of 90:10 (Australian Government: State Government) with detail provided in Table 9.

The SA Government acknowledges that the provision of funding for the implementation of the *Flows for the Future* project does not give rise to any Australian Government obligation to fund any other proposals or expenditure arising from or in relation to the project.

Any cash flow estimates provided here may change following implementation of the first auction round.

A rounded investment budget is provided in Table 10 below.

Table 9: Project investment model for direct project implementation costs

Organisation			Total
	SPP Total	SDL Total	TOTAL
SA Government	[redacted]		
Australian Government			
TOTAL PROJECT IMPLEMENTATION COSTS			

In addition to the funding set out in Table 9 (above), there is considerable in kind contributions provided by the SA Government and WRA communities. Set out in table 10, the SA government will contribute [redacted] in kind in during the project. The SAMDB NRM Board will provide ongoing operations and management compliance and auditing processes, as well as long term monitoring and evaluation of surface hydrology and ecological changes occurring as a result of the project.

The estimated value of landholder in-kind contribution to development and implementation of flow infrastructure was based on an estimation of [redacted].

Landholders will also contribute the operations and maintenance of infrastructure installed though the implementation of the project. The preferred option provides for the installation of an estimated 680 devices which have been determined to cost [redacted] per device to operate and maintain over a 15 year period.

Table 10: Other contributions to the SPP project outcomes

SPP PROJECT IN-KIND ($)	2016/17	2018/18	2018/19	TOTAL
DEWNR - WRA Water Allocation expertise provided in support of project				
DEWNR - In kind contribution of long term compliance and auditing				
DEWNR – In kind contribution of long term monitoring and evaluation of hydrological and ecological changes from project (after project completion)				
Community - Estimated value of landholder in-kind contribution to development and implementation of flow infrastructure				
Community - Operations and Maintenance in kind contributions by the landholder in the long term (calculated at $9,000 per device over 15 year period) for 680 devices.				
TOTAL IN-KIND CONTRIBUTIONS				

11.2. Project Component Expenditure

The project proposes three broad activity categories. The high-level funding allocations are described in Table 11.

Table 11: Budget broken into activity components

Project Component	SPP Total	SDL Total
Project Delivery/Technical Requirements		
Construction/Installation Grants		
Project Management		
Total		

Appendix 3 provides a detailed activity budget for each financial year for both the recommended SPP project and the SDL project. It also contains details on the basis of budget calculations and budget assumptions.

12. Identification and Management of Risks

12.1. Process of Identifying Risks

A comprehensive analysis of risks for the project delivery have assessed by DEWNR using the *DEWNR Risk Management Procedure* (Ref: DEWNR 84/2039). This is guided by the DEWNR Risk Management Policy, SA Government Risk Management Policy (November 2009) and AS/NZS ISO 31000:2009 Risk Management – Principles and Guidelines.

Risks for the project are summarized in a risk register that has been developed based on 'risk workshops' with members of the project working group. The register will be maintained by the Project Manager and quarterly updates will be conducted in 'risk review workshops' with the project team and selected key stakeholders.

Risks from Contractors providing goods and services to DEWNR for the project are identified and managed during the DEWNR Procurement and Contract Management Process and entered into the project risk register and the DEWNR Risk Register.

The project risk register includes a description of, the cause, risk and consequences and then uses the risk matrix below with defined metrics for likelihood and consequence to analyse and rate the severity of the risks.

Table 12: Risk Register Categories

Likelihood / Consequence	(1) Insignificant	(2) Minor	(3) Moderate	(4) Major	(5) Severe
(A) Almost certain	Low	Medium	High	Extreme	Extreme
(B) Likely	Low	Medium	High	High	Extreme
(C) Possible	Low	Medium	Medium	High	Extreme
(D) Unlikely	Low	Low	Medium	Medium	High
(E) Rare	Low	Low	Low	Medium	Medium

Risks are described in two ways, firstly as a raw risk (with no controls in place) and residual risk (with risk treatment). Risk owners are identified and existing DEWNR risk management is described and for high and extreme rated raw risks, responsibility for project specific risk treatments are assigned, and the risk treatments are implemented and monitored.

The strategies for this risk treatment in order of preference are to avoid, reduce or transfer risk.

The Risk Register containing treatment plans and residual risk is highlighted in Table 13.

12.2. Management of Significant Risks

Of the many risks identified (refer to the risk register) the most significant include:

- ensuring adequate uptake and participation in the auction; and
- obtaining contractors with skills that are fit for purpose to ensure low devices are designed and installed according to designs.

Each of these significant risks are further discussed, including the proposed mitigation of these risks, in part 13 of this document.

12.3. Risk Register

Outlined over the page is a detailed list of all of the risks identified and how each risk will be mitigated.

Part 12- Identification & Management of Risks

Table 13: Risks Register

Corporate and Government Risk

Project Component	Risk and Consequence Description	Category	Cause	RAW Likelihood	RAW Consequence	Raw Risk	Risk Treatment Plan / Monitoring	Managed Likelihood	Managed Consequence	Residual Risk
Auction	**Project Team: Confidentiality of auction process is breached** resulting in higher bids and less sites being able to be constructed and all of the desired environmental outcomes being achieved.	Corporate and Government	Inappropriate communication with landholders, affects their audit bids.	(C) Possible	Major (4)	High	**1. Confidentiality Agreements** for project team to manage commercial audit information professionally, sensitively and diligently to protect the probity of audits. **Collusion between landholders prohibited**, communicated to landholders, enforceable by ACCC with power to fine landholders.	(D) Unlikely	Major (4)	Medium
Commonwealth Engagement	**Project Team: Inadequate monitoring and evaluation** to demonstrate the benefits of the project results in reputational damage with the Australian Government	Corporate and Government	Unclear definition of project objectives outcomes baseline conditions Measurement methods Targets / KPIs	(B) Likely	Moderate (3)	High	**2. Monitoring and Evaluation Plan is well designed** to enable measurement of benefits, flexible to allow adaptive management, and provide justification of how threshold flows are calculated and critical sites selected. Monitoring and evaluation includes collection of baseline data.	(D) Unlikely	Moderate (3)	Medium
Project Management	**Conflict between project stakeholder**s which results in delays to the project and not fully achieving project outcomes.	Corporate and Government	Competing interests between stakeholders	(A) Almost certain	Moderate (3)	High	**3. Governance arrangements include representatives from project stakeholders** and has defined project roles for support, advisor, endorser, approver and investor	(C) Possible	Moderate (3)	Medium

Health, Safety and Welfare

Construction	**Construction Contractor: Injury** to person during construction works	Health, Safety and Welfare of staff and the community	Car accident Earthmoving machinery Power supply Power tool / hand tool Slips / Trips / Fall Drowning	(B) Likely	Moderate (3)	High	**17. Grant conditions require that the Landholder is responsible for WHS on their site and Construction Contractor must prepare a risk assessment for the landholder and conducts works in accordance with it** and amends it if risk levels or hazards change,	(C) Possible	Moderate (3)	Medium
Construction	**Project Team: Injury** to project team member during site visit	Health, Safety and Welfare of staff and the community	Car accident Slips / Trips / Fall Drowning	(B) Likely	Moderate (3)	High	**18. Site visits are conducted by Agency staff using Agency WHS procedures** including a project travel plan and site visit risk assessment. Contractors conducting site visits for DEWNR are required to prepare and their staff to adhere to their WHS plan.	(C) Possible	Moderate (3)	Medium

Part 12- Identification & Management of Risks

Environmental

Auction	**Landholders**: **Construction costs for designs are higher than anticipated** which results in less sites being able to be constructed and desired environmental outcomes not being achieved.	Environment	The price of bids received is higher than expected. Inflation increases more than expected and construction costs significantly during the project. Construction market competition increases costs.	(C) Possible	Major (4)	High	4. **Promotion of the auction to landholders** as a single competitive process and that grant funding is limited and only available once. Use auction process to maximise participation and create competition to achieve competitive costing Benchmark actual costs of construction from other sites in the Mt Lofty Ranges in the Securing Low Flows Project	(D) Unlikely	Major (4)	Medium
Auction	**Landholders**: **Non-participation of particular landholders prevents critical sites being constructed** and results in low flows not occurring downstream and environmental outcomes not being achieved.	Environment	Landholders unaware. Landholders don't understand the auction process or how to formulate a bid. Barriers to bid preparation (landholder capacity) Landholders unwilling take on O&M of new asset. Landholders don't link water allocation with low flow diversion. Dry spring and summer decreases participation. Trial site success not finalised. Landholder expectations differ from project outcomes. Landholders upset about having to install water meters and pay water levies recently	(B) Likely	Major (4)	High	**5. Promotion of the auction with landholders (Marketing and Community Engagement Plan)** including advertising, community meetings, individual landholder meetings at all critical sites, visits to trial sites to encourage participation and communicate realistic outcomes. **Auction evaluation** includes weighting bids from landholders based on the relative ecological importance of the dams and the catchment level effect of non-participation. **Evaluation** of the effectiveness of auction promotion.	(C) Possible	Moderate (3)	Medium
Landholder Engagement	**Industry Groups / Landholders: Not supportive of the project and don't want to install devices on their dams**. Results in grants that are not able to be fully provided to landholders.	Environment	Landholders unaware. Landholders unwilling take on O&M of new asset. Landholders don't link water allocation with low flow diversion. Landholder expectations differ from project outcomes.	(B) Likely	Major (4)	High	**6. Promotion of the benefits of low flows and the upcoming auction with landholders and industry groups (Marketing and Community Engagement Plan)** including advertising, community meetings, individual landholder meetings to encourage participation. Auction evaluation includes weighting bids from landholders based on the relative ecological importance of the dams and the catchment level effect of non-participation.	(C) Possible	Moderate (3)	Medium
Auction	**Landholders**: **Contractor or landholder risk costs in auction bids are higher than anticipated** resulting in less sites being able to be constructed and all of the desired environmental outcomes being achieved.	Environment	Ground conditions are unknown, Weather conditions are unknown, Number of contractors is limited	(C) Possible	Major (4)	High	**7. Provide landholders with clarity of scope** including: Location of device(s) and functional design requirements Materials requirements and geotechnical investigation requirements How to manage delays from wet weather and poor access during construction	(D) Unlikely	Major (4)	Medium

Part 12- Identification & Management of Risks

Operational

Human Resources	**Project Team: Changes in key project team members** which results in delays delivery of the project and loss of Corporate knowledge.	Operational (business performance and service delivery)	Project Team: Inability to retain key staff	(C) Possible	Moderate (3)	Medium	**19. Liaison with Agency Human Resources and Finance as well as Treasury** to secure project resourcing requirements efficiently and retain for the duration of the project.	(D) Unlikely	Moderate (3)	Medium
Human Resources	**Project Team: Insufficient time to recruit project team** which results in delays to the delivery of the project.	Operational (business performance and service delivery)	Recruitment follows Agency recruitment process	(C) Possible	Moderate (3)	Medium	**19. Liaison with Agency Human Resources and Finance as well as Treasury** to secure project resourcing requirements efficiently and retain for the duration of the project.	(D) Unlikely	Moderate (3)	Medium

Reputation

Landholder Engagement	**Project Team: Inadequate monitoring and evaluation to demonstrate the benefits of the project** results in reputational damage with landholders and the community particularly for the EMLR WAP	Reputation	Landholders unwilling take on O&M of new asset. Landholders don't link water allocation with low flow diversion. Landholder expectations differ from project outcomes.	(B) Likely	Moderate (3)	High	**2. Monitoring and Evaluation Plan is well designed** to enable measurement of benefits, flexible to allow adaptive management, and provide justification of how threshold flows are calculated and critical sites selected. Monitoring and evaluation includes collection of baseline data.	(D) Unlikely	Moderate (3)	Medium
Auction	**Industry Groups oppose the auction** and results in negative media reports and community concern about the project	Reputation	Landholders unwilling take on O&M of new asset. Landholders don't link water allocation with low flow diversion. Trial site success not finalised. (science not proven) Landholder expectations differ from project outcomes. Landholders upset about having to install water meters and pay water levies recently	(B) Likely	Moderate (3)	High	**6. Promotion of the benefits of low flows and the upcoming auction with landholders, industry groups and journalists (Marketing and Community Engagement Plan)** including advertising, community meetings, individual landholder meetings, site visits to Clare and Barossa Valley to encourage participation. Engage directly and regularly with industry groups to build strong relationship to leverage off.	(C) Possible	Moderate (3)	Medium
Auction	**Landholders: Bids are not accepted** (this can not be avoided in a competitive auction) and results in landholders that no longer support the project.	Reputation	Landholder bid is not competitive Dam is not a critical site. Landholder effort to submit a bid.	(A) Almost certain	Minor (2)	Medium	4. **Promotion of the auction to landholders** as a single competitive process and that grant funding is limited and only available once. Use auction process to maximise participation and create competition to achieve competitive costing Benchmark actual costs of construction from other sites in the Mt Lofty Ranges in the Securing Low Flows Project	(B) Likely	Minor (2)	Medium
Auction	**Landholders: Submit bids but decide not to proceed with construction** and results in landholders that no longer support the project.	Reputation	Loss of landholder confidence during project, so decide not to proceed.	(C) Possible	Moderate (3)	Medium	**20. DEWNR issues grants and works with landholder to finalise a written agreement** with the landholder to construct the works at their site prior to works commencing. 9**. Promotion of success with landholders after the first auction** including advertising, community meetings, individual landholder meetings to encourage participation in subsequent auctions. Including advertising, community meetings, individual landholder meetings to encourage participation in subsequent auctions.	(D) Unlikely	Moderate (3)	Medium

Part 12- Identification & Management of Risks

Financial

Landholder Engagement	**Communications: Promotion of auction does not generate enough landholder interest** resulting in lower than desired auction participation at critical sites.	Financial	Landholders unaware. Landholders don't understand the auction process or how to formulate a bid. Barriers to bid preparation (landholder capacity) Landholders unwilling take on O&M of new asset. Landholders don't link water allocation with low flow diversion. Dry spring and summer decreases participation. Trial site success not finalised. Landholder expectations differ from project outcomes.	(B) Likely	Severe (5)	Extreme	**5. Promotion of the auction with landholders (Marketing and Community Engagement Plan)** including advertising, community meetings, individual landholder meetings at all critical sites, visits to trial sites to encourage participation and communicate realistic outcomes. **Auction evaluation** includes weighting bids from landholders based on the relative ecological importance of the dams and the catchment level effect of non-participation. **Evaluation** of the effectiveness of auction promotion.	(C) Possible	Major (4)	High
Construction	**Contractors: Not enough skilled contractors in the market to manage the peak construction workload** resulting grants that are not able to be provided to landholders.	Financial	Number of project sites to be competed in the three year funding window.	(C) Possible	Severe (5)	Extreme	**8. A Contractor EOI process in advance of first auction to give the market visibility of the project** and of future revenue and enable it to prepare to support Landholders in Auctions.	(C) Possible	Major (4)	High
Landholder Engagement	**Landholders: Promoting grant releases and success stories from first auction does not increase participation in later auctions enough** resulting in lower than desired auction participation at critical sites.	Financial	Landholders unaware. Landholders unwilling take on O&M of new asset. Landholders don't link water allocation with low flow diversion. Landholder expectations differ from project outcomes.	(C) Possible	Severe (5)	Extreme	**9. Promotion of success with landholders after the first auction** (Marketing and Community Engagement Plan) including advertising, community meetings, individual landholder meetings to encourage participation in subsequent auctions and communicate realistic project outcomes. **Evaluation** of the effectiveness of success story promotion. Communicate the message that low flows are required to be passed.	(D) Unlikely	Major (4)	Medium
Construction	**Landholders: Take longer than allowed to complete construction in each of the stages (7-8 months)** results in final auction expenditure for the project being delayed and grants that are not able to be provided to landholders.	Financial	Fixed project end date 30 Jun 2019 and number of sites. Weather and seasonal impacts.	(B) Likely	Major (4)	High	**10. Project schedule is resourced and benchmarked** with the Securing Low Flows project and other environmental auction projects.	(C) Possible	Major (4)	High
Human Resources	**Project Team: The project does not have enough resources to manage the peak project workload** resulting grants that are not paid in a timely manner for completed works or able to be fully provided to landholders who bid at auctions.	Financial	Number of project sites to be completed in project timeframes.	(C) Possible	Major (4)	High	**10. Project schedule is resourced and benchmarked** with the Securing Low Flows project and other environmental auction projects.	(D) Unlikely	Major (4)	Medium
Project Management	**Project Team: Not enough time allowed for either the auction or the auction evaluation** by the project team results in delays to later auctions and grants that are not able to be fully provided to landholders.	Financial	Number of project sites to be completed in project timeframes.	(B) Likely	Moderate (3)	High	**10. Project schedule is resourced and benchmarked** with the Securing Low Flows project and other environmental auction projects.	(C) Possible	Moderate (3)	Medium

Part 12- Identification & Management of Risks

Human Resources	**Project Team or Contractors**: **Too many sites** are being attempted in the available time results in higher costs per site or grants that are not able to be fully provided to landholders.	Financial	Fixed project end date 30 Jun 2019.	(B) Likely	Major (4)	High	**11. Project team includes internal resources and procuring Contractors to meet project delivery peaks** expected prior to auctions, and during construction.	(C) Possible	Moderate (3)	Medium
Human Resources	**Project Team: Running multiple auction and construction processes in parallel can not be achieved** and results in grants that are not able to be fully provided to landholders.	Financial	Fixed project end date 30 Jun 2019.	(B) Likely	Major (4)	High	**11. Project team includes internal resources and procuring Contractors to meet project delivery peaks** expected prior to auctions, and during construction.	(C) Possible	Moderate (3)	Medium
Procurement	**Project Team: Not able to mobilise the required project team** quickly enough results in delays to auctions and grants that are not able to be fully provided to landholders.	Financial	Need to comply with DEWNR Procurement and Human Resources processes	(B) Likely	Major (4)	High	**12. Prioritisation of the procurement of the project team and then the Contractors** required to promote the first auction, engage with landholders to support the project and prepare bids and conduct the first auction.	(C) Possible	Moderate (3)	Medium
Procurement	**Project Team: Not enough time for Project team and Contractor procurement** and delays auctions resulting in grants that are not able to be fully provided to landholders.	Financial	Need to comply with DEWNR Procurement and Human Resources processes	(B) Likely	Major (4)	High	**12. Prioritisation of the procurement of the project team and then the Contractors** required to promote the first auction, engage with landholders to support the project and prepare bids and conduct the first auction.	(D) Unlikely	Major (4)	Medium
Design	**Project Team: Technical uncertainty causes too many sites being attempted for delivery** and results in non critical sites being constructed and expenditure that is not efficient	Financial	Number of project sites to be competed in the three year funding window. Complexity of individual sites will differ.	(B) Likely	Moderate (3)	High	**13. Reducing technical uncertainty** by using best available data, defendable and consistent modelling for ecological importance, hydrology and hydraulics . **2. Monitoring and Evaluation Plan is well designed** to enable measurement of benefits, flexible to allow adaptive management, and provide justification of how threshold flows are calculated and critical sites selected. Monitoring and evaluation includes collection of baseline data.	(C) Possible	Moderate (3)	Medium
Auction	**Landholders: Poor rate of participation in auction results in less sites being able to be constructed** and grants that are not able to be fully provided to landholders.	Financial	Landholders unaware. Landholders don't understand the auction process or how to formulate a bid. Barriers to bid preparation (landholder capacity) Landholders unwilling take on O&M of new asset. Landholders don't link water allocation with low flow diversion. Dry spring and summer decreases participation. Trial site success not finalised. Landholder expectations differ from project outcomes. Landholders upset about having to install water meters and pay water levies recently.	(B) Likely	Major (4)	High	**5. Promotion of the auction with landholders (Marketing and Community Engagement Plan)** including advertising, community meetings, individual landholder meetings at all critical sites, visits to trial sites to encourage participation and communicate realistic outcomes. **Auction evaluation** includes weighting bids from landholders based on the relative ecological importance of the dams and the catchment level effect of non-participation. **Evaluation** of the effectiveness of auction promotion. Strengthening messaging through the project regarding requirement to return flows.	(C) Possible	Moderate (3)	Medium

Part 12- Identification & Management of Risks

Design	**Construction Contractors: Poor quality materials** used, results in repairs or replacement required.	Financial	Inadequate functional or technical specification	(B) Likely	Major (4)	High	**14. Design Information provided to landholders can be used by Contractors for minimum material quality** including referencing relevant Australian Standards. DEWNR will conduct construction surveillance audits of completed sites to confirm that materials and workmanship are acceptable.	(C) Possible	Moderate (3)	Medium
Construction	**Construction Contractors: Poor quality construction workmanship** results in repairs or replacement being required.	Financial	Workmanship standards not defined. Inadequate supervision.	(B) Likely	Major (4)	High	**14. Design Information provided to landholders can be used by Contractors for minimum material quality** including referencing relevant Australian Standards. DEWNR will conduct construction surveillance audits of completed sites to confirm that materials and workmanship are acceptable.	(C) Possible	Moderate (3)	Medium
Design	**DEWNR: Design risk is not passed on to landholder** resulting in increased costs from modifications, repairs or replacement.	Financial	Inadequate scope of work and auction and contract conditions.	(C) Possible	Major (4)	High	**15. Landholder contracts to pass on design risk to landholders** including costs for modifications, repairs or replacement. **DEWNR defines functional design requirements** including threshold flow rate for each dam and suitable options from design library.	(D) Unlikely	Major (4)	Medium
Construction	**DEWNR: Geotechnical and construction risk is not passed on to landholder** resulting in increased costs from modifications, repairs or replacement.	Financial	Inadequate scope of work and auction and contract conditions.	(C) Possible	Major (4)	High	**16. Landholder contracts to pass on geotechnical and construction risk to landholders** including costs from groundworks, dewatering, wet weather and access difficulties.	(D) Unlikely	Major (4)	Medium
Auction	**Landholders**: **Construction costs for designs are higher than anticipated** which results in less sites being able to be constructed and cost over-run to achieve desired environmental outcomes.	Financial	The price of bids received is higher than expected. Inflation increases more than expected and construction costs significantly during the project. Construction market competition increases costs.	(C) Possible	Moderate (3)	Medium	4. **Promotion of the auction to landholders** as a single competitive process and that grant funding is limited and only available once. Use auction process to maximise participation and create competition to achieve competitive costing Benchmark actual costs of construction from other sites in the Mt Lofty Ranges in the Securing Low Flows Project	(D) Unlikely	Moderate (3)	Medium

12.4. Additional SDL Risks

Risk and Consequence Description	Category	Cause	RAW Likelihood	RAW Consequence	Raw Risk	Risk Treatment Plan / Monitoring	Managed Likelihood	Managed Consequence	Residual Risk
Semi or fully automatic system failure results in threshold flow diversion not occurring and landholder storing more than their entitlement under their licence.	Operational (business performance and service delivery)	Semi-automated systems not set up by landholders prior to events (i.e. priming siphons, re-fuelling generators or pumps, resetting float switches) Automatic systems fail due to power supply, mechanical or electrical equipment or instrumentation failure, blockage by object, damage to system	(B) Likely	Moderate (3)	High	**21. Licence conditions mandating landholder operation (semi-automated systems) and regular maintenance.** DEWNR monitoring flows throughout each catchment. Inspections to verify diversions are operating. Enforcement by DEWNR of the NRM Act against licensees for non-compliance.	(D) Unlikely	Moderate (3)	Medium
Manually operated systems not operated correctly by landholder(s) and results in threshold flow diversion not occurring and landholder storing more than their entitlement under their licence.	Operational (business performance and service delivery)	Landholder not present/awake when event occurs Landholder error Deliberate non-operation Equipment failure	(A) Almost certain	Moderate (3)	High	**22. Licence conditions mandating landholder operation (semi-automated systems) and regular maintenance (automated systems)** DEWNR monitoring flows throughout each catchment with inspections to verify diversions are operating Enforcement by DEWNR against licensees for non-compliance.	(C) Possible	Moderate (3)	Medium
Failure of one or more diversion in a catchment results in threshold flow diversion not occurring downstream to (Water Dependant Ecosystem)	Environment	Vandalism Stock damage Lightning strike Floods Bushfires Falling tree limbs	(A) Almost certain	Moderate (3)	High	**23. Landholders to include fencing or other barriers in their design or accepting risk of damage.** Licence conditions mandating landholder operation (manual and semi-automated systems) and regular maintenance (automated systems) DEWNR monitoring flows throughout each catchment with inspections to verify diversions are operating DEWNR monitoring condition of WDE. Enforcement by DEWNR against licensees for non-compliance. Asset is handovered to landholder and security and insurance for new assets is their responsibility.	(C) Possible	Moderate (3)	Medium
Threshold diversions causes contamination in the catchment to be spread downstream which results in damage to critical sites.	Environment	Increased connectivity of the catchment	(C) Possible	Moderate (3)	Medium	24. **Landholder general environmental duty** under Environment Protection Act to contain spills at source and perform clean-up, which is enforced by SAEPA	(C) Possible	Moderate (3)	Medium

13. Communications and Community Engagement

The majority of dams and water course diversions in the EMLR WRA are located on private property. Effective implementation of the project requires comprehensive communications and engagement with the community in the project area. It is vital the community views the project positively, are supportive of the project's goals, and understand the auction process. A risk assessment developed as part of this business case (outlined in section 12) has determined a number of key project risks that can be mitigated by a well planned and executed communications and community engagement (C&CE) plan.

Some of these key risks are;

- Level of participation in the project
- Level of support from industry groups
- Level of interest in low flow projects
- Amount of skilled contractors in the market to support the implementation.

A full Communication and Community Engagement plan has been developed to support this business case and is provided in Appendix 7. The plan includes a marketing strategy based on quantitative and qualitative market research undertaken in the project area during January 2016. The strategic purpose of the plan is to target key stakeholders and provide clarity of information and break down any barriers to project engagement and uptake.

13.1. Participation, Support and Interest

The auction process is a voluntary market based instrument meaning uptake and competition within the process is important. The messaging and active engagement of individual landholders and industry groups in advance of the Expression of Interest is pivotal to ensuring uptake in the project. Market research has provided information regarding the level of existing support in the project area and the barriers needed to overcome sections of the community resistant to low flows projects. This key information coupled with the detailed and targeted C&CE plan is designed to mitigate risks to project participation across different industry groups and catchments in the project area. The structure of the C&CE Plan is provided in Figure 13 with a summary of key market research data provided in the C&CE Plan. A copy of the Market Research report is available upon request.

We currently have 43% of the community on board with low flows (refer to market research in the engagement plan in Appendix 7), a further 63% say that government funding would encourage them to be involved. The project is already on track to meet its 70% strategic location target (part 6.3).

This engagement approach will produce a robust and targeted engagement program that provides clarity on program requirements and objecvtives focussing on;

- clearly communicating the benefits of the program;
- targeting dam owners in strategic locations;
- targeting dam owners who are supportive of the project; and
- providing a range of opportunities for landowners to participate and receive support.

If after implementing all of the strategies and tactics outlined within the engagement plan there is a low level of uptake in Round 1 and Round 2 then the project team will investigate options for tying the low flow requirements to licences. This has been already applied in some catchments, however it has not been enforced as there was no realistic way for landowners to install these devices without a significant cost. Hence the need for the *Flows for the Future* project.

13.2. Skilled Contractors/Market Preparedness

Mobilisation of a project of the scale proposed in this business case can often take the supply market off guard, with project failure or delays caused by inability of a supply market to match project goals.

The Flows for the Future project would require the market to supply technical field staff with effective communications and negotiations skills, as well as knowledge of low flow device construction and operation.

Post the first auction process, successful landholders would exert pressure on the market for suppliers of low device installation and construction.

To reduce the risk of markets not being prepared and prices being driven up by supply pressures, the project proposes to engage suppliers of technical advice and construction of low flow devices during the start-up phase of the project. This would include information sessions for interested and relevant parties, details on the types of skills and devices the project will be requiring, and key timelines for them to plan increases in their capacity.

This is seen as a key risk management strategy to ensure smooth role out of the project one the auction EOI begins.

Figure 12 below illustrates how the Marketing, Communications and Engagement Plan is aligned around three overarching goals.

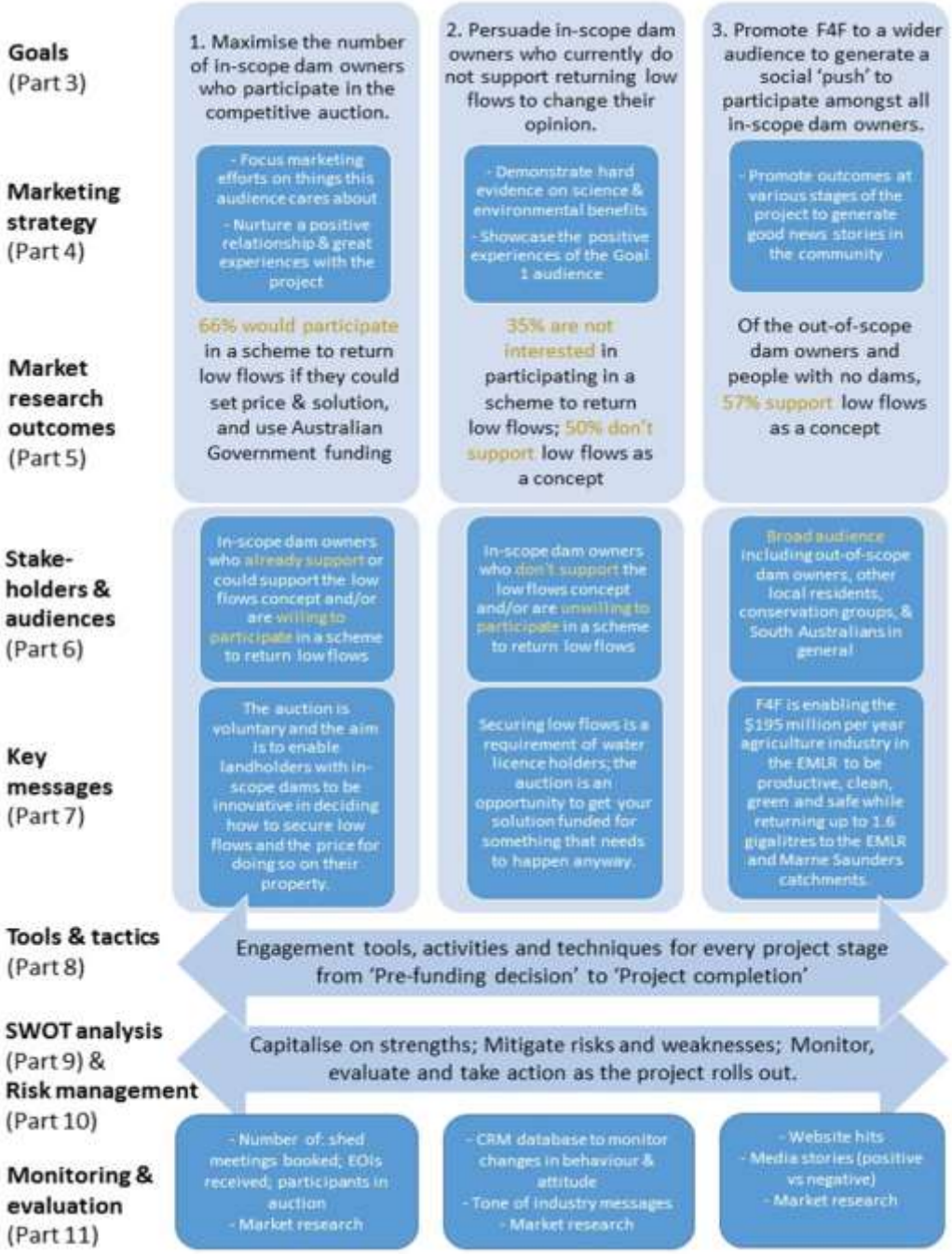

Figure 12: C&CE Plan Structure

Please see Appendix 8 for the full C&CE Plan which provides more detail of the target audiences and key messages.

14. Monitoring and Evaluation

The integrated monitoring and evaluation framework aims to assess the effectiveness, impact and legacy of *Flows for the Future* in achieving demonstrable benefits, and to provide key information for the Water Resource Plan, Long Term Watering Plan and Basin Plan monitoring and evaluation under Schedule 12 of the Basin Plan.

The framework will provide guidance in developing a more detailed monitoring and evaluation plan to align with auction processes and outcomes.

14.1. Basin Plan Requirements

The EMLR is part of the Murray-Darling Basin and is therefore covered under the Basin Plan. Currently both a Long Term Watering Plan (LTWP) and a Water Resource Plan (WRP) are being developed by DEWNR. Both of these plans will draw heavily from the current WAPs that cover both the EMLR prescribed water resource area and the Marne Saunders prescribed water resource area (collectively referred to as the EMLR water resource plan area SW7 under the Basin Plan).

Under the Basin Plan, Schedule 12 outlines matters for evaluation and reporting. Matters 7, 8 and 9 are all relevant for the project as the works undertaken as part of it will be key to achieving the ecological objectives under the LTWP and WRP, and hence the Basin Plan (Figure 13).

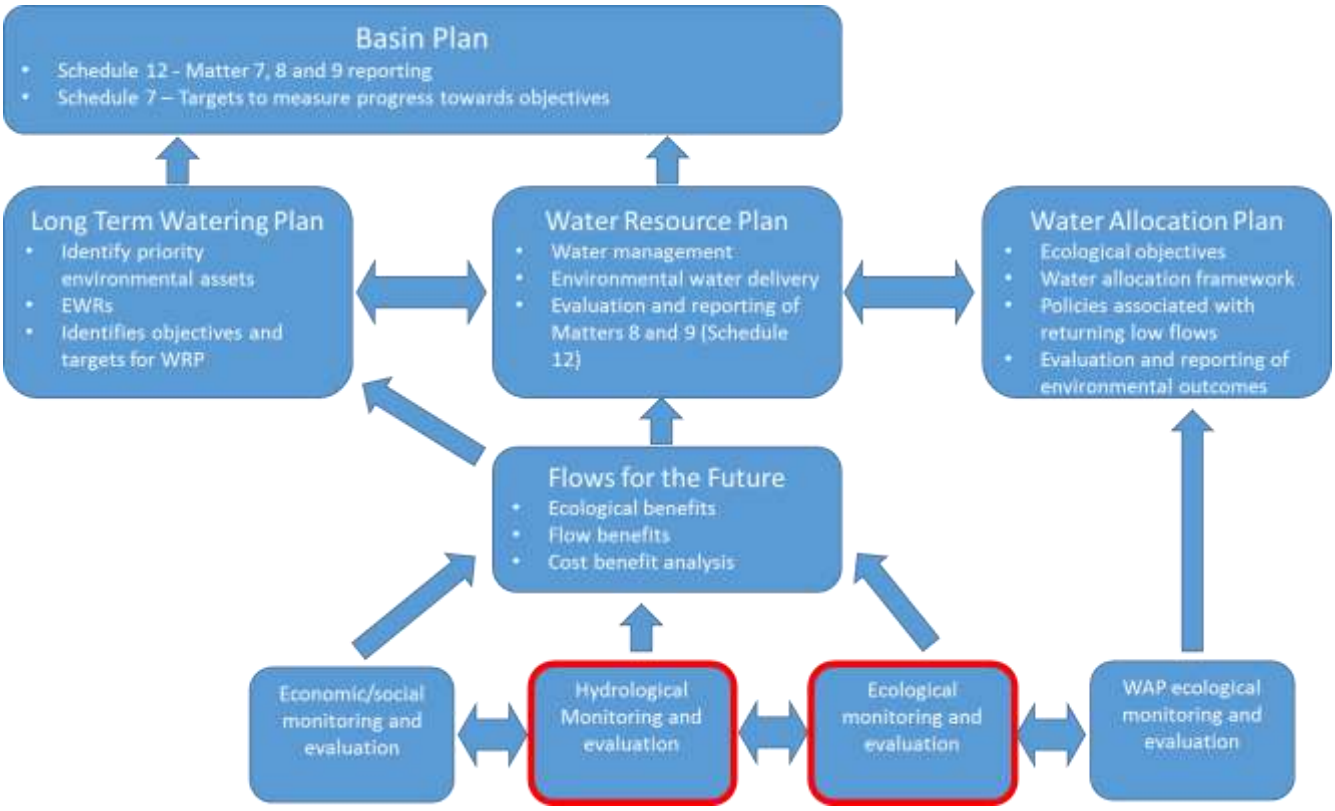

Figure 13: Diagrammatic representation of the context of the monitoring and evaluation plan for the project, demonstrating the flow of information to allow assessment up to and including both State and Commonwealth evaluation and reporting requirements under Schedule 12 of the Basin Plan.

The monitoring and evaluation framework for *Flows for the Future* takes into consideration the key due diligence criteria set by the Commonwealth, the evaluation and reporting requirements of the WRP and the Basin Plan under Schedules 7 and 12.

14.2. Framework

The proposed monitoring has been designed to detect environmental outcomes at three different scales: individual dams (short-term), sub catchment (medium term) and end of catchment (long term) (Figure 14).

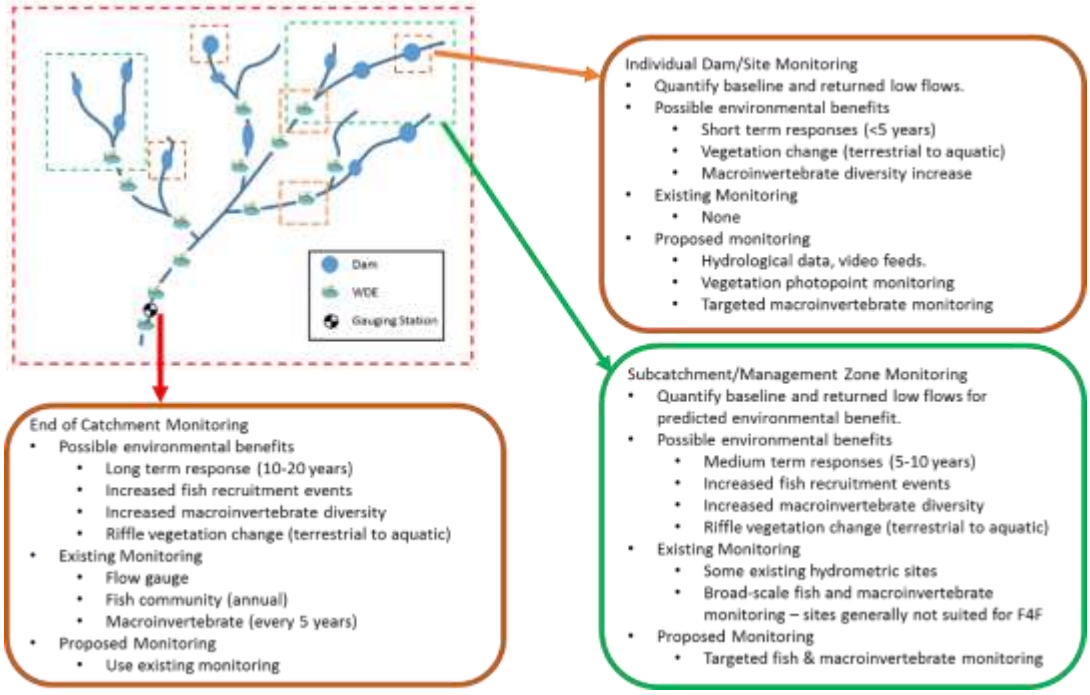

Figure 14: Stylised catchment showing the different scales of monitoring with details of the possible environmental benefits, existing monitoring and proposed monitoring to be undertaken at each scale.

Key outputs of the *Flows for the Future* framework approach will include:

- a detailed monitoring plan specific to the project,
- aligning the program with existing monitoring in the EMLR as much as possible,
- identification and establishment of any further key monitoring sites and baseline data collected,
- development of a monitoring and assessment tool,
- photo point monitoring portal and data storage, and
- monitoring and evaluation reports.

Surface and groundwater data will be analysed to quantify interactions to better predict low flows required across the WRA. Reporting will take the influences of climate variability and climate change into account and the DEWNR website updated to ensure information is available to stakeholders, including the Commonwealth, state agencies and the community.

Where possible, hydrological and ecological sites will be co-located to maximise the effectiveness of the program and the usefulness of the data collected.

The monitoring and evaluation framework has been developed to require no ongoing funding and minimal in-kind support past the completion of the project, instead utilising monitoring established as part of this project but also contained within an existing randomised network, and possibly supplemented with a citizen science program.

Surface and groundwater hydrometric monitoring will be established at three scales in river catchments: enterprise/farm dam, surface water management zone and whole of catchment. Enterprise-scale monitoring will

determine the baseline low-flow regime at local sites and whether the expected returns are delivered by low-flow devices. Management zone monitoring will determine the baseline low-flow regime and whether an array of low-flow devices actually delivers the expected returns at the accounting scale of the Eastern Mount Lofty Ranges (EMLR) Water Allocation Plan (WAP). Whole of catchment monitoring will determine the cumulative effects of the low-flow devices.

Surface-groundwater interactions at identified sites will be assessed to quantify low-flow dynamics and improve confidence in predicting low thresholds and likelihood that proposed flows can be achieved across the wider WRA.

The ecological monitoring will consist of a tiered approach to ensure that short, medium and long-term responses are captured at a range of spatial scales. Targeted low-flow monitoring sites will be established during the implementation of the project that, upon the completion, will then be assimilated into existing ecological monitoring undertaken in the EMLR. Biotic parameters to be monitored include macroinvertebrate community condition and resilience, community condition and recruitment for native fish populations and in-channel vegetation change.

14.3. Monitoring and Evaluation of Participation

Testing and evaluation of communication and engagement activities during the project is important to ensure that messages remain relevant and meaningful to the community and are effective in reaching set goals. Monitoring and evaluation measures need to be both quantitative and qualitative to capture participation rates and changes in attitudes.

It is proposed a central feature of monitoring and evaluation is a survey before and after the project to determine changes in behaviour and attitudes toward securing low flows. It is proposed that a sample of the target audience (in-scope dam owners) is surveyed to determine their attitudes to securing low flows and their likelihood to participate in an auction if funding has been confirmed. Then following the project, the same sample group will be tested to measure the differences in their behaviours and attitudes, including that if they did participate in the auction then how likely it is they would recommend the experience to other landholders to inform future auction rounds. This research will to determine whether the MC&E activities have made the difference that was anticipated.

The progress of the project against the MCE three main goals will also be monitored at various stages as shown in the table below.

Table 14: Key Measurement of the MCE Plan

Goal/Objective	Measurement
Goal 1 – Maximise the number of in-scope dam owners who participate in the competitive auction	
Objective 1 a) Attract 800 in-scope dam owners to express interest in the first and/or subsequent rounds of the auction.	Number of shed meetings scheduled Number of EOIs received Number of field inspections scheduled Note that if some WRAs of the EMLR are unrepresentative in any of the above measures during the project, DEWNR can take action to address this
Objective 1 b) Increase the proportion of in-scope dam owners that support the low flows concept from 43% to 66%.	Compare pre and post-survey trends to determine attitudinal and behavioral changes.

Objective 1 c) Achieve a satisfaction rating of 80% or higher from participants about the auction implementation, the field assessment service and the overall project at the completion of the project.	Market research with those who participated in the project to gauge their satisfaction rating and the likelihood that they would recommend the auction process to other landholders.
Goal 2 – Persuade in-scope dam owners who do not support returning low flows to change their opinion	
Objective 2 a) Define and communicate a compelling case why in-scope dam owners need to be part of the auction while funding is available as well as the implications of not participating in securing low flows, i.e., that licence holders will be expected to implement low flows solutions with no government funding support in the future.	Compare pre and post-survey trends to determine attitudinal and behavioral changes.
Objective 2 b) Decrease the proportion of in-scope dam owners who do not support the low flows concept from 50% to 35% by removing some of the barriers identified by respondents verbally in the market research.	Track interested but unsupportive dam owners through a customer relationship database. Compare pre and post-survey trends to determine attitudinal and behavioral changes.
Goal 3 – Promote F4F to a wider audience to generate community support	
Objective 3 a) Promote outcomes of the various stages of F4F (e.g. announcement of funding, opening of EOI period, auction participation rates, auction outcomes, case studies) through social media, traditional media, the website and direct emails and by linking outcomes to the Strategic Priority and Fight for the Murray.	Market research Website hits Positivity of media stories

15. Compliance and Audit Strategy

Flows for the Future project has developed a Compliance and Auditing Strategy. The key components of this strategy include:

- preparation of contracts for installation of devices via the existing DEWNR Grant Agreement process with an attached detailed schedule containing a project plan and deliverables;
- auditing of the installation of devices to determine correct and timely installation of device to Grant Agreement Specifications provided in project plan;
- operations and maintenance compliance of licensed dams through the existing water licensing system empowered under the NRM Act and Water Allocation Plan;
- operations and maintenance compliance of Stock and Domestic dams over 5 ML through NRM Act Regulations; and
- operations and Maintenance audits conducted as part of existing long term licence and NRM Act compliance by DEWNR Licensing and Compliance.

Each of these are outlined in more detail below.

15.1. Contract Arrangements

Once the Auction process is completed, successful proponents will enter into an agreement with the Department for their project. Agreements for completion of individual projects will take the form of a Grant Agreement and adhere to the Department's policy and procedure for Grant Agreements.

DEWNR's current Grant Agreement will form the basis for agreements with successful proponent. The Grant Agreement will be finalised once the Australian Government's due diligence process has been completed to ensure that specific requirements or conditions are appropriately reflected. The South Australian Crown Solicitor's Office will be engaged to assist with managing any legal risk in the drafting phase.

Key documentation used to assess and evaluate the project during the auction evaluation and assessment phase will be incorporated as part of the Grant Agreement documentation. The Action Plan developed and agreed to by both the Department and the proponent will form the basis of a schedule within the Grant Agreement. This document will contain key site details, including the design of works and the timeline of installation.

15.2. Installation Audits

Funds provided through the Grant Agreements will be approved based on completion of Milestone Outcomes. Milestones will be based on completed stages of the project clearly outlined in the Action Plan. Stages will be subject to audit and approval by DEWNR before a Milestone payment invoice is accepted and approved for payment.

Audits will be conducted at the project site by a qualified field officer to determine the project has been completed to the standards set out in the Action Plan attached to the Schedule of the Grant Agreement.

Payments will be subject to the conditions set out in the Grant Agreement.

15.3. Operations and Maintenance Compliance

Operations and Maintenance as part of the *Flows for the Future* project will be in kind and provided by the Landholder.

To ensure Operations and Maintenance is completed in line with requirements of the project and to ensure appropriate flows into the future, a number of mechanisms will be used to ensure compliance.

In scope dams and diversions for the project are comprised of licensed irrigation dams and diversions, and in the EMLR PWRA also includes stock and domestic (S&D) dams over 5 ML in volume. Licenced dams and diversions can be managed through the water licensing process, pursuant to the *Natural Resource Management Act 2004*, while S&D dams in scope can be managed using Regulations under the *Natural Resource Management Act 2004*.

15.4. Licence

Water licenses are granted by the Minister under section 146 of the *Natural Resources Management Act 2004* to support the management of the water resource and monitor consumptive use against allocations.

Pursuant to section 149(1) (b) of the NRM Act 2004, the Minister can vary the conditions of the licence annually if in the opinion of the Minister the variation is necessary or desirable to more effectively regulate the use of water. Principle 141 of the EMLR WAP includes specific provision to allow variation of licence conditions to include the requirement to return low flows.

Infrastructure installed on licenced dams will be managed and monitored through conditions on the licence to ensure appropriate low flows are maintained by adequate operations and maintenance. The process to add provisions to licences is already in place with the licences allowing additional conditions and empowered under the NRM Act 2004.

It is an offence to contravene or fail to comply with a term of provision of a water licence or a condition of the licence. If the licencee or a person acting on behalf of the licencee contravenes or fails to comply with a condition of the licence, the Minister is able to cancel, suspend or vary the licence by 7 days written notice served on the licencee.

Compliance and monitoring will be sustained in the long term under existing DEWNR metering reporting and data collection system, work flow processes and compliance programs.

15.5. Regulations

Stock and domestic dams over 5ML are in scope for this project, but are not subject to licences like irrigation dams. Operations and maintenance requirements will be managed through the NRM Act regulations, Natural Resources Management (General) Regulations 2005.

A regulation has been made under section 169 of the NRM Act that allows the Minister to identify specific unlicenced dams of 5 ML or more in the EMLR PWRA that must return low flows. Under the regulation, the Minister may, after consultation with the landholder, serve a notice on the landholder that sets out action to be taken in order to return low flows at or below threshold flow rate, or other action that will achieve an equivalent outcome. The notice will also include timing for the actions and conditions for ongoing operation and maintenance of the device.

Failing to comply with such a regulation is an offence under section 169(8) of the NRM Act. Compliance and monitoring will be sustained in the long term under existing DEWNR metering, reporting and data collection systems and compliance programs.

16. Approvals

A range of Commonwealth and State legislative approvals may be required prior to implementation of low flow works depending on the solution. These approvals will be progressed through the various administrative processes required under each Act prior to any specific work commencing. The State has processes in place through existing Australian Government funded projects that can be drawn on to ensure legislative approval requirements are identified are managed effectively. These processes consider national and state legislative approvals.

The State agrees to follow all applicable laws to ensure the safe delivery of the project.

17. Project Close

To ensure the project is closed effectively at the completion of the funding period, a project closure and transition plan will be developed.

17.1. Project Closure

Project closure involves the administrative processes necessary to finalise the project. This includes human resources, financials, contracts that are not ongoing, information management, records management, final project reporting and any other requirements.

Suggested components of the project close out process are detailed below.

17.1.1 Project Review, Evaluation and Final reporting

A review of the *Flows for the Future* project to evaluate it against project objects and outcomes will be undertaken as will be the development of a final report. As construction and installation is scheduled to be completed by March 2019, this review will be conducted during May and June of 2019. The post-delivery project review along with lessons learned provides meaningful knowledge to improve the implementation of future projects.

17.1.2 Lessons Learned

The *Flows for the Future* project is an innovative project containing a number of firsts. It is important to document and analyse the lessons learned from the project for the purpose of providing them to future projects at a local and global scale.

17.1.3 Project Acceptance

Formal project acceptance internally by the project sponsor and by the Australian Government is required before the project can be formally accepted as closed. This would be completed after the development and acceptance of the final report and financial audit of the project.

17.1.4 Transition Plan

Development of a well written Transition Out Plan to ensure the transition is seamless at the end of a project and agreement with Commonwealth Government. It will be the Project Manager's responsibility to release resources during the transition and closing process and ensure that all tasks are completed.

17.2. Transition Plan

Transition is an important sub component of project closure and covers the management practices implemented to exit or close a project where some element of the project is to carry on beyond the end-date. It has been distinguished from project closure because there are significant planning and legacy implications connected to the transition process. Transition will most likely involve the transfer of project content or process to a recipient. A transition plan should support longevity of project outcomes and the legacy of the *Flows for the Future* Project. Transition planning and project closure run side by side but transition planning relates to the process to transition the project from delivery to closure.

The goal of a transition plan is to ensure the longevity of project goals and outcomes beyond the initial life of the project.

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Flows for the Future

Reforming flow management in the Eastern Mount Lofty Ranges WRA

APPENDICES

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Flows for the Future

Auction Implementation Plan

January 2016

O'Connor NRM

Appendix 1

Auction Design & Implementation

Background

Provision of low flows to reduce risks to water-dependent ecosystems (WDEs) in the Eastern Mount Lofty Ranges (EMLR) can be achieved through voluntary action with little impact on consumptive water use levels (Savadamuthu 2007, VanLaarhoven 2012, VanLaarhoven and van der Wielen, 2012). Critical to the success of efforts to return low flows is the optimisation of incentives to promote actions where they will reduce the maximum amount of environmental risk with the minimum impact on consumptive use. A discriminatory price auction offers a solution to incentive design which can be tailored to optimise environmental and consumption benefits within a fixed budget.

A discriminatory price reverse auction has the ability to avoid or reduce rent seeking (and resulting incentive inefficiencies) in the procurement of low flow provision where there is asymmetric information about the private opportunity costs of that provision (Latacz-Lohmann and Van der Hamsvoort 1997). In this type of procurement bidders (usually landholders) submit bids to provide the desired environmental service for a nominated level of payment. However the auction mechanism creates competition between bidders, and only those offering the highest value for money in terms of benefits per unit cost (e.g. reduced risk to WDEs per dollar) will be likely to be selected for contracting and payment. Well known examples of these approaches include the Conservation Reserve Program in the USA (Kirwan et al. 2005; Ferris and Siikamäki 2009; Cowan 2010) and the Higher Level Stewardship Schemes in the UK. Reverse auctions have also been successfully applied to reduce rent seeking in procurement of ecosystem services in the Mount Lofty Ranges through the Catchment Care (reduction of environmental threat in waterways; Connor et al. 2008) and BushBids (management of native vegetation; O'Connor et al. 2009) programs.

The procurement of low flow provision in the EMLR presents some challenges to incentive design to which a reverse auction is particularly well suited. These challenges include

- The heterogeneous distribution of benefits from returning low flows across the catchments
- The spatial separation of prioritised management zones (where low flow benefits will occur) from where some low flow return is required
- The benefits of spatial coordination of low flow provision
- Uncertainty about the impact of low flow provision on water security
- Uncertainty about the private opportunity costs of provision of low flows

Previous work and programs also provide an excellent starting point for the design and implementation of a reverse auction for procuring provision of low flows. These advantages include

- An incentive (under provisions of the Water Allocation Plan and licensing) for landholders to participate in a voluntary incentive program to provide low flows
- High quality science on the environmental flow needs of WDEs
- High quality spatial and hydrological modelling of priorities
- An established relationship between the delivering agency and bidders (landholders)
- A design library of options for provision of low flows
- Familiarity of the EMLR landholder community with previous reverse auctions for ecosystem service provision
- Previous experience and evaluation information on the design of reverse auctions for the EMLR landholder community

The design of the reverse auction uses these advantages to overcome the challenges of incentive design for the provision of low flows.

Auction Design

The auction design provided has the primary aim of maximising the environmental benefit for the available budget within the constraints of a voluntary incentive program. Key design features seek to provide sufficient information to bidders to induce participation while limiting opportunities for rent seeking. A critical element is the use of iterative bidding through an undisclosed number of bidding rounds. This approach has been trialled experimentally (Shogren et al. 2000, Reeson et al 2011) and implemented to improve coordinated bidding to improve agglomerated bidding and landscape outcomes (Rolfe et al 2009 and Hill et al. 2011). The approach allows landholders to revise bids with (potentially) multiple opportunities to resubmit bids to improve the accuracy of bidding costs. Bid revision and resubmissions can improve a landholder's chances of selection, improve auction efficiency by allowing learning about benefits of coordinated bidding and reduce the costs of procurement. While rent seeking by bidders is likely in a reverse auction, an iterative bidding format enables amelioration of the degree to which participants can exploit their private information advantage.

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Auction Design Specification

Design Feature	Specification	Notes
Auction Type	A discriminatory price reverse auction	A discriminatory price auction is preferred because sellers receive no surplus profit and have little incentive to shade their bid prices when the risk of not winning a contract are considered high due to default obligations under the WAP. For discussion see Boxall et al (2013)
Bidding Rounds	Multiple (number not revealed)	Multiple bidding rounds are preferred as a way of building confidence in participation and allowing landholders to coordinate bids to achieve landscape-scale combinatorial conservation outcomes. Information about provisionally successful bids will be shared after each bidding round to improve spatial coordination. The number of rounds is not revealed to maintain pressure on participation and price revelation without excessive rent seeking. For discussion see Reeson et al (2011) and Banerjee et al (2015).
Bid selection	Descending benefits/$ bid ranking	Bids will be selected in each bidding round in ascending rank order according to the metric with the 'lock-in' and 'let it ride' rules incorporated.
'Lock-in' Rule	Lock-in value-for-money bids in each round.	The lock-in rule effectively ensures that the impacts of learning are unidirectional—bidders may learn to lower their prices if they are relatively expensive, but are restricted in their ability to creep their price upwards if their initial bid is relatively cheap. For discussion see Freeman and Woodward (2010) and Reeson et al (2011)
'Let it ride' Rule	Once a landholder has entered a bid in a round, the bid will be considered in future rounds unless revised or withdrawn	This rule allows landholders to avoid unnecessary paperwork and transaction costs between bidding rounds if they know their costs (and/or do not want to revise their bids) but allows unsuccessful bids from early rounds to become successful in a subsequent round if their score improves due to complementarity or if the reserve price is revised.
Ecological Metric	Benefits from returning flows are calculated as the contribution of the return to the production of ecological benefits for WDEs	The benefits from a given landholder or dam are calculated as the benefits the additional flow from that site will provide to WDEs in the context of all other 'locked in' (from previous rounds) and successful bids in the bidding round.
Cost Effectiveness Metric	Ecological Metric / $	The cost effectiveness of individual bids is calculated as the ecological benefits provided by that bid relative to cost.
Information: Eligibility	Any 'in scope' dams or diversions in the target catchments are eligible.	All in scope dams (and diversions) in the Eastern Mount Lofty Ranges catchments will be eligible to bid for return of flows. Where a landholder has multiple dams they can bid for each dam or combinations of dams as long as no dam is included in more than one bid in any bidding round. This approach

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Design Feature	Specification	Notes
		provides landholders with maximum flexibility in contributing flow returns for WDEs and allows staged participation through learning in bidding rounds.
Information: Services and Design Library	Eligible approaches/specifications for returning flows will be available to landholders ahead of EOIs.	The design library of eligible approaches (with specifications) will be available for landholders to select the most appropriate approach in consultation with a program officer and/or an independent advisor. Guidance on specifications for returning flows will be provided to enable innovation by landholders and security of outcomes for the program.
Information: Market Priming	Establish a register of independent advisors.	Landholders may find the idea of participation in an auction, the paperwork, the specifications and design of structures and the costing of bids challenging. Independent advisors can assist landholders to navigate the design and bidding process, however, landholders may not be familiar with these advisors and may not know how to find or select them. Establishing a voluntary register (online) accessible through the programs website will allow landholders to find suitable advisors. Specifications and rules for the advisors register will be set and mediated by the program. Information sessions for independent advisors will also be held in advance of the Expression of Interest (EOI) period.
Information: Strategic Spatial Priorities	Information provided to bidders on the spatial priorities for return of flows.	The agency's information disclosure decision is governed by the competing priorities of minimising the costs of procurement and maximising participation of landholders at sites of spatial priority. Information will be provided to bidders on spatial priorities (on an ordinal scale) for return of flows. Between rounds, landholders will be advised of any changes in relative priorities to induce agglomerated bidding in strategic locations. For discussion see Glebe (2013).
Information: Contract Design	Contract templates will be available before EOI	Contract templates will be available to landholders and advisors before the EOI to ensure that transaction costs and risks can be included in bid pricing. Contracts incorporate work and payment schedules.
Reserve price	Reserve prices are set at the total program incentive budget and at an estimate of the fair cost of returning flow in high demand zones.	A reserve price can be set *a priori* to aid decision-making in bid selection cut-off
Expression of Interest	Closed EOI for all bidding rounds.	An EOI deadline (date) will be advertised and promoted for the first and any subsequent bidding rounds. The EOI deadline will be set for after information sessions are provided and all relevant documentation has been developed and made available to potential bidders.
Bidder Enrolment	Information general	Participation rates will be determined by understanding of flow return

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Design Feature	Specification	Notes
		requirements under existing Water Allocation Plans, knowledge and understanding of the program design, knowledge of environmental benefits, ease of participation, personal motivations, past experience of the delivery agent and programs, certainty of actions and pricing, access to clarifying information, land management / seasonal priorities etc. All information and communication products will take account of these factors to ensure sufficient participation. All relevant information will be made available via website plus other means.
	Applicant Guidelines	Applicant Guidelines are available to inform landholders on: • General program objectives and process • Flow return design options & specification information • Flow return priorities • Site visits • Auction design • Submission and assessment of bids • Questions and answers
	Information sessions	Information sessions will aim to engage landholders in the program by providing direct information about the programs priorities, design and rules. Information sessions will be held at locations in the targeted catchments and presented by experts in the different elements of the program. An additional information session will be held to brief contractors and advisors.
	Advertisement	Information about the project will be provided through local media, NRM, catchment and community groups and by direct mailout.
Site Plans	The site plan is the unit of action the landholder bids on	Site plans will incorporate all actions required to return flows at eligible sites and will be the basis on which measures of ecological benefit will be derived. A site plan may include more than one site (dam or diversion) where action will be taken by a landholder)
Bid Submission	Single sealed bid (multiple rounds)	Bids will be received on the bid submission from provided by the program to the landholders specifying the relevant site plan and requiring a bid price and authority.
Bid Selection	Ascending price per benefit ranking of eligible bids (with complementarity calculation if possible)	Bids will be selected in ascending order of price per benefit until the reserve price or limit of bids is reached in each auction round.

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Implementation Plan

Step	Step no.	Procedure	Start Date	End Date
Determine landholder and property eligibility for participation	1	Project area boundaries determined from catchment mapping and specifications of in scope dams and diversions which can be modified to return flows below the minimum threshold. Desktop determination of eligible properties.		
Establish project database and data management systems	2	Expression of interest data Site assessment / action plan data Infrastructure / modification specification data Database of flow return scoring Bid assessment data Contract establishment data Implementation evaluation data Project management Site modification/contract reporting data		
Establish eligible action specifications	3	Establish and make available specifications for flow return from dams and diversions from the design library and limitations for innovative solutions		
Finalise metric and calculator	4	Update metric and models for calculating site scores		
Determine site plan templates	4	Develop templates for the site plan for eligible actions, including instructions for site plan completion and spatial data requirements.		

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Establish probity and privacy protocols	5	Probity plan Bid evaluation plan Conflict of interest policy
Establish quality control protocols	6	Consistency protocols established for: Site assessments Landholder discussions Site plan development Data management Information and communication management
Establish bid evaluation processes	7	Establish bid receipt and management process and bid evaluation process including bid evaluation plan
Draft contract and payment and reporting schedules	8	Draft contract and payment and reporting schedules
Train site assessors	9	Information and guidelines developed for site assessments Field datasheets developed for the site assessments Site assessors trained in assessing site eligibility, explaining program, advising on eligible options, providing access to independent advisors, collecting data (information required to calculate the benefits score), and privacy and probity requirements. Site assessors also trained in data entry into database and the development of the site plan.
Develop private advisor register	10	Develop a register (online) of private advisors and contractors available to assist landholders to design and cost their site plans.
Determined monitoring, evaluation and auditing methods	11	Developed guidelines and protocols for site auditing and program monitoring and evaluation

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Advertise/communicate opening of expression of interest to landholders	12	Open EOI – toll free telephone number where landholders can seek information, register (no obligation) EOI and provide property and site detail for field assessment) Advertise in local papers / news websites and through regional NRM and community catchment officers Disseminate brochure and information sheets to detailing the project and process Conduct information sessions for landholders and a separate information session for private advisors/contractors Brief NRM Officers and community liaison workers on the program objectives and design Close expressions of interest on nominated date
Deploy site assessors	13	Deploy site assessors to explain the program to landholders, initiate site plans and collect site data for bid evaluation (enter data into program database)
Negotiate site plans	14	Receive and approve site plans from landholders/site assessors
Send bid packs	15	Send a bid pack to the landholder • Specifying conditions for submission of a sealed bid that nominates the price they are seeking to undertake the implement the agreed site plan • Outlining timeline for submission of an eligible bid (10 working days from bid pack mailout) • Providing assistance (site assessors) for modifications of site plans
Bid receipt	16	Bids received from landholders and secured.
Bid evaluation	17	Bids assessed objectively on the basis of the benefits of returning flows, including coordinated benefits in the landscape (as per the Bid Evaluation Plan) and the price landholders bid. Bids converted to a ranking of ecological benefit per unit price.

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Contract and payment	18	Successful landholders invited to sign a contract based on the site plan (locked in). Contracts schedule payments, reporting and auditing requirements. Unsuccessful landholders advised and offered opportunity to re-enter the next round of the auction (revise and resubmit or 'let it ride' bids)
Advertise/communicate re-opening of expression of interest to landholders	19	Include communication of provisional outcomes from previous round Repeat Steps 12-19 for undisclosed number of rounds (until necessary ecological benefits achieved or budget expended)
Implement auction evaluation	20	Evaluate bidding behaviour (landholders survey), site selection (bid data analysis), economic efficiency (bid data analysis) ecological gains (modelled outcomes)
Payment and reporting	21	Make payments against site plan reporting requirements and contracts
Site auditing	22	Audit site works according to audit procedures

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Risk Management

What are the risks?	Consequence	Likelihood of it occurring	Overall risk	Mitigation strategy
There is insufficient interest in the auction to reach targets.	Moderate	Possible	Medium	• Ensure project communication and promotion is properly framed and targeted • Ensure application barriers for participants are minimised • Disclosing benefit information to incentivise participation
Potential or actual participants do not understand the auction or how to formulate a bid.	Moderate	Possible	Medium	• Ensure communication of project is accurate, clear and accessible. • Build on recommendations from evaluation of EMLR *BushBids* (auction) learning. • Auction design to provide information to induce efficient bidding.
Participants have insufficient capacity to deliver low flow infrastructure	Moderate	Possible	Medium	• Low flow solutions and design library available assist selection of site appropriate infrastructure change • Field Assessment Officers 'connect' bidders to potential solutions (must therefore have adequate expertise) • Prime service delivery agents (hold briefing for contractors and develop an accessible database of service providers)
Land managers do not comply with contract. (Outputs aren't achieved.)	Moderate	Unlikely	Low	• Auditing strategy as detailed in item?
Low flow bypass infrastructure does not achieve the intended outcomes	Moderate	Possible	Medium	• Establish contracts with landholders which have explicit enforcement clauses for the achievement of outputs. In this way landholders are informed of the management outcomes sought but take (and cost) risks for actions and outputs only. This is deemed the most cost effective approach to management of risk in contract design.

Appendix 1

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Flows for the Future Eastern Mount Lofty Ranges and Marne Saunders Competitive Tender

Applicant Guidelines

January 2016

PHOTOGRAPH

Expression of Interest Registrations Open: DATE

Submit Tender Bids by: DATE

All Enquiries Call 1800 XXX XXX

Appendix 1

Timeline of Key Project Stages

Stage	Element	Important Dates
Information Sessions	Community information sessions will be held at the following locations and dates: Location 1 Location 2	 XXX XXX
Expression of Interest	Landholders register their interest and the program records determines eligibility	XX
Field Assessment	Field officer visits the site and discusses the process and options for low flow returns and develops an Action Plan with the landholder	XX to YY
Action Plan Finalised	The landholder and program agree on a final version of the Action Plan	XX to YY
Bids Submitted	Landholders submit sealed bids (acknowledged by the program) for calculation of value for money from the Action Plan	XX
Bids assessed	All eligible bids assessed against the metric to determine which bids offer value for money	XX
Landholders notified of outcomes	Successful and unsuccessful landholders are notified of the outcomes of bidding	XX
Additional auction rounds	Unsuccessful bidders will be invited to revise and resubmit bids to a new auction round if sufficient funding remains	XX (if needed)
Contracting & Implementation	Successful bidders will be offered contracts including an implementation schedule and provided with payments for milestone completion	XX
Completion and Evaluation	The program accepts a final report, makes final payment and undertakes an evaluation of program effectiveness and efficiency	XX

Appendix 1

1. Background

A long term productive future for the communities and industries of the Mount Lofty Ranges is dependent on a healthy environment to provide a water supply that is secure and high quality.

The *Flows for the Future* Competitive Tender program aims to reinstate more natural flow patterns in South Australia's Eastern Mount Lofty Ranges region, including the Marne Saunders catchments, particularly during periods of low flow, to keep these catchments healthy.

The region supports significant food and wine producing industries, large residential communities and growing tourism enterprises. More than two thirds of the state's population is dependent on surface water flows that originate from the Mount Lofty Ranges for drinking water supply, primary production and other local community needs.

With such demand for water supply from the region, the water resources of the total area are close to fully allocated and the landscape is heavily developed to the extent that natural watercourse flows have been altered significantly.

Over the years, farm dams and watercourse diversions have changed the landscape and there are now thousands of dams which impede natural flow paths, capturing water, reducing down-stream flow volumes and changing flow patterns across the various catchments. This is putting watercourse health and many ecosystems at risk.

The problem is amplified during the drier months of South Australia's seasons when insufficient runoff is generated for water to move all the way through the system – at these times, dams capture any run-off and the watercourses and their dependent ecosystems go without for longer periods of time.

During the water user licence rollout and development of the Mount Lofty Ranges water allocation plans water was allocated on the provision that low flows would be secured for the environment. The *Flows for the Future* Competitive Tender project aims to assist in achieving the desired environmental flow regime and ensuring the environment receives a legitimate water provision. The competitive tender approach aims to achieve this by ensuring that landholders have a say in where and how costs are shared for returning small amounts of water at critical times in the seasonal cycle – aiming to get the balance right between optimising productivity and preservation of the region's environmental health.

2 Eligibility and Participation

2.1 Applicant Eligibility

Applicants, who meet the following criteria are eligible to participate in the *Flows for the Future* project:

- Landholders (freehold or leasehold), located in the targeted catchment zones
  - Persons who hold a licence to take surface water from a licensed catchment dam,
  - Persons who hold a licence to take watercourse water from a nominated diversion point,
  - Persons who own a stock and domestic catchment dam greater than or equal to 5ML.

- Where the applicant is not the owner of the land they must hold
  - legal right of tenure for the period to be covered by the *Flows for the Future* contract (e.g. tenant's agreement or lease)
    AND
  - hold, at the time of bid submission, documentary evidence of the owner's permission to undertake all activities required as part of the *Flows for the Future* contract.
- Persons with the following affiliations cannot participate:

- South Australian Government employees with the Department of Environment, Water, and Natural Resources (Employees include permanent, non-ongoing employees, and temporary contractors)
- Spouses, cohabitants, co-owners, tenants, or business partners of any of the above

1. Applicants may make only one bid per property (see the glossary for a definition of 'property'). The application may cover:
   - One or more sites on the property
   - One or more dams or diversions on the property.
2. Applicants must be Australian citizens or permanent residents.
3. Applicants must be registered for tax purposes in Australia and have an Australian bank account
4. Applicants must be prepared to enter into a contract with the South Australian Government to undertake specified works within eight months of project commencement.
5. Where the applicant is a partnership, each partner must be a legal entity (and persons signing the tender and contract must have authority to sign for and bind the partners of the partnership jointly and severally).
6. Joint bids (i.e. a single bid covering more than one property) will not be accepted.

2.2 Site Eligibility

Eligible sites are:

- In-scope dams and diversions, which are all dams and diversions used for licensed purposes, as well as dams with a capacity of 5 ML or more that are not used for licensed purposes; and/or
- Dams that are not in-scope where actions at that site provide an equivalent outcome to in-scope dams or diversions, as an alternative to that site

Dams and diversions must be in the Eastern Mount Lofty Ranges Prescribed Water Resources Area (PWRA) or Marne and Saunders PWRA.

A dam or diversion that already is required to return low flow as a result of an approval under the EMLR WAP, Marne Saunders WAP or SAMDB Regional NRM Plan (or its predecessors) is not eligible. Note that dams and diversions required to return low flows as a condition of a water licence granted under the existing user licensing process in the Marne Saunders PWRA is eligible.

Eligible Actions

The default eligible action is for an in-scope dam or diversion to return, release or not capture water present at or below the threshold flow rate for the site. This means that water doesn't need to be returned if there is no flow. This also means that water can't be taken when there is no flow (e.g. can't take water from a watercourse pool when there is no flow).

Actions that could achieve this outcome include devices that bypass or release low flows (at or below threshold flow rates), and removal of dams or diversion structures.

Alternative solutions that provide an equivalent benefit to returning flows at or below threshold flow rate from in-scope dams and diversions may also be considered to be eligible, provided that the proponent can demonstrate to the program's satisfaction that an equivalent benefit is provided and that the solution meets the specifications.

See Design library for description of available options and guidance on rules for innovation.

3 How to Apply for Funding

After reading these guidelines and the determining your eligibility, you can apply for funding by contacting the *Flows for the Future* program on the toll free number 1800 XXXXXX and an officer will answer any of your questions, guide you through the process of application and record information about you, your property and

the dams and diversions on your property which might be eligible to receive funding for modifications to return low flows of surface water.

3.1 Express your Interest

If you are eligible for funding and interested in participating you must register an Expression of Interest by DATE to be eligible to participate in the Competitive Tender. You can register by

- Calling the toll free number 1800 XX XX XX and providing information to a project officer
- Completing an online form at www.flowsforthefuture.xxx.xxx
- Providing registration information directly to a project officer at one of the information sessions outlined below

The process of registering an Expression of Interest should take less than 15 minutes and will be improved if you have information on your dam and diversion locations and property titles available (however, these can be verified at a later date).

3.2 Attend an Information Session

Eligible landholders are encouraged to attend one of the information sessions being held in the region to ensure they are informed of the programs objectives and processes. The information sessions will focus on providing information on important stages of the process, including registering interest, accessing assistance, receiving a site assessment, understanding eligible actions, developing an Action Plan, and developing a bid for the competitive tender. Information sessions will be held before the close of the Expression of Interest period.

Information sessions will be held at:

(Either supply location, time, date or contact details to find out e.g. www.flowsforthefuture.xxx.xxx

3.3 Receive a Site Assessment

Before you can submit a bid, a *Flows for the Future* field officer engaged by DEWNR will visit your property to discuss options for actions you can take to return low flows. The catchment benefits of returning flows from your project will also be assessed and data gathered to help with the process of preparing for bidding and subsequent contracting of successful landholders. The field officer will discuss which dams or diversions you want to include in your bid and what actions are suitable for those dams and diversions to deliver program benefits. With your input, the field officer will develop an Action Plan which will become your proposal for the competitive tender. Where possible, the field officer who visits your property the first time will remain your contact for the program through to the end of the tender assessment and contracting. Further information about the site assessment is shown under Section XX below and further information on Site Action Plans is shown under Section XX below.

3.4 Submit a Bid

When the Action Plan for your property has been finalised, a field officer will contact you with information on how to submit your bid price, a final copy of the Action Plan and a copy of the contract template. You will be able to submit your bid online at www.flowsforthefuture.xxx.xxx by the deadline DATE (alternatively, this could be done via paper and post with an address and deadline for bids submission). See Section XX for more information on the submission and assessment of bids.

Successful bidders will be contacted by the program and offered a contract. Unsuccessful bidders will be advised and invited to revise and resubmit bids to a new auction round if sufficient funding remains.

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4 Site assessment

Returning low flows at different locations will produce different contributions to catchment benefits and a different 'score' representing the benefits from that site will be generated. Landholder actions are the actions that you propose to undertake (e.g. construct a low flow by-pass, remove a dam). The Site Contribution to Catchment Benefit Score for your site will be combined with the cost of your bid to produce a Catchment Benefits Index that will identify the 'value for money' for the catchment from your bid and each bid from other landholders. (Refer to *Section XX* for further information.)

4.1 Site Contribution to Catchment Benefits

During the site visit to your property, the *Flows for the Future* officer will:

- Explain the site assessment and bidding processes
- Discuss the possibilities for returning flows on your property.
- Identify the location and type of potential flow returns.
- Advise you of the design options and guidelines for returning flows
- Discuss the contents of the Site Action Plan with you
- Assess the site for its contribution to catchment benefits from flow returns:

The final decision about the contribution your site(s) can make to catchment benefits requires data from the site to be combined with data from catchment models and data about which other properties which return flows.

After all bids are submitted, *Flows for the Future* will determine a score for the Site Contribution to Catchment Benefit of your site. During the site visit the *Flows for the Future* field officer will only be able to advise you of the general contribution of your site. However, before you prepare your bid, you will be provided with information about the contribution of flow returns from your site. (For details see Section XX on Flow Return Priorities)

4.2 Additional Information

Some additional information may be collected during the site visit, for example spatial information necessary for contracting works and information about the actions or infrastructure proposed for return of flows. This information will help contracting and auditing your project.

4.3 Preparing for a Site Assessment

Once you have registered your Expression of Interest in *Flows for the Future*, it is recommended that you familiarize yourself with the program design (via website www….), particularly with the options for returning low flows and the design library of options (www…..). You may also wish to seek some independent advice about participation and design from an advisor or contractor. *Flows for the Future* has established a register of advisors you may wish to consult (www…ADVISORS.). *Flows for the Future* does not endorse these advisors and will not pay for advice except that provided by the field officers of the program.

4.4 Design and Implementation

See Appendix 1 for Auction Design and Implementation reports.

4.5 Organising a Site Assessment

Register an Expression Of Interest by

- Calling the toll free number 1800 XX XX XX and providing information to a project officer
- Completing an online form at www.flowsforthefuture.xxx.xxx
- Providing registration information directly to a project officer at one of the information sessions outlined below

5 Submission and assessment of bids

5.1 Timing of Bids

You will be sent a draft Site Action Plan after a *Flows for the Future* officer has visited your property to conduct a site assessment and discuss design options.

If there are any changes that you would like to make to the draft Site Action Plan, please contact a *Flows for the Future* officer on 1800 ++++++++ as soon as possible, and no later than **10 business days after** the draft Site Action Plan is posted to you (need to decide how much can be done online with a project registration code). (See Section XX 'Questions and answers' for more information.)

All bids must be received by DATE to be eligible.

5.2 What to Include in the Price?

The first place to start in calculating a bid price is to think about the costs of the infrastructure changes you will make. Every site will be different and landholders will have different abilities and existing resources to implement Site Action Plans. Bids may include:

- labour costs, either hired or landholder-supplied, for undertaking the necessary actions,
- material costs for undertaking actions, for example pipe, cement, rocks, fencing low flow structures, relocating water sources for stock
- costs associated with equipment or machinery required to undertake actions,
- costs of seeking specialist advice relating to: contractors, advisors, personal financial advisors, accountants or product suppliers,
- Financial issues that may arise as a result of the contract. For example, taxation or Centrelink payments implications,
- time and costs associated with participation e.g. reporting, costs associated with approval for works to be undertaken eg water affecting activity permits, council approval, and/or
- other costs of participating in the project that are not your responsibility

Landholders may also consider personal benefits to be gained from changing infrastructure and returning flows. Landholders may reduce the cost of their bid to reflect these benefits. Benefits may include:

- reduced risk, uncertainty or costs of future management to meet water licensing conditions or manage water security,
- improved ability to access/manage water on their property
- improved ease of land management,
- improved Catchment benefits,
- increased land values or aesthetic values of the property,
- personal enjoyment and satisfaction from having made a positive impact on the local natural environment.

5.3 What not to Include in the Price?

Landholders cannot include anything in their bid price which could not be reasonably considered a cost of taking the necessary actions to return low flows. This includes:

- costs of maintenance and operation of low flow bypass, dam or water diversion infrastructure,
- cost not associated with returning low flows through the *Flows for the Future* program.

5.4 How Much to Bid

The amount you bid, and how you determine the bid, is entirely up to you. In costing your bid you are advised to consider the payment you wish to receive for undertaking the actions outlined in the agreed Site Action Plan.

Bids will be assessed on the basis of value for money for the bidding round (see below Section XX). Therefore the amount you bid will influence how competitive your bid is likely to be with respect to other bidders. Bids which do not offer value for money will not be funded.

Flows for the Future field officers will not be able to advise you on your bid costing and will not know what is likely to comprise a successful bid. They will, however, be able to assist you by advising you of the Catchment benefits of returning flows on your property.

See Section XX on Site Visits for further information.

5.5 Making the Bid Competitive

You can influence the likely success of your bid in a number of ways:

- Your Catchment Benefit Score depends on the amount of flow your actions will return to the environment, the level of ecological risk from not returning flows in your zone, and on the amount and location of flows returned by other landholders near to you. Your benefit score will be increased if other landholders around you submit cost effective bids.
- You can increase your Benefits Score by agreeing to undertake larger amounts of action (modifying more dams or diversions to return flows) that are acceptable to you.
- The more your price reflects your true costs for undertaking the actions, the more likely you are to be successful in receiving a contract that delivers environmental benefits and is satisfactory to you.

The final bid price should reflect your idea of the balance between the benefits of actions and the costs of the action. Landholders need to be realistic in their pricing as they need to be able to meet their obligations under the contract, and contracts will be monitored to ensure that outcomes are achieved. Once the bid has been determined and the bid document signed and submitted there will be no further opportunities to negotiate the site actions or the price in that bidding round. A landholder will be able to withdraw at any time before a contract is signed, however, landholders who refuse a contract when offered will not be able to be revised and resubmit in another bidding round (if any occur).

5.6 Submitting a Bid?

Bids must be submitted by post and received by *Flows for the Future* within 10 business days from the first date the draft Site Action Plan is posted to you. Late, facsimiled, or emailed submissions will not be accepted.

By submitting a bid, you acknowledge that the Site Action Plan is final.

5.7 Bidding Rounds

The *Flows for the Future* has finite funds to assist landholders to return flows in the catchment. The program will conduct an initial bidding round and conduct subsequent rounds only if the program budget is not fully spent or there are not enough cost-effective bids in completed bidding rounds. After a bid round, the location of provisionally accepted bids will be announced.

In each bidding round (if there is more than one), bids which are deemed value for money will be 'locked in' and those landholders will be offered a contract but will not have the option of withholding from a contract to bid in a subsequent round. Only bids which are deemed unsuccessful in a round will be eligible to bid in a subsequent round.

In bidding rounds after the first round (if required), new bidders may enter the auction and past bidders may resubmit bids which were not successful in the previous round(s) with or without modifying their bid prices.

5.8 Bid Assessment

Once all of the bids for a round have been received and the tender period has closed, your bid will be compared against all the other bids submitted in that round. *Flows for the Future* will work to keep the length of time between bidding and notification of success to a minimum.

5.9 Bid Success Determination

Bids will be compared in a consistent manner according to a numerical index of Catchment Benefit.

The Catchment Benefits Index (CBI) takes into consideration (i) the contribution of actions at a site to reducing the threats to water-dependent ecosystems in the catchment, (ii) the position of the site in relation to priority locations for returning flows (more coordinated action in priority locations will achieve more Catchment benefit), and (iii) the cost of each bid. These factors are combined using the following calculation:

Catchment Benefits Index = Site Contribution to Catchment Benefit / Landholder Bid Price

The site contribution to catchment benefit depends in part on the contribution made by other landholders in your part of the catchment. Your bid will be ranked with all other bids from highest to lowest CBI. An evaluation panel will use this ranking to determine which bids offer acceptable value-for-money and which do not. A recommendation will be made to the Department on which bids to accept.

The available funds will then be allocated to those bids representing the best value-for-money.

5.10 Notification of Results

Both successful and unsuccessful bidders will be notified by letter when the bid assessment process is completed. If your bid is unsuccessful you will be given feedback on how your bid compared to those that were successful and offered the opportunity to rebid if there is another round of bidding (see Section XX). If your bid is successful you will be invited to sign a contract. You can ask a *Flows for the Future* officer to see an example contract at any time during the process.

5.11 Bidding Probity and Confidentiality

Flows for the Future has implemented a probity process to ensure that all landholders are dealt with fairly. A probity report on the project will be provided to the Department. Individual landholder bid prices and contact details (other than location) will not be disclosed as part of this report. The *Flows for the Future* project is

committed to providing a fair process for all applicants in accordance with published guidelines. To achieve this, the program seeks to uphold:

- **Fairness and impartiality** - eligible landholders will have the same access to information and support and will be treated equally and with impartiality
- **Consistency and transparency** – processes will remain consistent and transparent without breaching confidentiality or inappropriately revealing information of a commercial or private nature. Bids will be assessed using predetermined criteria.
- **Identification and resolution of potential conflicts of interest** - all actual or perceived conflicts of interest will be raised and dealt with to avoid impact on the program or the fairness of landholder treatment.
- **Security and confidentiality** - the security and confidentiality of private information, intellectual property and propriety information will be maintained in the interests of the program and landholders.

5.12 Complaints and disputes

The *Flows for the Future* program is committed to best practice in relation to resolving disputes or complaints. Should a problem or complaint be identified, please contact 1800 XXX XXX or email at xxxxxx@xxxx.xxxx.xx All unsuccessful bidders will have the opportunity to seek feedback on their bid at the end of the assessment and contracting process.

6 Contracts and payment

6.1 The Contract

Note any specifications for the contract which need highlighting here – e.g. payment and works schedules, make-good or punitive provisions, timing and execution as per eligibility, laws, jurisdictions and disputes.

In addition to entering into a contract for undertaking the landholder actions, there will be requirements for ongoing operation and maintenance of devices returning or releasing low flows. These requirements will be included as conditions on a water licence (for licensed dams and diversions), or via a notice served under regulations for unlicensed dams.

6.2 Payment

If your bid is successful you will be offered a contract with a payment schedule appropriate to the cost and works for your bid. Payment will be made after your contract is executed by the Department (the last party to sign) and according to payment conditions set out in the contract.

7 Promotion and publicity

Successful Applicants must agree to acknowledge DEWNR, Australian Government and the *Flows for the Future* program. The *Flows for the Future* program will supply signage to successful landholders and instructions for placement on roadside fencing. DEWNR reserves the right to publicly disclose information about contracts in any promotional material in a manner agreed and specified in the contract.

8 Example

See Design library for description of available options and guidance on rules for innovation.

9 Frequently asked questions and answers

Appendix 1

What is the *Flows for the Future* Project?

Flows for the Future is a project aimed at assisting landholders with the costs of returning low flows of surface water to maintain water-dependent ecosystems in the Eastern Mount Lofty Ranges and Marne Saunders Catchments.

How much flow do I have to return to be eligible?

An eligible site must be an in-scope dam or diversion that returns a minimum of its designated threshold flow rate.

I've got more than one dam/diversion on my property; how is this dealt with?

You can only submit one bid for your property. Your bid can include each of the locations on your property where low flows are captured or diverted from water-dependent ecosystems that you wish to return flows from.

How will I know what actions to undertake?

A *Flows for the Future* officer will visit your property to discuss options and undertake a site assessment. The *Flows for the Future* officer will provide advice on appropriate actions for your site and help you consider how you can return flows on your property. You will also be able to discuss your own ideas for action during this process.

What if I've got an existing requirement to return flows?

Flows for the Future aims to pay for new actions to return flows. Sites which already have an agreement, requirement under a WAP or regional NRM plan, or payments for returning flows will not be eligible to participate.

Can I change the actions in the draft Site Action Plan?

If there are any changes that you would like to make, or if you have any questions, please contact a *Flows for the Future* field officer on **1800 ++++++** as soon as possible and no later than 10 business days after the draft Site Action Plan posted to you. If changes to the Site Action Plan are required, the benefits may change and the site may need to be revisited. It is important to work with your field officer to ensure you develop design, maintenance and operational requirements for each site. Changes to the Site Action Plan can only be made after contracts are issued at the discretion of the *Flows for the Future* project.

I am leasing the property; can I sign a contract?

Lessees will be eligible to sign a contract as long as they have the written authority of the owner of the site and the proposed actions are not already the responsibility of the lessee under the existing lease arrangement. *Flows for the Future* officers may request a copy of the lease.

How long will I have to return the flows?

You will need to return low flows indefinitely. A condition will be placed on your license to provide low flows for licensed dams, with unlicensed dams compliant under regulations.

Will the contracts be 'common law' or another type of agreement?

Yes, the contracts will be contracts under common law.

Conditions relating to ongoing operation and maintenance will occur through water license conditions and/or notices under water conservation regulations under the NRM Act.

What will be in the contract?

The contract will be a simple document in 'plain English'. It will contain a date of commencement and termination, obligations of the landholder and *Flows for the Future* and interpretation clauses. The contract will also contain a number of schedules including the payment schedule, an agreed Site Action Plan and a site map.

Who will know the contents of my bid and contract?

Details of bids will remain confidential between the landholder and *Flows for the Future*, as will cost, payment and CBI score details. Information on the geographic location of sites under agreement and the associated Site Action Plan will be available through *Flows for the Future* for public information and accountability purposes. *Flows for the Future* may also make general statistics available, in compliance with relevant information privacy legislation. Data collected through *Flows for the Future* may be used for research purposes.

How will the contracts be monitored?

Landholders will be required to submit reports to *Flows for the Future* detailing the works undertaken according to schedules in the contract. *Flows for the Future* will seek to revisit sites at relevant stages of implementation. These visits will include an assessment of progress in implementing the Site Action Plan and will act as an opportunity to provide additional technical support to landholders. A monitoring and compliance program will be implemented to assess operations and maintenance of infrastructure to ensure low flows are passed.

Can I change the proposed actions once I have signed the contract?

Contracts can be varied with the written consent of both parties. *Flows for the Future* will only consider changes that lead to an equal or improved ecological outcome. Re-negotiation of payment will not be possible.

Can I withdraw from the process?

You can withdraw from the process without penalty at any time up to signing the final contract. If you wish to withdraw from the contract after this time you should contact *Flows for the Future* to discuss the options.

Can I buy or sell the property or transfer the lease before the end of the contract?

The contracts will be subject to a landholder agreement to ensure sale of the site/s or transfer of the lease would not terminate the obligations under the contract. Landholders are required to notify *Flows for the Future* of any changes in ownership. To be eligible for the program, a landholder must be the legal owner or lessee of the property at the time of registering an Expression of Interest.

How much money can I apply for?

There is no fixed limit on the amount of money a landholder can bid for; however, bidding will be competitive. *Flows for the Future* will determine the benefits and costs of each Site Action Plan and bid and will allocate funds based on value for money.

How will I be paid?

You will receive an up-front payment to initiate site works at the time of contract signing. Payments will be made by cheque, or other mutually agreed payment method, subject to submitting a report verifying the actions undertaken according to the agreed schedule.

Taxation implications

If you are considering participating in *Flows for the Future* you should consult your financial adviser or the Australian Taxation Office about the income and tax implications of receiving *Flows for the Future* funds.

The Goods and Services Tax (GST) is generally applicable to contracts of this type where the Applicant is registered for GST or required to be and the Grant Contract Payment is considered subject to GST.

Applicants must provide an Australian Business Number (ABN) for the legal entity which would enter into the Contract and receive the payments.

Will I be eligible if I receive public funds from other sources?

Landholders who have an existing contract or agreement extending beyond DATE to deliver the same or similar management services as those required by *Flows for the Future*, will not be eligible for the program. Successful bidders who sign *Flows for the Future* contracts will not be eligible to receive further funding through any other publicly-funded assistance program for the actions identified in the Site Action Plan, at the particular site, for the period of the contract.

10 Glossary

Property: an allotment or contiguous allotments owned or occupied by the same person, persons or body and operated as a single unit.

Allotments will be considered to be contiguous if they abut at any point, or are separated only by a road, street, lance, footway, court, alley, railway, thoroughfare, easement, right-of-way, watercourse, channel or reserve or similar open space.

Threshold Flow Rate: The threshold flow rate for a site is calculated in accordance with principle 55 of the EMLR WAP, or principle 77 of the Marne Saunders WAP. In most cases, the threshold flow rate is calculated based on the size of the catchment area upstream of the dam or diversion, multiplied by the unit threshold flow rate for the site's location, which is a factor based on local rainfall and runoff conditions.

Principle 79 of the Marne Saunders WAP provides an alternative approach for sites where the threshold flow rate is 1 litre/second or less (in summary - 10% of inflow is returned whenever there is flow), which is also an eligible action in the Marne Saunders area.

Appendix 2: Low flows solutions and design library to support auction implementation

There is a design library of existing engineering solutions that can be used to achieve the low-flow diversions sought for the project. This library can be used by the project team when discussing with landholders prior to the auction, which options could be considered for their dams with information also provided to landholders to enable them to approach Contractor(s) to cost Design and Construct solutions for their dam(s).

The design library includes solutions that apply different principles and methods to divert low flows, with each option at a particular stage of design development between sketch, concept design or detailed design. Some options are proven through construction at other trial sites, whilst others are not.

The design library has been reviewed and assessed to determine which options will be progressed. This has resulted in recommending 12 options including some with variations of design elements that are recommended to be used during the project.

Selecting the best options for landholders will depend on a number of key site conditions:

1. Type of dam: Is the dam an on-line storage or an off-line storage?
2. Topography and ground conditions: Does the topography and ground conditions around the dam allow for new infrastructure that operates using gravity?
3. Site boundary constraints: Is there sufficient space between the inlet of the dam and the site boundary for the new infrastructure and for future operation and maintenance?
4. Existing outflows: Are there existing outflow pipe(s) from the dam that new infrastructure can be fitted to.
5. Is diversion of low flows automatic or manual

Maintaining fish passage in creeks and streams and whether weirs are currently present will also be considered when recommending options for particular sites.

The recommended options from the design library include options that require landholders to operate during events, landholders to prepare prior to inflow events and automatic operation under gravity, mechanical control or electric/instrument control. A range of scenarios expected during the project has been summarised in the following figure. Other scenarios can occur and in these instances the process for incorporating innovation will be followed. The library includes designs prepared by DEWNR and its consultants, interstate governments and by the local community through a community competition.

Additional work will be required during project establishment to progress the design for each of the recommended options to a consistent ‘concept design’ level that can be used both during landholder discussions and then for agreed possible options, provided to them to aid the landholder in their auction bid preparation. This will include documenting a matrix of what each option includes and also for each option:

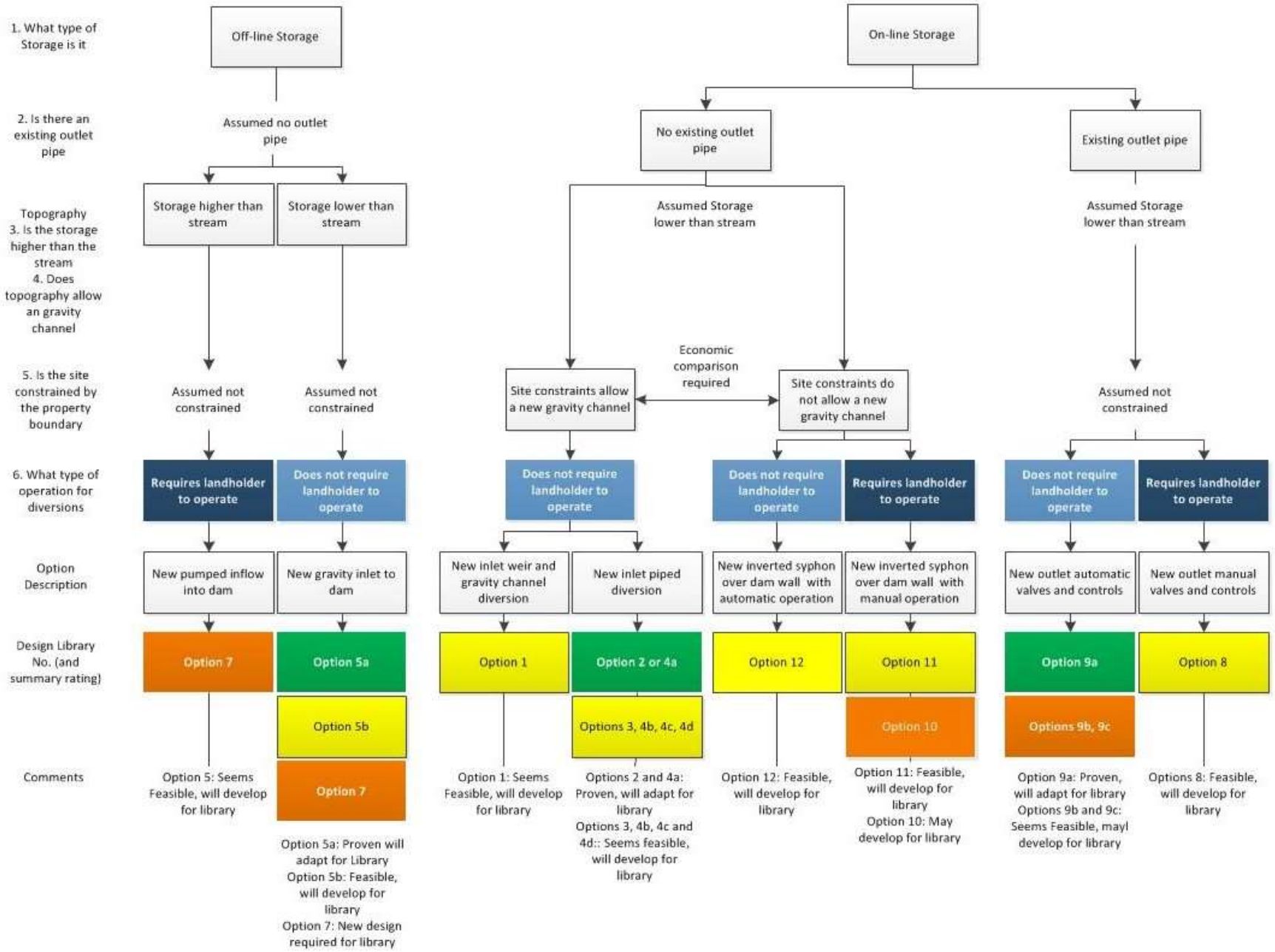
- Description of advantages and disadvantages
- Concept design drawings
- Drawing notes that include:
    - Functional requirement description including flow rate to be diverted and location(s) for devices

- Scope requirements including transferring design, geotechnical, access and weather, stock damage risks to the landholder, and defining requirements for materials and workmanship
- Defining inspections that will be conducted by DEWNR prior to payment
- References to relevant Australian Standards.

A summary of the design library and the decision tree to determine the most appropriate mechanism is provided below.

Appendix 2

Flows for the Future- Recommended option decision tree



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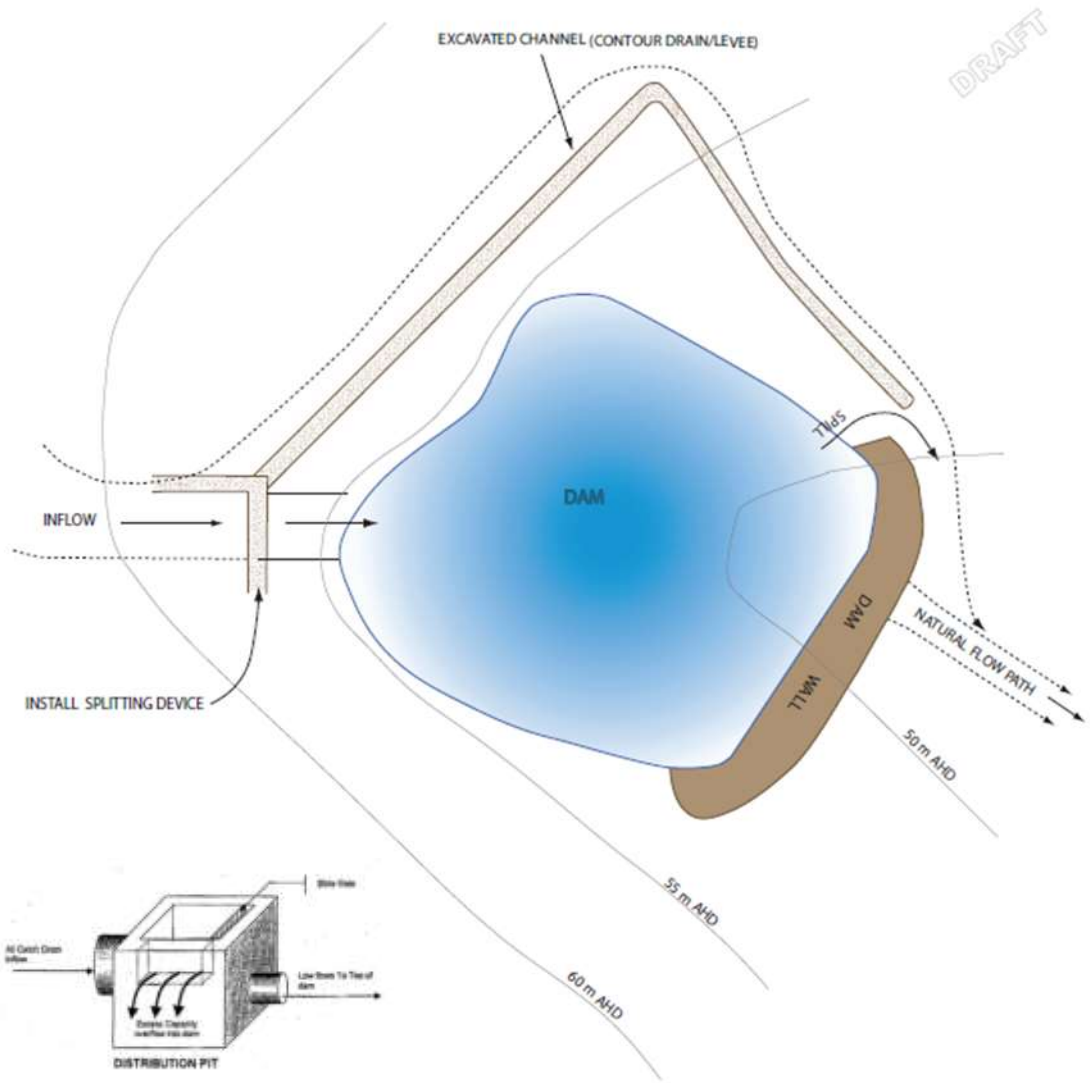
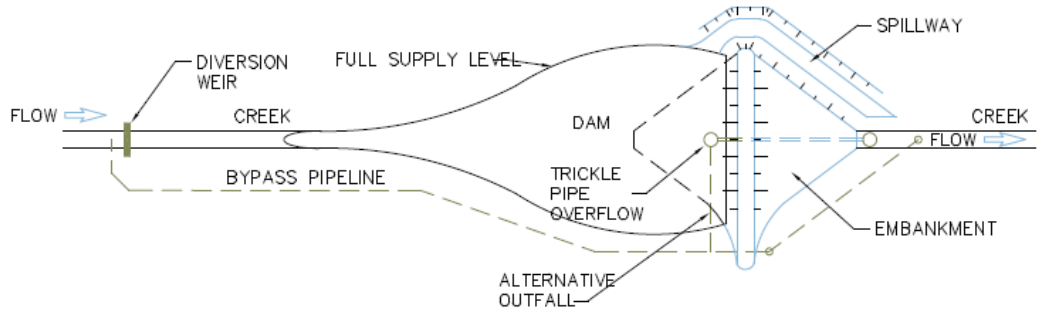
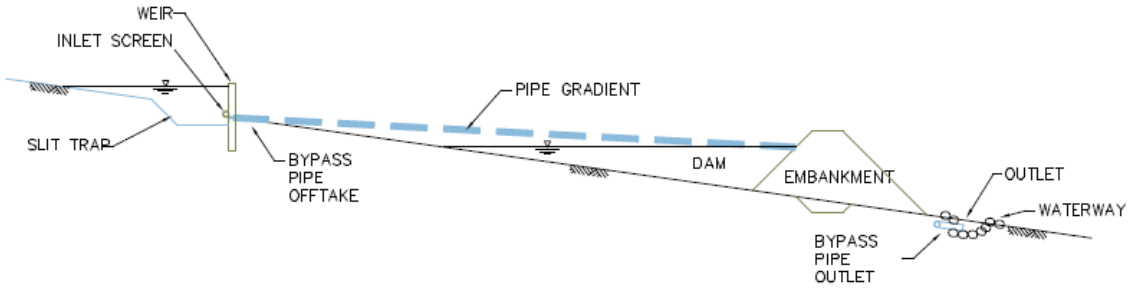
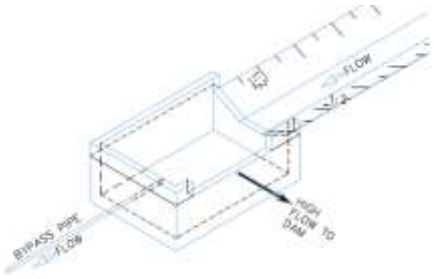


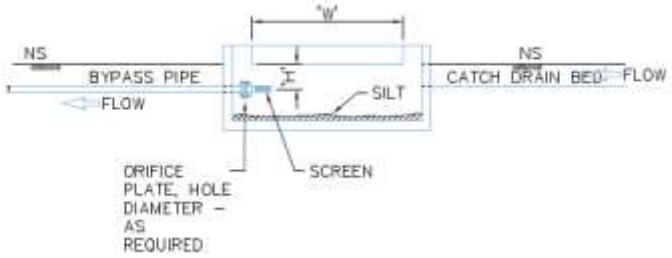
Design Library Option 1: Upstream weirs and contour channel to divert low flow - Short pipe or orifice regulating diversion flows on splitting device (Source: AWE 2009 & SMEC 2001)

Appendix 2



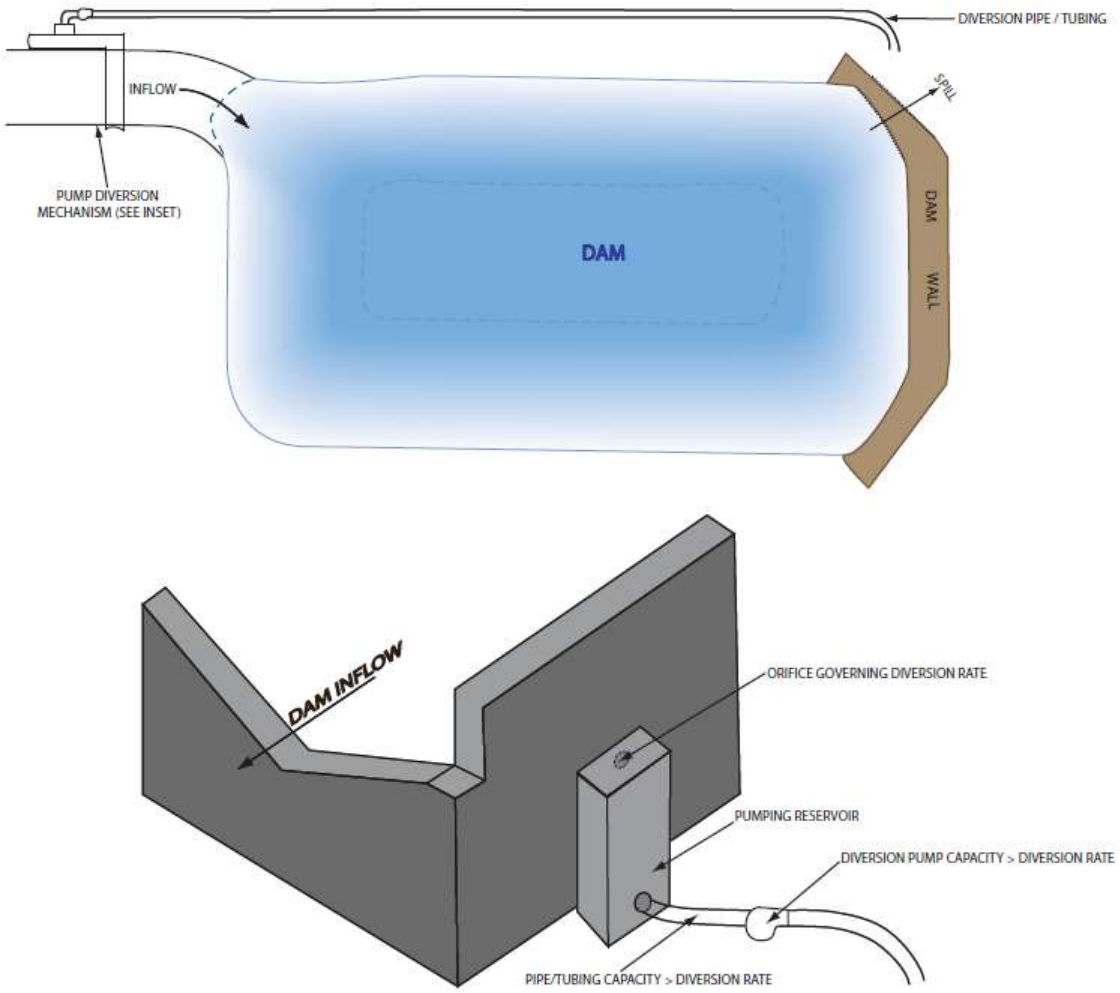






Design Library Option 2: Upstream weirs and pipes to divert low flow - Gravity pipe off-take (Source: SKM 2007 b & Victorian Gov. 2008)

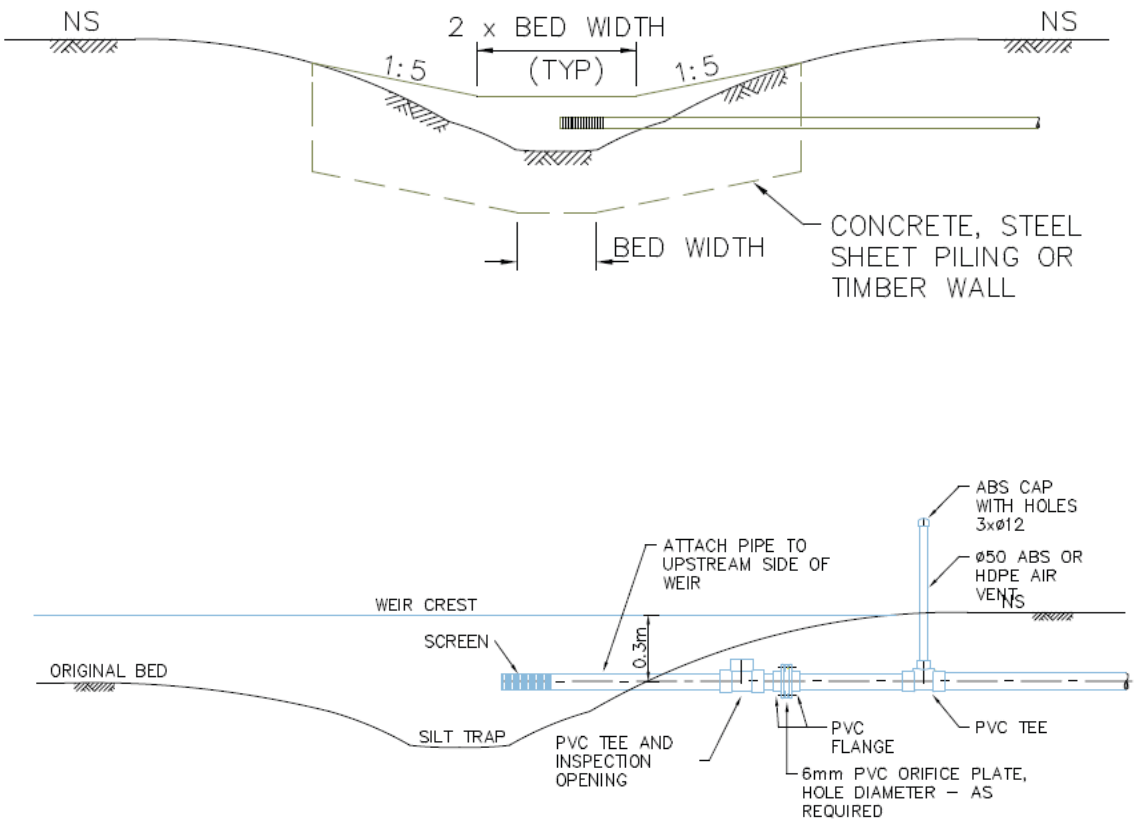
Appendix 2



Design Library Option 3: Upstream weirs and pipes to divert low flow – pumped diversion flows

Source: AWE 2009

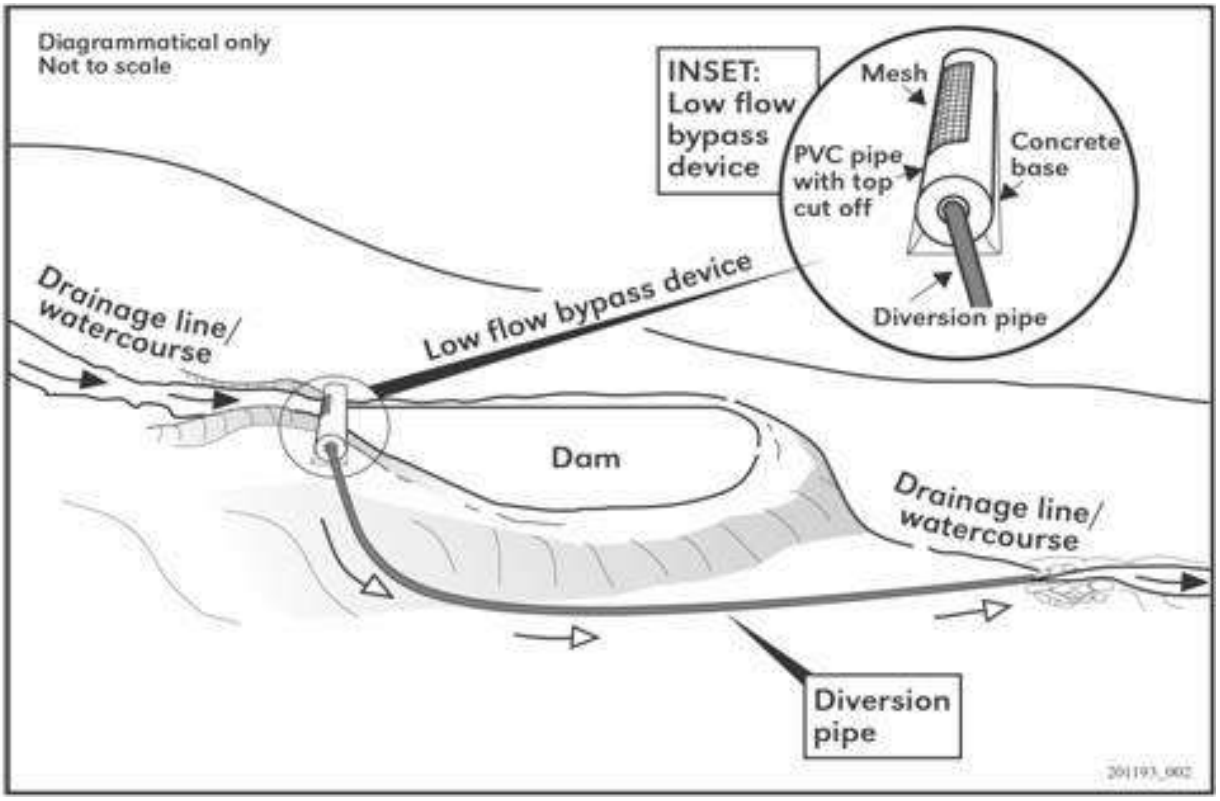
Appendix 2

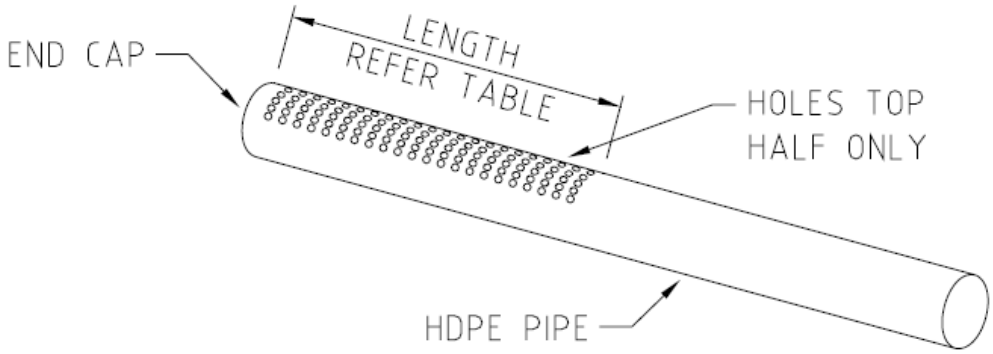


Design Library Option 4a: Upstream weirs and pipes to divert constant inflow - Earth bund and submerged inlet

Source: SKM 2007 b & Victorian Gov. 2008

Appendix 2

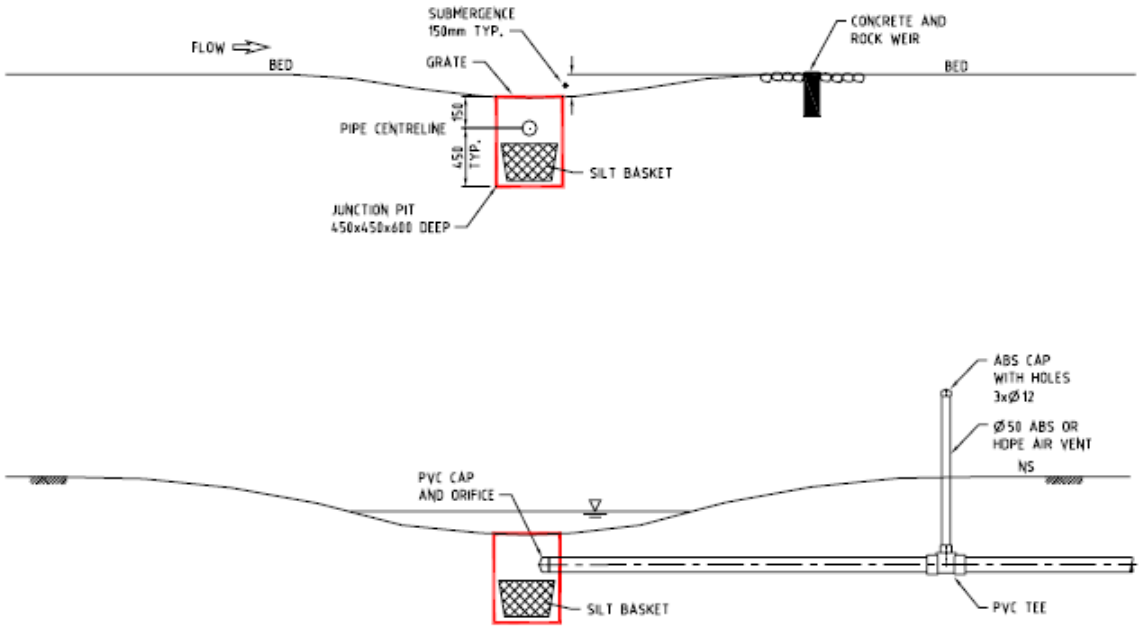




Design Library Option 4b: Upstream weirs and pipes to divert constant inflow - perforated inlet pipe

Source: SKM 2007 a & b

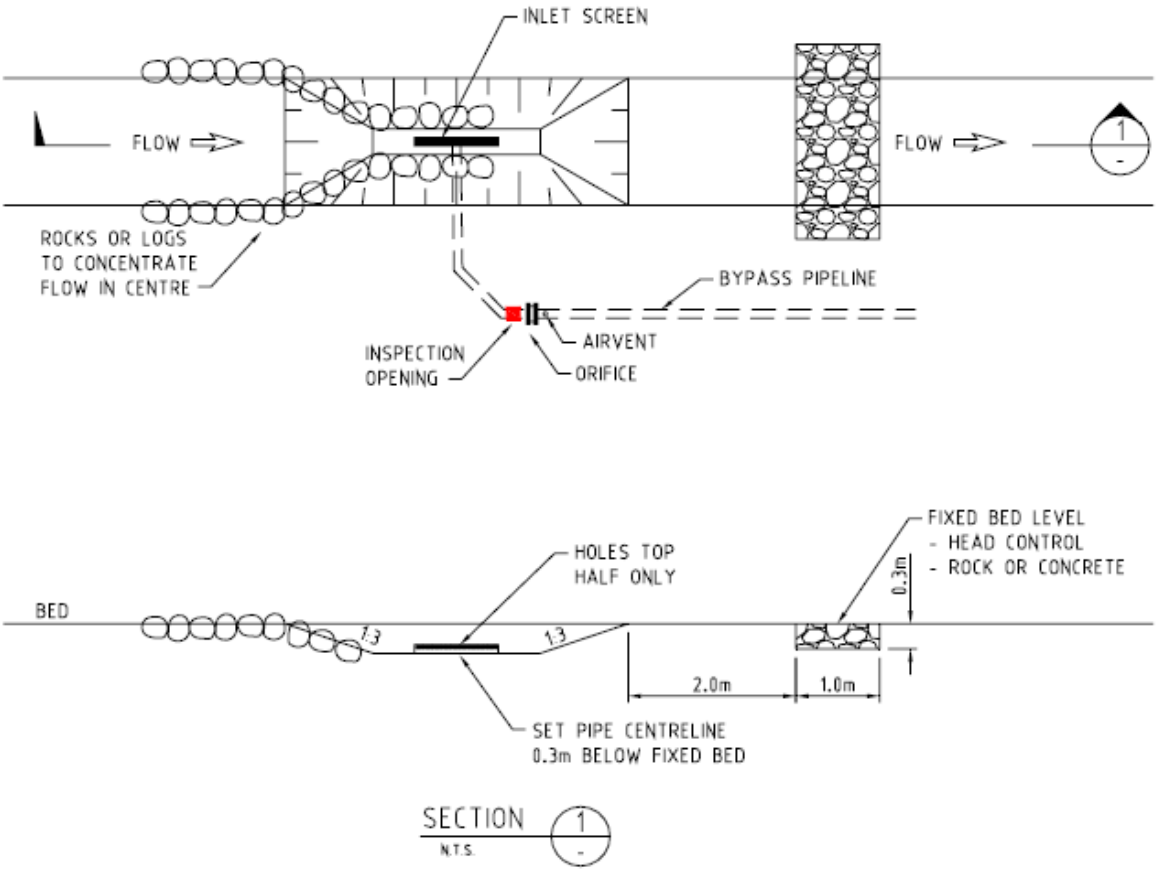
Appendix 2



Design Library Option 4c: Upstream weirs and pipes to divert constant inflow - Buried junction pit

Source: SKM 2007 b

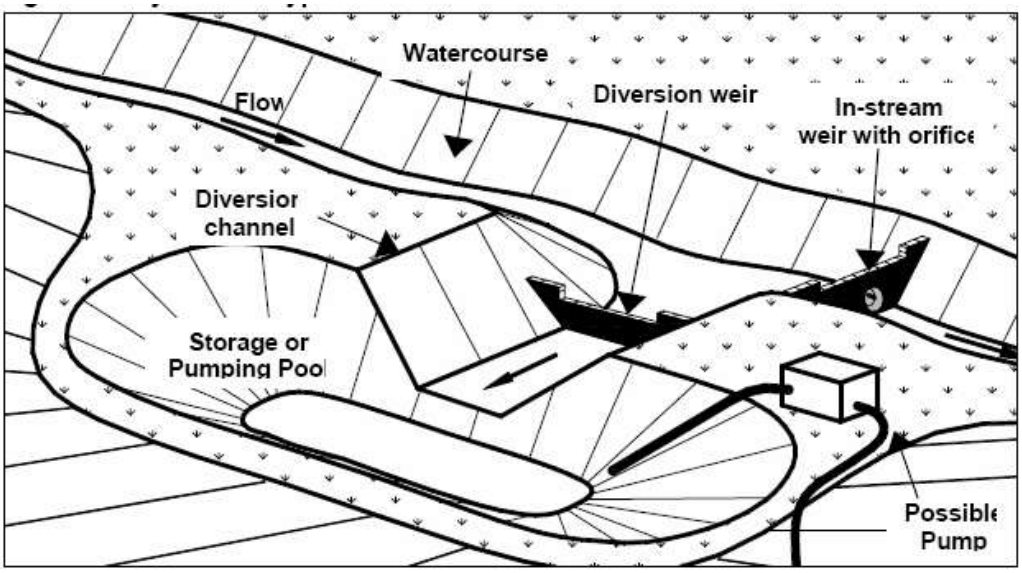
Appendix 2



Design Library Option 4d: Upstream weirs and pipes to divert constant inflow - stormwater drain / collection channel

Source: SKM 2007 b

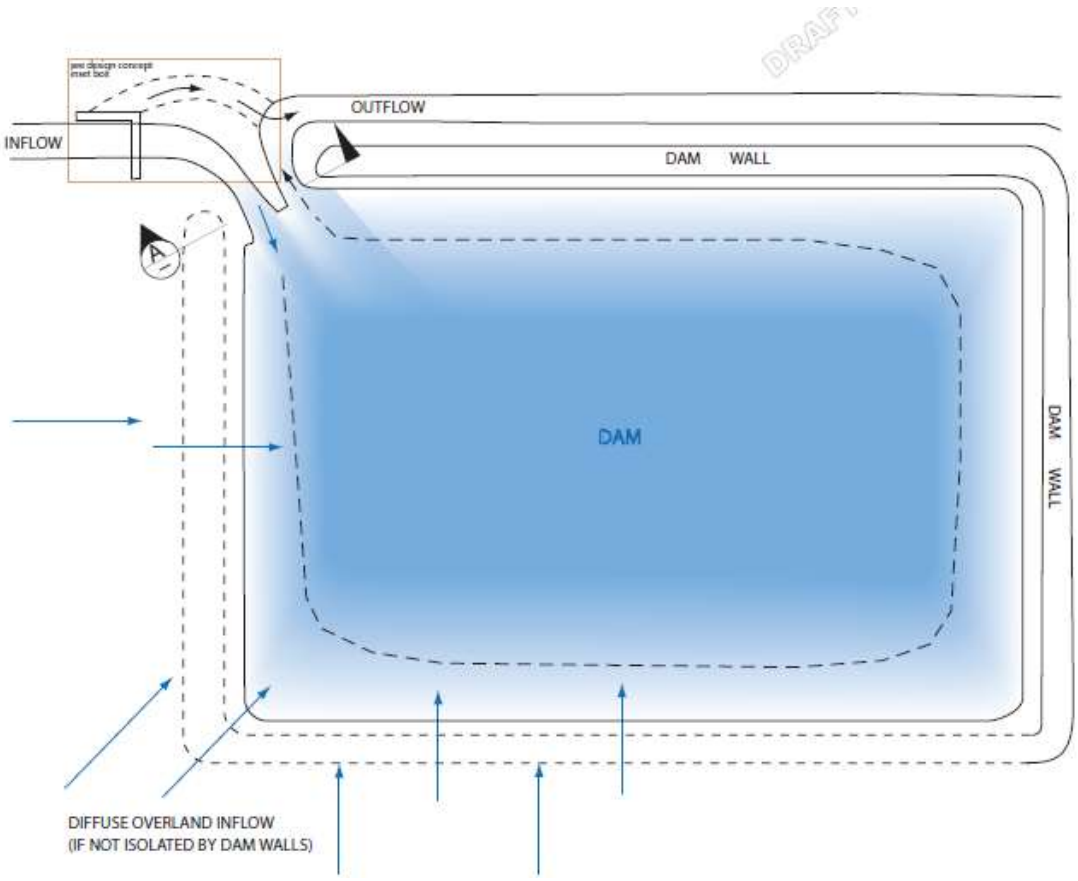
Appendix 2

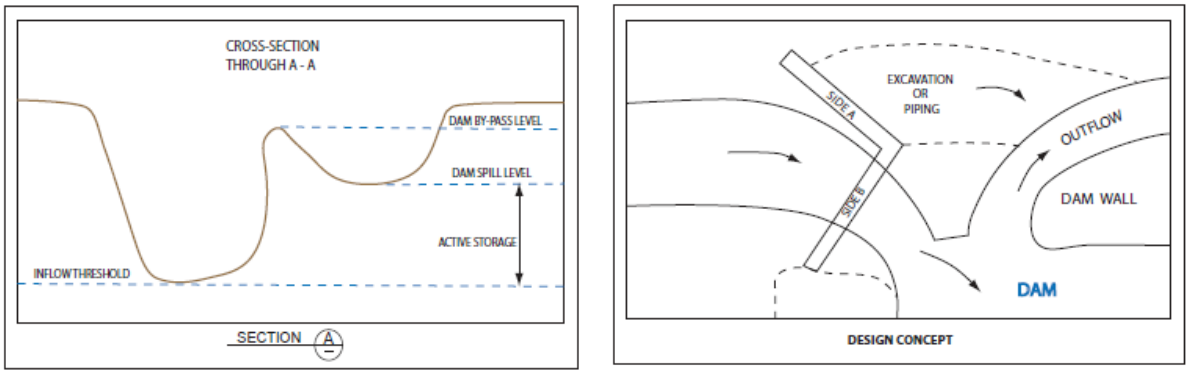


Design Library Option 5a: Diversions for Off-line dams - Gravity Channel to off-line dam

Source: SKM 2007 a

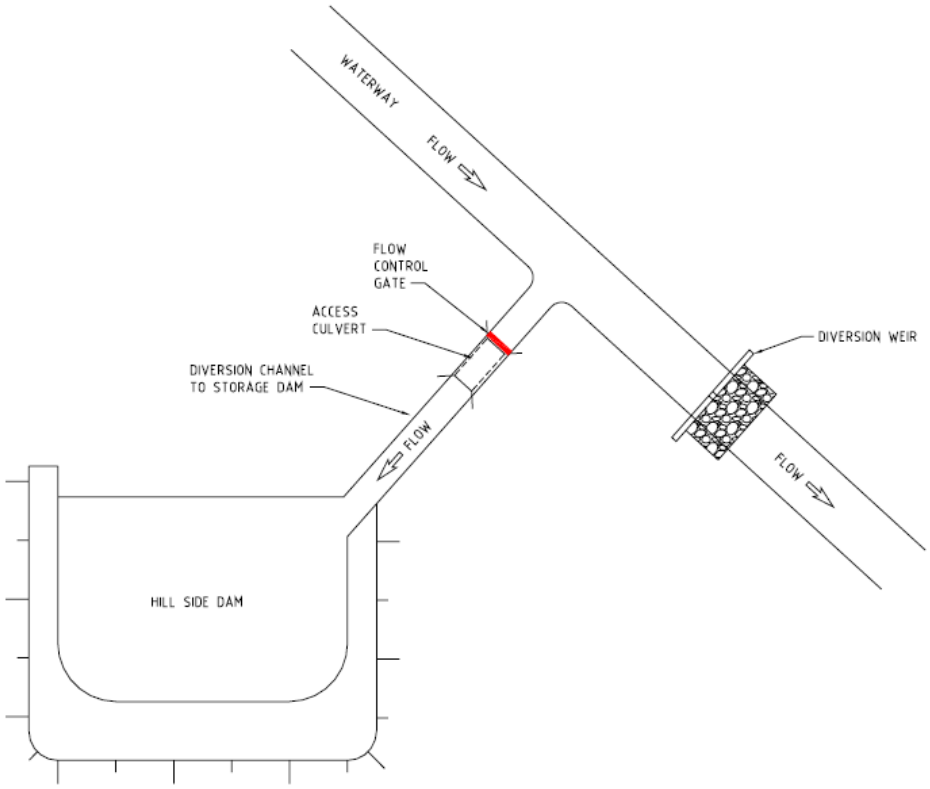
Appendix 2





Design Library Option 5b: Diversions for Off-line dams - Adjacent Inflow/Outflow channels and paired weirs

Source: AWE 2009



Design Library Option 6: Diversions for Off-line dams – Sluice gates regulating diversion

Source: SKM 2007 b

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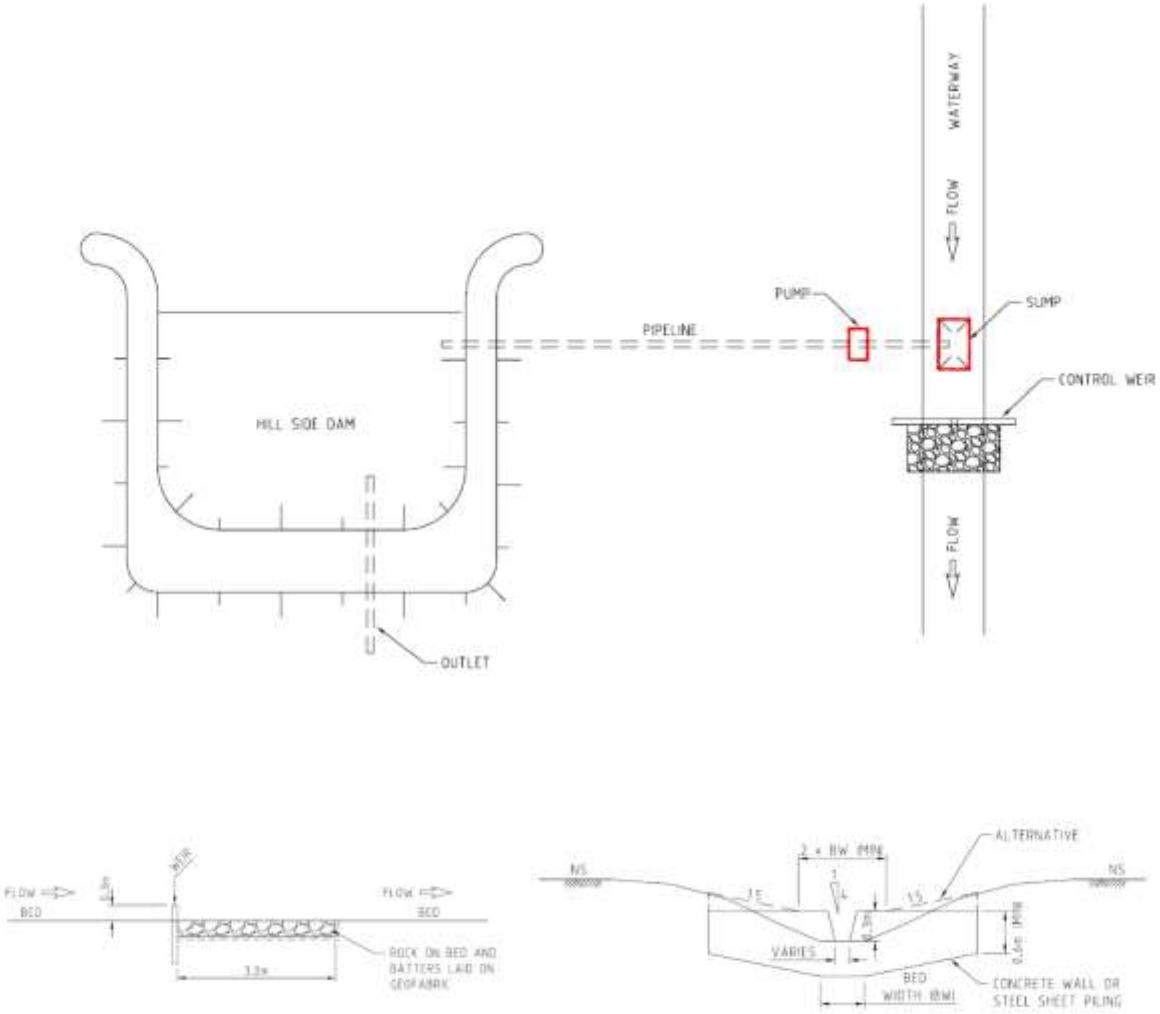
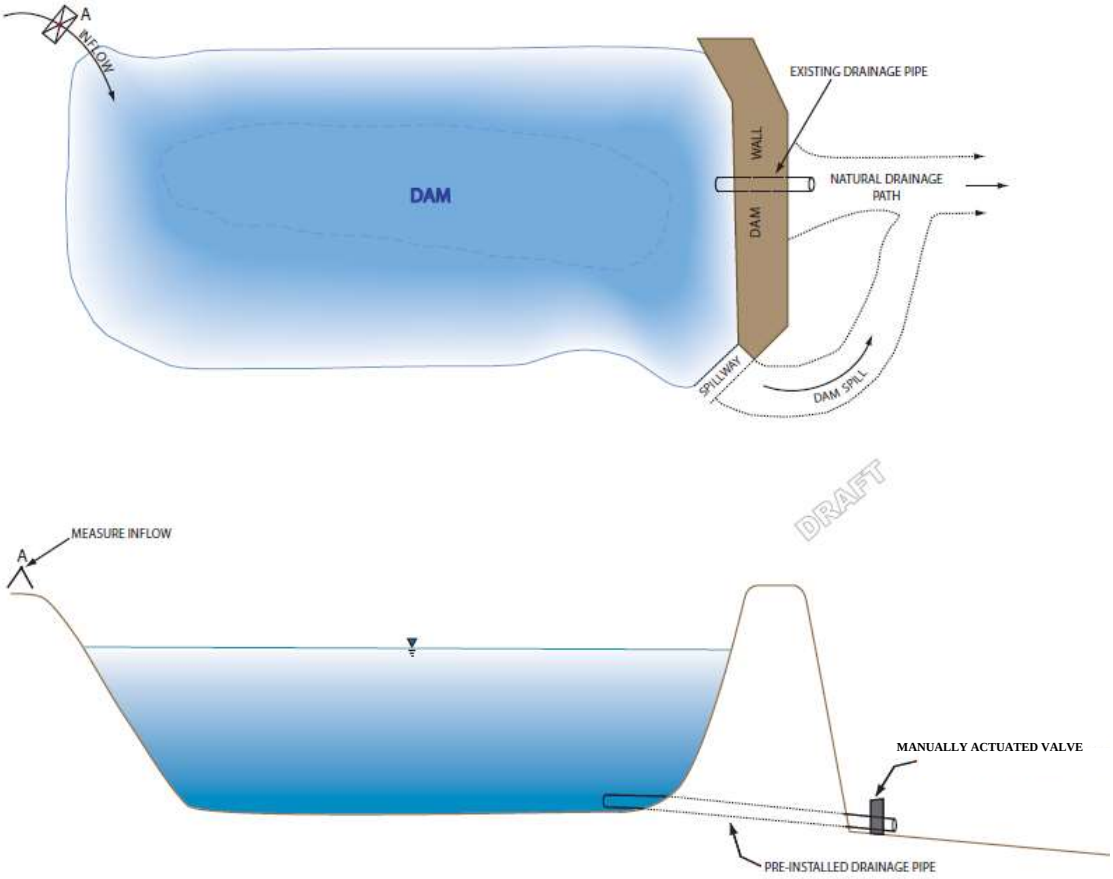


Design Library Option 7: Upstream diversions for Off-line dams - Pumped flows to off-line dam

Source: SKM 2007 b

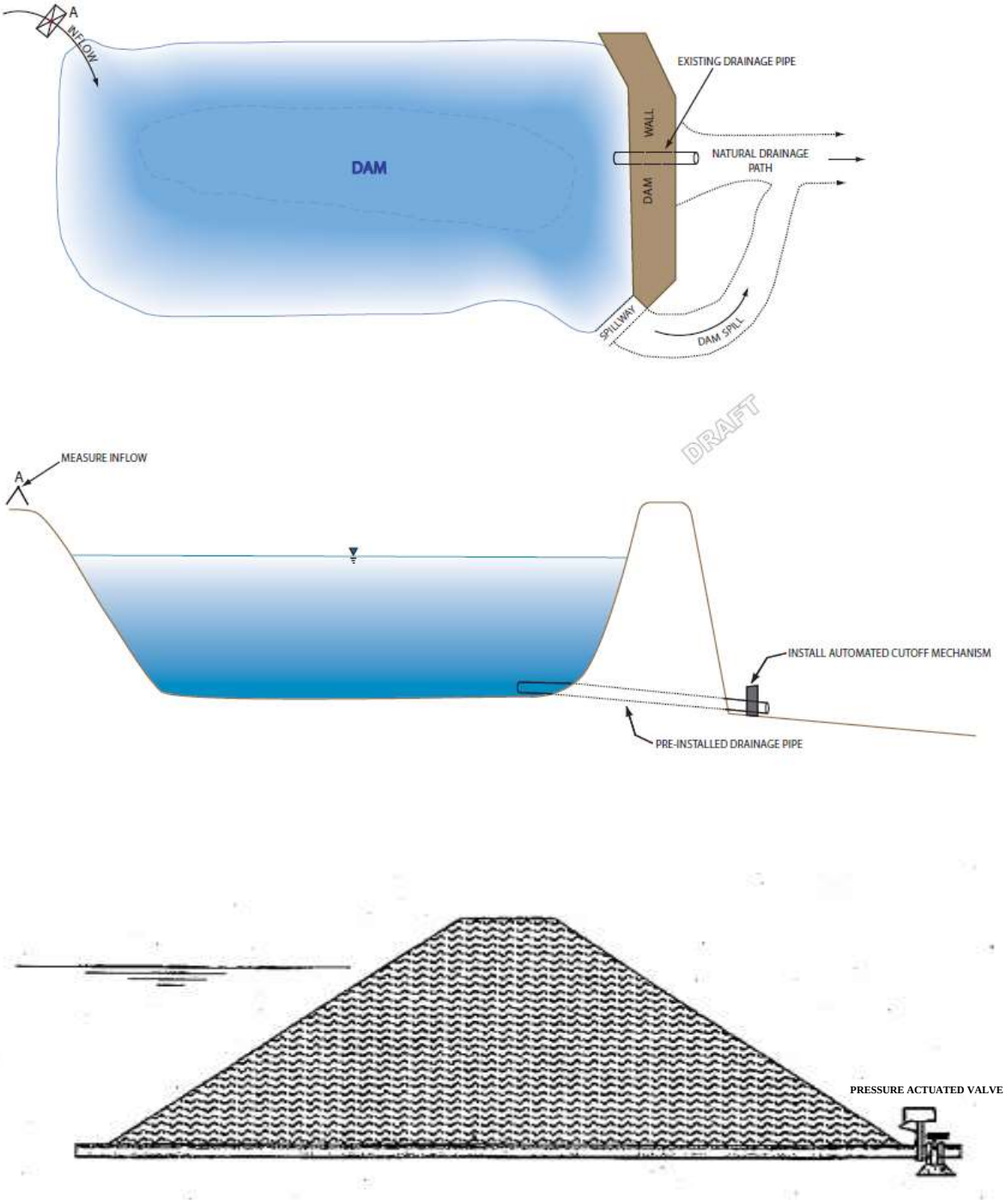
Appendix 2



Design Library Option 8: Outlet Pipe through dam body - Manually operated valve

Source: AWE 2009

Appendix 2

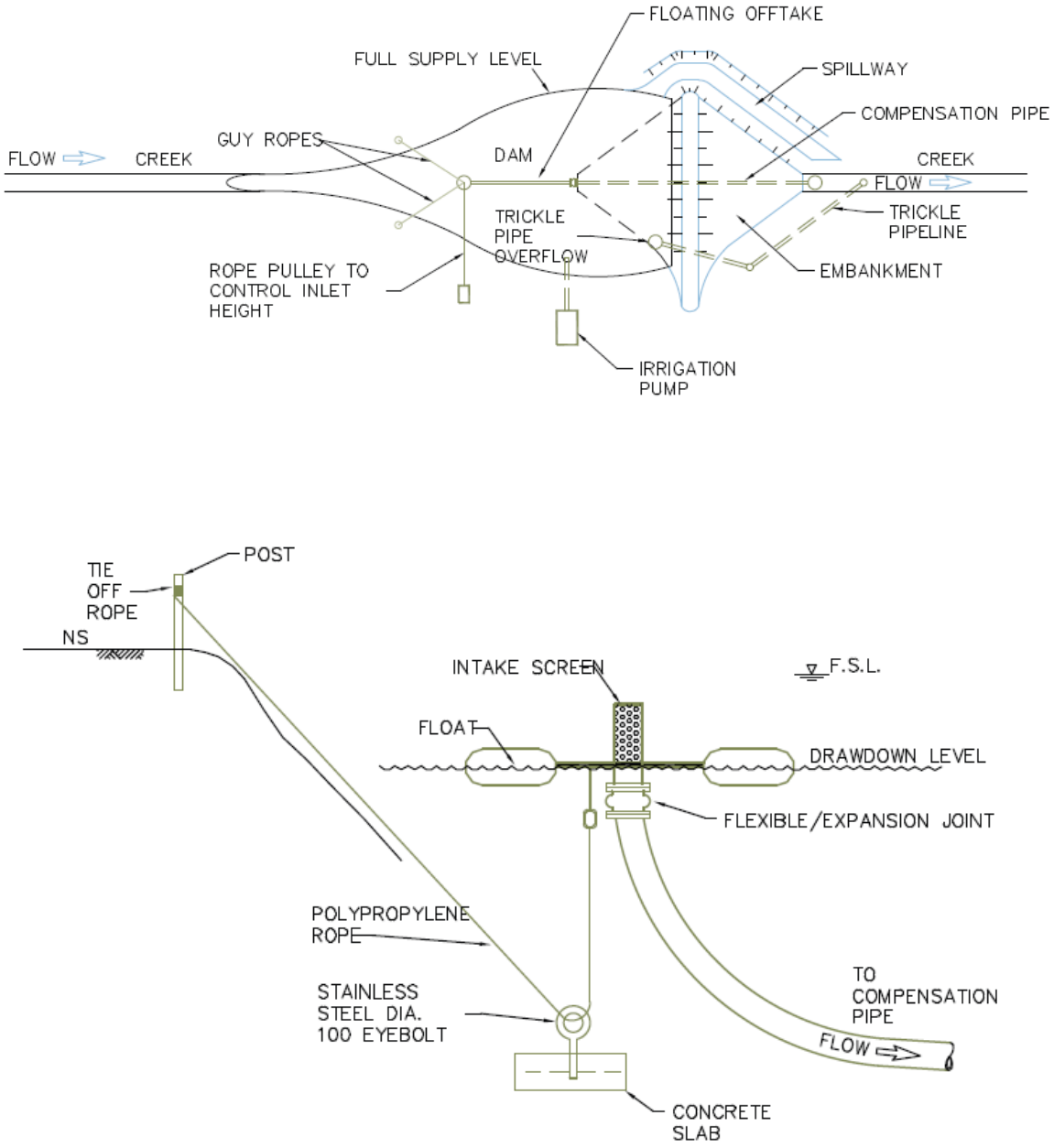


Design Library Option 9: Outlet Pipe through dam body - Automatically operated valve. Variations include:

- **Option 9a: water level controlling dam outlet pipe**
- **Option 9b: upstream pressure controlling dam outlet pipe**
- **Option 9c: upstream flow controlling dam outlet pipe**

Source: AWE 2009 & SMEC 2001

Appendix 2



Design Library Option 10: Floating arm controlled Dam Outlet Pipe - Float Locking mechanism and open outlet pipe

Source: SKM 2007 b & Victorian Gov. 2008

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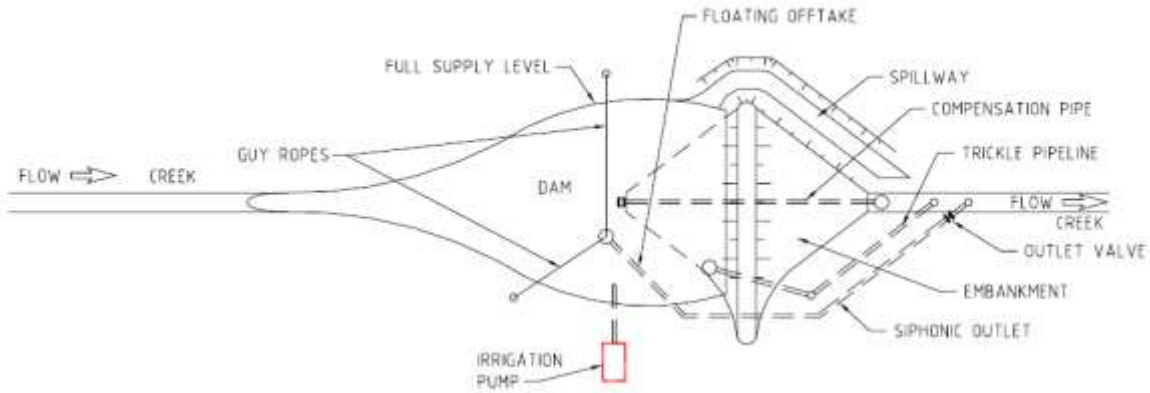
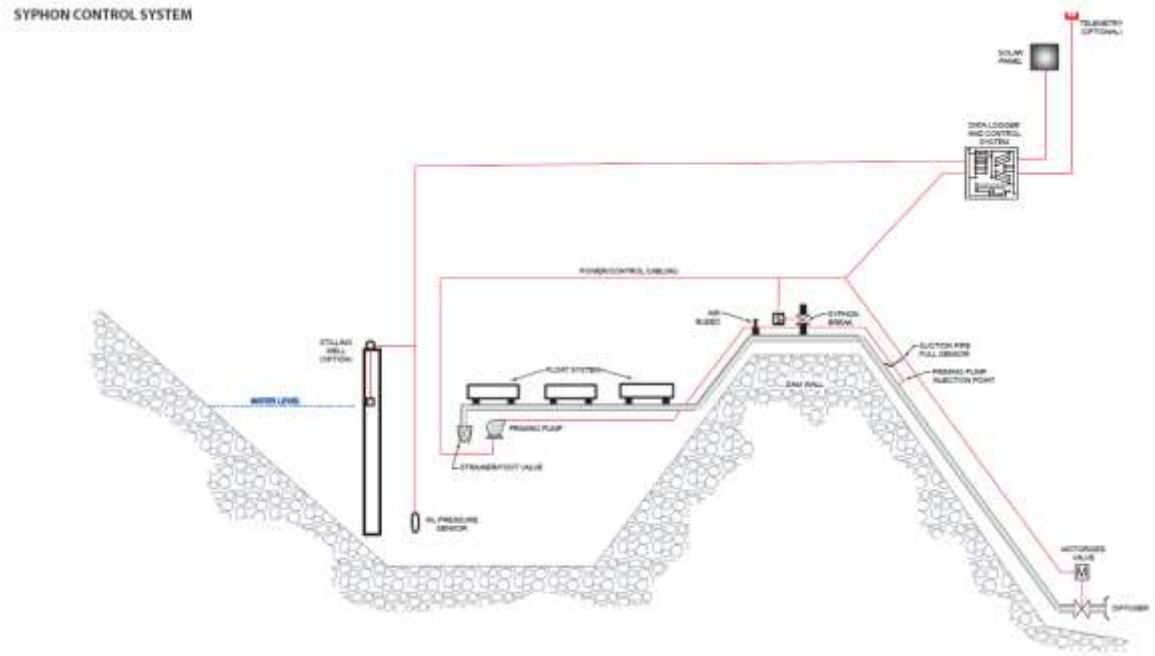


Design Library Option 11: Semi-manual operated inverted siphon over dam

Source: SKM 2007 b & Victorian Gov. 2008 & SA MDB Design Fact Sheet 11

Appendix 2



Design Library Option 12: Inverted siphon over dam and automatic valve and priming pump on outlet pipe

Source: AWE 2009

Appendix 2

REFERENCES:

SMEC (2001). Fam Dam By-Pass Provisions - Conceptual Options. Guidance Notes for Farm Dams.

SKM 2007 a, Development of Guidelines for the Construction of Bypass Mechanisms on Farm Dams in Victoria, Wimmera Catchment Management Authority, February 2007

SKM 2007 b, Guidelines for Meeting the Passing Flow Requirements for Farm Dams in Victoria, Wimmera Catchment Management Authority, June 2007

AWE 2009, Low Flow Bypass Design and Trial, SA Murray Darling Basin Natural Resource Management Board, August 2009

Victorian Gov. 2008, Guidelines for meeting flow requirements for licensable farm dams

SA MDB Design Fact Sheet 11, Hope Soak design by Kylie Kain and Owen Love

Appendix 3: Budgets

Appendix 3

Project Component SPP & SDL Six Year Budge	SPP				SDL				
Financial Year	**16/17**	**17/18**	**18/19**	**SPP TOTAL**	**19/20**	**21/22**	**23/24**	**SDL TOTAL**	**ENTIRE PROJECT**
Dam numbers	**110**	**340**	**230**	**680**	**220**	**130**	**70**	**420**	**1100**
Project Delivery/Technical requirements - TOTAL	[redacted]								
Auction Design Specialist - Auction Delivery									
Specialist Field Officers to support collaborative design with Landholder and develop project site plan (technical advice and Monitoring)									
Hydrologist - Strategic Location and catchment investigations to support Auction									
Engineer - innovation review and design approval									
Probity support									
Communications and Community Engagement Officer									
Monitoring and Evaluation, Auditing and Reporting Officer									
Ecological and surface flow monitoring analysis and modelling									
Low Flow contract installation and construction Audit									
Communications and Community Engagement Activities									
Heritage Assessments									
Legal and Approvals									
Monitoring and evaluation infrastructure and field activities									
Project database development									
Construction and Installation of Devices Payments									
Project Management - TOTAL									
Project Manager									
Senior Project Officer Implementation									
Project Officer Implementation									
Contract Management and Procurement Support Officer									
TOTAL									

Appendix 3

Budget Explanation and Calculations

Project Management

The Flows for the Future project will be working with a larger number of small and individual operators to succeed. This will require a significant focus on a well-planned and resourced project management structure. These costs cover the internal program management, human resources management, governance, reporting, corporate overheads and operational and administrative costs. Assumptions contained in the budget include three full time equivalent positions and relating corporate overheads.

[redacted]

It is considered that a project with this complexity requires a minimum threshold of project management staff to ensure appropriate process, administration, control and quality is obtained to ensure project completion and success.

Project Delivery/Technical Requirements

This component includes the provision of key specialist and technical services provided by third parties, such as auction delivery, probity, engineering, hydrology, legal services and heritage assessments. These services were costed in the budget by estimating the time requirements for that period based on numbers of dams and the type of service required.

[redacted]These being promoting uptake in the auction by a communications and community engagement officer and the monitoring and evaluation of the low flow devices to ensure devices are achieving desired flows.

The high number of individual projects that will be required to be delivered is another risk to project delivery and has been considered in the development of this budget. The engagement of independent and suitably qualified specialist field officers (extension officers) is the key risk management tool funded in this section. Specialist Field Officers are a key component of the Auction process. They will be the face of the program, meeting with each landholder who has expressed an interest in the project (through the EOI) and working with the landholder to develop an agreed Action Plan. The Action Plan, once agreed by both parties, outlines the number and type of low flow solutions possible on the property. This allows the landowner to seek independent costings and provides the basis of a bid value they will submit for the Auction.

As uptake levels at this stage are unknown (with the number of low flow devices for each year in the Budget being goals), there has been an attempt to fix the costs of the Field Officers. Fixing the cost of the Field Officers will allow easier scalability and budget management in response to higher or lower uptake during implementation.

Field Officer fixed costs were determined using the following method based on time:

- [redacted]

A coarse estimation was conducted of properties across the project region to ascertain proportion of properties fitting the above categories. It was determined that

- [redacted]
- [redacted]
- [redacted]

[redacted]

For example, to determine total hours to complete project plans for a scenario containing the number of sites below:

- [redacted]
- [redacted]
- [redacted]
- [redacted]

To determine the budget required for Field Officer if fully subscribed:

- [redacted]

This can also be used to determine staff numbers, as the EOI is open for three months, therefore providing 60 days to develop project plans. To determine FTE's of contractors:

- [redacted]

The costs of the field officers are a large component of the Auction delivery and costed in a fixed manner like this allows scalability depending on uptake during implementation.

The low flow contract installation and construction audit costings were based on field officers being able to audit the completion of [redacted]

10.2.4 Auction Payments to Landholder

During November and December 2015, the Technical Working Group determined the average cost of a low flow device using cost information from trial sites under development across the Mount Lofty Ranges.

There can be a wide range of device type and cost depending on site specifics. [redacted]

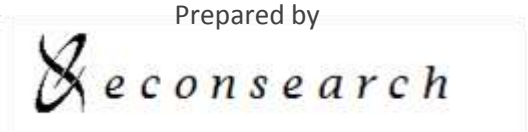
Appendix 4: Detailed Cost Benefit Analysis (including [redacted] Addendum*)

Economic Analysis of the Flows for the Future Project

A report to

Department of Environment, Water and Natural Resources

Prepared by



4 March 2016

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*Addendum Executive Summary provided at the back of main report (Page 118) for [redacted] option. Full report available on request.

Appendix 5: Letters of Support

Appendix 6: Probity Plan

Probity Plan

Project Name: *Flows for the Future*

Business Case Development Project

Appendix 6

DOCUMENT HISTORY FILE DETAILS

File Location	
File Reference	
Template Details	The template for this document was developed for the Project Management Framework. For any queries or problems concerning the template, contact XXXX XXXX. For any queries or comments regarding the contents of this document, contact the author.

Document Revision/Release Status

Version	Date	Summary of Changes	Author / Editor	Quality Review
0.1	22/02/16	Initial Version	XXXXXXXX	XXXXXXXX

Authorisation

The signatures of the below indicate an understanding of the purpose and content of this document. By signing this document, they agree to this as the formal Communication Plan.

Appendix 6

Type	Name & Position Title	Signature	Date
Author			

Appendix 6

Type	Name & Position Title	Signature	Date
Sponsor			
Steering Committee Member			

Appendix 6

Type	Name & Position Title	Signature	Date
Steering Committee Member			

Appendix 6

TABLE OF CONTENTS

AUDIENCE

The document is to inform all parties involved in the *Flows for the Future* procurement process. It is intended that relevant extracts from this document will be made available to inform those involved in the procurement (including Government Ministers, agencies, staff, contractors and consultants) of their obligations. It is also intended that this document will provide a framework within which a probity adviser will provide services.

1.1 AUTHORISATION

The Project Steering Committee will approve this document and all future amendments. The State Priority Projects (SPP) Program Board will note the approved Probity Plan.

2. INTRODUCTION

This procurement process will be an open market Expression of Interest (EOI) followed by a Reverse Auction.

2.1 PRIMARY OBJECTIVES

A long term productive future for the communities and industries of the Mount Lofty Ranges is dependent on a healthy environment to provide a water supply that is secure and high quality.

The *Flows for the Future* project aims to reinstate more natural flow patterns in South Australia's Eastern Mount Lofty Ranges region, including the Marne Saunders catchments, particularly during periods of low flow, to keep these catchments healthy.

The region supports significant food and wine producing industries, large residential communities and growing tourism enterprises. More than two thirds of the state's population is dependent on surface water flows that originate from the Mount Lofty Ranges for drinking water supply, primary production and other local community needs.

With such demand for water supply from the region, the water resources of the total area are close to fully allocated and the landscape is heavily developed to the extent that natural watercourse flows have been altered significantly.

Over the years, farm dams and watercourse diversions have changed the landscape and there are now thousands of dams which impede natural flow paths, capturing water, reducing down-stream flow volumes and changing flow patterns across the various catchments. This is putting watercourse health and many ecosystems at risk.

The problem is amplified during the drier months of South Australia's seasons when insufficient runoff is generated for water to move all the way through the system – at these times, dams capture any run-off and the watercourses and their dependent ecosystems go without for longer periods of time.

During the water user licence rollout and development of the Mount Lofty Ranges water allocation plans water was allocated on the provision that low flows would be secured for the environment. The *Flows for the Future* Competitive Tender project aims to assist in achieving the desired environmental flow regime and ensuring the environment receives a legitimate water provision. The competitive tender approach aims to achieve this by ensuring that landholders have a say in where and how costs are shared for returning small amounts of water at critical times in the seasonal cycle – aiming to get the balance right between optimising productivity and preservation of the region's environmental health.

2.2 PROCESS MANAGEMENT

A team of subject matter experts from DEWNR will undertake the tender evaluation process.

All prospective participants will be advised that the government reserves the right to terminate the tender process at any time.

3. WHO MUST COMPLY

It is expected that all primary decision makers and everyone directly involved for (or on behalf of) the State in the conduct of the process will comply with the requirements of this document and are referred to in this document as "Relevant Persons".

4. PROBITY PRINCIPLES

The probity principles that must be pursued throughout the process are:

4.1 FAIRNESS AND IMPARTIALITY

Tenderers invest substantial resources in responding to tenders. In return, they are entitled to expect impartial treatment at every stage of the procurement process. Transparency and openness in the procedural aspects of the proposed process can help minimise opportunities for fraud or corruption, and provide confidence for tenderers in the outcome.

Fairness and impartiality entails ensuring that all assessment and selection processes are conducted with integrity, and that tenders are assessed objectively and consistently. This leads to requirements (for example) that invitation documents elicit the information necessary to properly assess bids against pre-determined assessment criteria, that there should be no mid-process substantive change to the assessment criteria (without, where appropriate, giving tenderers the opportunity to revise their offers), that confidential information is protected and that relevant information (confidential or not) should not be provided for the benefit of, or to the detriment of, particular tenderers.

4.2 DEALING WITH CONFLICTS OF INTEREST

Tenderers, the State and taxpayers are entitled to expect that Relevant Persons engaged in this procurement will perform their duties in connection with them in a fair and unbiased way, and that decisions made are not affected by self-interest or personal gain. Acceptance of gifts and/or hospitality from tenderers or prospective tenderers is not consistent with this expectation.

Dealing with conflicts of interest should be in accordance with relevant government policies. Members of assessment teams for example should be selected on the basis of expertise, not affiliation, and only after they have been made aware of the need to disclose potential or actual conflicts of interest. Relevant Persons must be required to disclose actual or potential conflicts of interest.

4.3 ACCOUNTABILITY

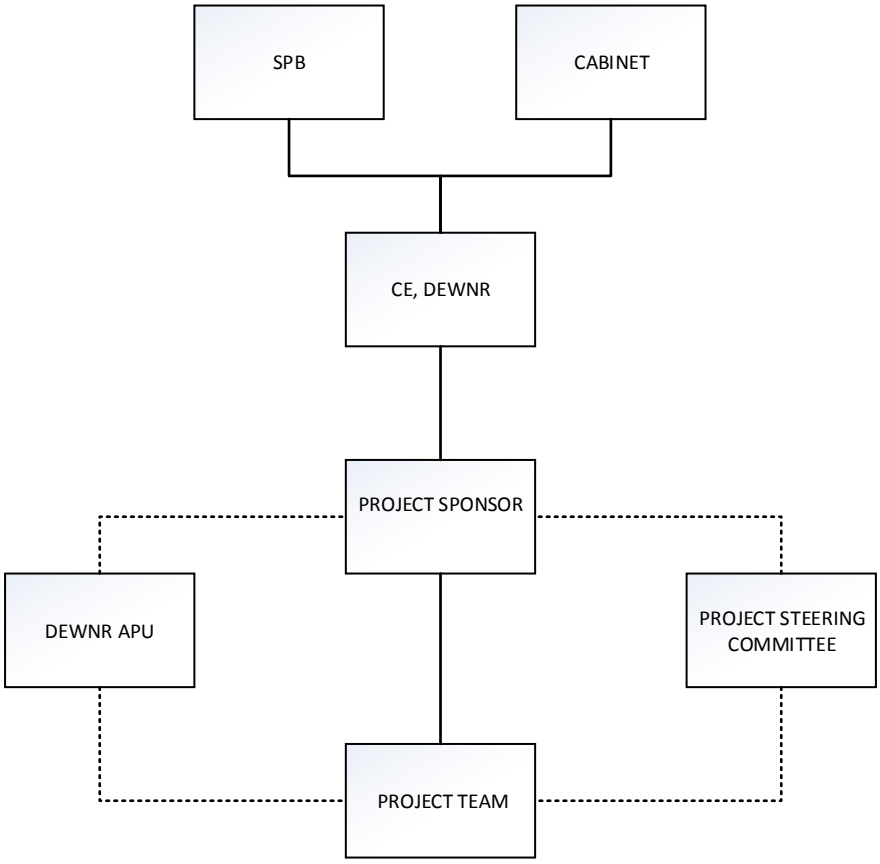
Those responsible for decisions made in the conduct of this procurement must be clearly identifiable, and must be accountable for those decisions. The accountability principle leads to a requirement, for example, for careful record keeping at all times, particularly when important decisions are made.

4.4 SECURITY AND CONFIDENTIALITY OF INFORMATION

Suitable processes are to be adopted for receiving and managing tender information to ensure the security and confidentiality of any intellectual property and proprietary information.

5. PROBITY CONTROLS AND PROCEDURES

5.1 PROCUREMENT GOVERNANCE



5.1.1 CABINET

Cabinet will approve the outcome of the Purchase Recommendation (on the basis that the Commonwealth fund the project).

5.1.2 STATE PROCUREMENT BOARD AND CHIEF EXECUTIVE (CE)

The State Procurement Board will approve procurement related project documentation unless formally delegated to CE DEWNR or other appropriate DEWNR executive officers.

5.1.3 PROJECT SPONSOR

The Project Sponsor is the decision maker for the project. The Steering Committee assists the Project Sponsor in making project decisions under their delegated authority.

5.1.4 PROJECT STEERING COMMITTEE

The Steering Committee is chaired by Kym Rumbelow, Project Manager, Partnerships and Stewardship, DEWNR. The Project Steering Committee is not a decision making body, but provides overall technical and business review and assessment of all project deliverables on behalf of the Project Team and the business.

5.1.5 DEWNR ACCREDITED PURCHASING UNIT (APU)

The DEWNR APU will provide assistance and advice to the Project Team and provide a liaison between DEWNR Project Team and the State Procurement Board (as and when required).

5.2 PROVISION OF INFORMATION

The only information a Tenderer should rely upon is that provided by the State's Contact Person as appointed by the Project Manager.

5.3 PROTECTION OF CONFIDENTIAL INFORMATION

Relevant Persons must be required to acknowledge in writing their confidentiality obligations as part of their conflict of interest declaration (see Attachment 1).

5.4 CONFLICTS OF INTEREST

Conflicts of interest must be proactively identified and urgently addressed.

In addressing conflicts, the guiding principle is that the State must act in a morally exemplary manner. It is important, for public confidence in the activities of the State, that its processes be, and be seen to be, conducted fairly and transparently, and without infection from material personal interests (including but not limited to financial interests) of Relevant Persons.

A conflict of interest may arise if a Relevant Person has a professional or personal relationship with a Tenderer, or an officer or employee of a Tenderer, if he or she has a direct financial interest in a Tenderer (e.g. as a shareholder) or an interest in the outcome of the process (e.g. an offer of employment).

A conflict may arise even if the financial interest is held "indirectly" (e.g. by a spouse, close relative or other "associate" such as a family trust).

The relevant test of "indirectness" will often be whether the person retains effective control of the interest, including control by persuasion, notwithstanding the lack of legal "ownership". In cases of doubt, Relevant Persons should make disclosure of these potential conflicts. The likelihood of a perception of a conflict being held by external parties should be considered when making a declaration.

Those involved in procurement who are appointed under the Public Sector Act 2009 have a duty to comply with the Public Sector Act 2009, the Public Sector (Honesty and Accountability) Act 1995 and the Public Sector Code of Conduct.

Every Relevant Person must sign a conflict of interest declaration, and must disclose any actual, potential or perceived conflict as it arises (for example, following receipt of submissions where Tenderers are identified which might not have previously been considered as potential suppliers). The obligation to disclose is a continuing one. The form of the required declaration is Attachment 1.

Relevant Persons are to direct any enquiries regarding the requirement to disclose potential or actual conflicts to the Project Manager.

The Project Manager, in conjunction with the Probity Adviser, must maintain a register of disclosures and must give consideration to all disclosures, and refer to the Project Steering Committee for a final decision.

So far as the members of the Project Steering Committee itself are concerned, disclosure of financial interests in prospective Tenderers must be made in writing to the Chief Executive. The Chief Executive must then report those disclosures in writing to the Minister for Water and River Murray and comply with any directions from the Minister.

Failure to disclose an actual, potential or perceived conflict may lead to exclusion from this procurement, termination of engagement and the exercise of contractual remedies in the case of contractors and consultants, and disciplinary action in the case of a Minister or a public servant.

There may be occasions when the conflict of interest is not financial but personal. The conflict arises in that the Relevant Person may seek to influence the outcome of the procurement process in order to benefit a particular person (e.g. continued employment; promotion; financial incentives etc.).

Full disclosure must therefore be made of any employment by a Tenderer of any close relative or friend where that relationship may give rise to a conflict of a Relevant Person.

5.5 APPOINTMENT OF ADVISERS

It is likely that, during the conduct of the procurement process, external advisers (including consultants and contractors) may be required. Those advisers must be selected on merit following due process. They must be required to make full disclosure of conflicts of interest at the commencement of their engagement, and there must be an ongoing requirement in this regard in the terms of their engagement.

Adequate contract arrangements must be established prior to the commencement of the provision of services by advisers. In some cases, it will need to be a condition of the terms of engagement of an adviser (including a consultant or contractor) that he, she or it, not accept an engagement with a prospective bidder for work within the scope of this procurement for a period to be determined in each instance. This will be particularly important if the adviser has had access to confidential information relating to the procurements.

5.6 CONDUCT OF MARKET ENGAGEMENT PROCESSES AND THE PROBITY ADVISER

All procurement processes must be conducted in accordance with the requirements of the State Procurement Act 2004 (to the extent that it

applies) and the Public Finance and Audit Act 1987 (Treasurer's Instructions).

Given the potential for various aspects of procurement processes to create inherent (and inappropriate) bias toward or against one potential bidder or section of the market, the probity adviser will be asked to review and comment on various aspects of the procurement process.

The Probity Adviser will review the:

- Acquisition Plan;
- EOI and RFP documents;
- EOI and RFP Evaluation Plans; and
- Any other documentation, as required.

The Probity Adviser may also be asked to review processes put in place for handling queries from Tenderers in areas of uncertainty of information, for ensuring that only accurate information is contained in documents released to the market by the State.

6. SECURITY OF INFORMATION

The security of information will be particularly sensitive to whether a Tenderer has access to electronic storage and communication systems used by Relevant Persons. The Project Manager will ensure (as reasonably practicable) that:

- Tender documents will be stored at all times in secure conditions, with access only for authorised Relevant Persons.
- Only authorised Relevant Persons with a direct "need to know" are to be privy to tender-related commercially sensitive information.
- Limited numbers of copies of tender-related documents are to be produced, and each copy should be numbered. In the case of emailed documents, records of the circulation arrangements need to be maintained.
- No tender information is to be removed from the secure location without prior approval.

All tender information, in both paper and electronic forms, is to be secure at all times. Appropriate secure file email systems are used to communicate all sensitive information related to the bid process.

Any e-mail messages of significance and particularly messages providing information on the distribution of procurement information should be retained in accordance with relevant records management procedures.

Where directed to use systems that may enable incumbent suppliers or persons other than Relevant Persons to access project information, the Project Manager

and Probity Adviser will review the matter and propose an appropriate course of action for consideration by the Project Steering Committee.

6.1 COMMUNICATION WITH BIDDERS

General

Any information that is not general public knowledge should only be communicated to a Tenderer if it is communicated to all Tenderers. Communication of such information should be in writing and forwarded through a Contact Person nominated by the Project Manager.

No discussion should be held with any known Tenderers about the tender documentation, in relation to any aspect of a proposal, or the assessment process, without the prior approval or at the direction of the Project Manager.

Relevant Persons must provide consistent information if making presentations to Tenderers, to ensure that no Tenderer receives any advantage over another Tenderer. The information presented must be based upon information approved for distribution in advance, by the Project Manager.

No Tenderer should receive, or be perceived to have received, additional information to that which is available to Tenderers generally (i.e. in the market engagement documentation) in respect of this procurement unless this information is expressly released by an appropriate authority as nominated by the Project Manager.

Tenderers should be advised to deal directly with the nominated Contact Person in all matters in relation to any proposed tender, their tender or its current status. All other personnel must refuse to enter into discussions of this nature.

Details of any discussions with actual or potential Tenderers should be minuted, and copies of all correspondence should be copied to the Project Manager, even where meetings and correspondence relating to a tender are of a non-specific nature.

Should any personnel be asked a specific question during a presentation or interview a factual answer should be provided. Personnel should not under any circumstances provide a personal opinion. Should the information provided be relevant to all Tenderers, or should it be capable of being perceived as providing an unfair advantage to that Tenderer, the Project Manager must be advised immediately.

Where inappropriately persistent inquiries or comments are made, the meeting should be terminated. A file note should be prepared detailing the conversation. A copy of this file note should be forwarded immediately to the Project Manager.

Routine business meetings and social activities continue as usual, but advisers and staff must exercise caution, and must not discuss the assessment, selection procedures, or contents of any bid.

Where any party in an unrelated business meeting or social situation seeks to raise issues in respect of the assessment and selection procedures or contents of any bid, the Relevant Person should indicate that it is not appropriate to discuss such matters. Such incidents should be reported to the Project Manager.

If a Tenderer requests a meeting with Relevant Persons or advisers during the tender process, the matters to be addressed in the meeting must be clearly identified and submitted in writing to the Project Manager prior to the meeting. A minimum of two Relevant Persons will attend any such meeting and a record of the meeting will be retained.

Industry Briefing Sessions

Briefing sessions (if held) will provide an opportunity for potential Tenderers to learn more about the proposed arrangements, to decide whether to submit a tender and provide feedback on the proposed content and format of the tender process. All information provided in the briefing session must be recorded and kept on file.

Requests by Tenderers for documents

Should any Tenderer request a copy of any document, approval must be obtained from the Project Manager prior to delivery. To ensure that no Tenderer receives an advantage, all other Tenderers should be advised of the availability of these documents.

Interviews with Tenderers

Interviews with Tenderers should be (so far as practicable) of substantially similar duration and comprise core questions and discussion points. Timing of interviews should be scheduled to minimise the waiting time for Tenderers and to reduce the prospect of unplanned meetings between competing Tenderers.

All Tenderers need to be given the same amount of notice in the interview time. Invitations should be confirmed, and names of all representatives attending recorded. Records of interview in the form of a letter from the interviewees may be used if they clearly state the important matters discussed and raised.

6.2 RECORD KEEPING

Records should be maintained throughout the process to provide sufficient information to enable audit and independent review functions to be carried out. Departure from established procedures should only be for sound and well-documented reasons.

Key documents which must be retained are (but not limited to):

- Procurement histories;
- Strategic planning documents (incl. Acquisition Plans);
- Market approach documentation;
- Notice and notes of meetings with potential Tenderers;
- Probity Plan;
- Industry briefings;
- Lists of Tenderers;
- All tenders lodged;
- Conflict of interest declarations;
- Evaluation Plans;
- Clarification requests issued to Tenderers;
- Evaluation Reports;
- Minutes of meetings;
- All communication with Tenderers;
- All legal and probity advice received throughout a procurement process;
- Cabinet Submissions;
- Public/media announcements; and
- Closure Reports.

A record of all contact with potential Tenderers should be maintained by the Project Manager. The record should include details of all discussions with Tenderers and matters such as their interest in particular business.

6.3 COMPLIANCE WITH LAW AND APPLICABLE STANDARDS

All legislation applying to the conduct of the procurements (e.g. the State Procurement Act 2004 and the Treasurer's Instructions under the Public Finance and Audit Act 1987) must be complied with.

This requirement extends to any code of conduct applicable to the Relevant Person by force of law or administrative requirement (e.g. in the case of public sector employees, the Public Sector Act 2009, the Public Sector (Honesty and Accountability) Act 1995 and the Public Sector Code of Conduct for South Australian Public Sector Employees).

For example, gifts, hospitality and other benefits must not be accepted from existing suppliers, bidders or prospective bidders.

If an offer is made, it must immediately be reported to the Project Manager, regardless of whether it is accepted or not. Where a gift is given without prior knowledge or consent or where a gift is given as a token of goodwill to the State, the Project Manager must be informed as soon as possible.

6.4 NO EMPLOYMENT, CONSULTANCY OR OTHER ARRANGEMENTS WITH SUPPLIERS AFTER CONTRACTS AWARDED

Except with the prior written approval of the Project Manager, no Relevant Person may accept paid employment or other arrangement under which services are provided to a supplier by the Relevant Person (whether directly or indirectly) for valuable consideration for a period of 2 years after the date of any contract awarded to the supplier.

6.5 IF SOMETHING GOES WRONG

If something happens that is inconsistent with the controls and policies set out in this document, then advice from the Probity Adviser must be sought before there is any communication with Tenderer(s). All available options to address the concern that has arisen, and mitigate the potential consequences, must be considered.

Options for legal or other solutions should then be adopted to address any potential problems at later stages of the process. Tenderers should be informed of any changes to the process or new factors that may affect their offers.

7. PROBITY ADVISER

Mr Stephen Howson (from UNE Partnerships Pty Ltd) has been appointed to provide independent advice on probity issues as they arise.

Appendix 6

ATTACHMENT 1

CONFLICT OF INTEREST DECLARATION

[Date]

[Name of Director]

[Director,]

[Address]

Dear [Name of Program Manager]

Flows for the Future – Competitive Tender

As a person involved in the *Flows for the Future* procurement process, I am writing with regard to my obligations in relation to conflict of interest.

I am fully aware of my obligations to avoid any conflicts of interest in carrying out my duties, and (once I am aware of it) to disclose any conflict that emerges in the course of my duties. I understand this obligation is a continuing one.

Accordingly, I now declare that I currently have no conflict of interest as a result of my participation in the procurement process mentioned (except as disclosed in the attached document).

I also acknowledge that all information and documentation in respect to the Procurement is confidential and not to be disclosed without the consent of the *Flows for the Future* Project Manager.

I also acknowledge my confidentiality obligations under the *Public Sector Act 2009*, the *Public Sector (Honesty and Accountability) Act 1995* and the Public Sector Code of Conduct/the terms of my contract of engagement/my confidentiality deed [*delete as appropriate*].

Yours sincerely

[signature]

[name]

[title]

Appendix 6

Name of Organisation	***Details of Conflict of Interest***

Appendix 7: Engagement Plan

Flows for the Future in the Eastern Mount Lofty Ranges

Marketing, Communication and Engagement (MCE) Plan

Prepared for the Department of Environment, Water and Natural Resources by:

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Appendix 7

Key Points of this Plan

- The key aim of this plan is to enable at least 680 in-scope dam owners in the Eastern Mount Lofty Ranges (EMLR) to participate in the low flows auction.
- The *Flows for the Future* (F4F) project will take this three-pronged approach:
  1. Target in-scope dam owners who are supportive of low flows and/or are willing to participate in the auction. Make F4F a positive, rewarding experience for them. Provide them with VIP service.
  2. Remove the barriers to acceptance amongst dam owners who are unsupportive. As they start to see hard evidence, a clear funding model, and the positive experiences of the above group, many may change their attitudes and decide to participate.
  3. Keep the wider audience (e.g. conservation groups, government agencies, out-of-scope dam owners and South Australians generally) informed and excited about low flows as a way of continuing the Fight for the Murray.
- Compile as much information together as possible before launching F4F (e.g. scientific data, models, case studies). Landowners crave it and many are business owners who need certainty.
- Make it easy to participate in the auction.
- Enlist the help of a small group of willing landowners to test messaging, how-to booklets and all other forms of communication.

Appendix 7

Contents

Appendix 7

Appendix 7

1. Background

The South Australian Government – through the Department of Environment, Water and Natural Resources (DEWNR) and Natural Resources SA Murray-Darling Basin (SAMDB) – has been engaging with landholders throughout the Mount Lofty Ranges (including the West) on how best to secure low flows on properties through a broader project, called *Securing Low Flows* (SLF). This included:

- A Low Flows Design Competition, which saw farmers, inventors, engineers, entrepreneurs and designers propose new ways to secure low flows around dams and watercourse diversions in the Mount Lofty Ranges. A library of ideas, including technical drawings, can be found at www.naturalresources.sa.gov.au/samurraydarlingbasin/water/low-flows-design-library
- Setting up of eight trial sites: four in the EMLR – Paris Creek, Mount Barker, Bugle Ranges and Mount Jagged, and; four in the Western Mount Lofty Ranges (WMLR) – Oakbank, Biggs Flat, Myponga and Back Valley.

This engagement has found that while many landholders agree with the concept or theory of securing low flows, there is a desire for:

1. details on how low flows solutions will be rolled out on their own property in terms of cost and practicalities.
2. assurance in relation to their security of water supply.
3. demonstrated science and evidence that show that low flows can/will work in practice.

This information is not yet available due to a lack of capacity to provide concrete scientific data and specifics of low flow bypass options for individual property scenarios. At present, DEWNR scientists are developing the models needed to demonstrate scientific rigour based on the EMLR trial sites, and these should be available in mid-2016.

The SA Government does not – and has not – wanted to use a 'top-down' or 'big stick' approach to secure low flows on properties. Technically, in agreeing to the WAP and using their allocation, landholders must comply with the conditions outlined in the plan, which includes the requirement to pass on low flows. It is important that 'bottom-up', community-driven solutions to passing on low flows, continue.

Seasonal conditions in the EMLR have complicated the engagement process. Primary producers have experienced a dry spring and very hot, dry summer and some commodity prices are currently below the cost of production. Some growers are upset or angry about water supplies being metered and that they now need to pay water levies. This is in addition to proposed levy increases for Natural Resources Management and the Emergency Services Levy.

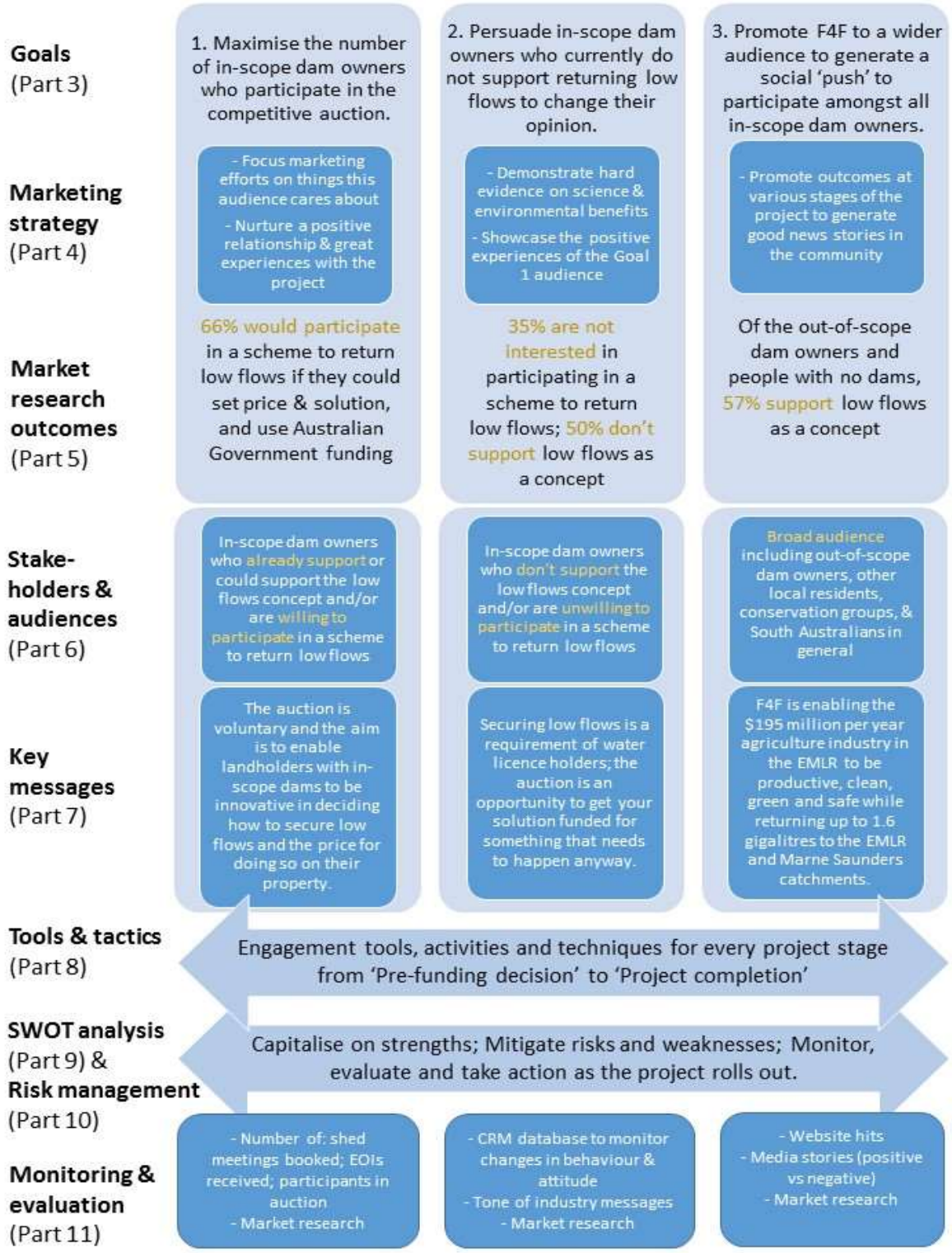
2. Purpose of this document

This Marketing, Communication and Engagement (MCE) Plan supports the broader F4F Implementation Plan. It describes how F4F will be presented to the community (assuming Australian Government funding is awarded) in relation to:

- **Marketing** – strategy to inspire and enable landowners to get involved; market research to uncover landowner knowledge, attitudes and needs; SWOT analysis to capitalise on strengths and opportunities, and mitigate threats and weaknesses and branding, including the campaign's look and feel and the attitudes of staff to be involved.
- **Communication** – segmentation of the audience so that the needs of each group can be met in a tailored way; key messages that clearly and simply provide the detail and certainty that target audiences want; description of the products, tools and tactics to be implemented.
- **Engagement** – description of the level and type of engagement to be employed; description of how stakeholders will be enabled (bottom-up); risk management plan.

Appendix 7

This diagram illustrates how the MCE Plan is aligned around three overarching goals.



3. Goals and objectives

- Goal 1 – Maximise the number of in-scope dam owners who participate in the competitive auction

In-scope dam owners in the EMLR need to be given the information and assistance to voluntarily participate in the F4F competitive auction. The audience segment targeted is in-scope dam owners, including those who already support securing low flows, or could support it with more information, and those who do not currently support it.

Objectives for this goal include:

a) Attract 990 in-scope dam owners to express interest in the first and/or subsequent rounds of the auction. Note:
   - 990 is 66% of 1500 in-scope dams in the EMLR, which market research suggests is the proportion willing to participate in a low flows scheme.
   - The project is aiming to fund low flows solutions for 700 dams (see main Business Case), so it is appropriate to seek EOIs above this number.

b) Increase the proportion of in-scope dam owners that support the low flows concept from 43% to 66%. Note:
   - The 23% increase is expected to come from changes in attitudes by both in-scope dam owners currently unsupportive of low flows as a concept (50%) and those that are unsure whether they support it or not (8%).

c) Achieve a participant satisfaction rating of 80% or higher for the auction implementation, the field assessment service and the overall project at its completion.

- Goal 2 – Persuade in-scope dam owners who currently do not support returning low flows to change their opinion

The aim of this goal is to explain the need to secure low flows in the EMLR (including the economic, environmental and social benefits; both community-wide and to the individual) to in-scope dam owners who currently do not understand or support the concept.

Objectives for this goal include:

a) Define and communicate a compelling case why in-scope dam owners need to be part of the auction while funding is available as well as the implications of not participating in securing low flows, ie, that licence holders will be expected to implement low flows solutions with no government funding support in the future.

b) Decrease the proportion of in-scope dam owners who do not support the low flows concept from 50% to 35% by removing some of the barriers identified by respondents verbally in the market research.

- Goal 3 – Promote F4F to a wider audience to generate community support

This goal involves promoting F4F to South Australian conservation groups, other government agencies and the wider EMLR and South Australian community to demonstrate the State Government's commitment to:

- 'Premium food and wine from our clean environment' (State Strategic Priority)
- Continuing the 'Fight for the Murray' (highly successful community campaign during the development of the Murray-Darling Basin Plan).

Objective for this goal:

a) Promote positive outcomes at various stages of F4F (e.g. announcement of funding, opening of EOI period, auction participation rates, auction outcomes, case studies) to generate a social push that might help get more dam owners to participate.

Gaining the broader support of the community is important to reinforce positive comments and media regarding the project. This could lead to improving the perception of the project in the community, and increase auction participation rates. However, the first two goals are the primary focus to target in-scope dam owners.

4. Marketing strategy

Market research shows there is a fairly good proportion of in-scope dam owners in the EMLR that are willing to participate in a scheme to secure low flows. Of the dam owners that are unsupportive, there is a feeling that the project will affect their water security, is too expensive or is unproven.

• The strategy

The strategy to roll out F4F will be three-pronged, with each prong meeting the needs of a goal.

For Goal 1. (Maximise the number of in-scope dam owners who participate in the competitive auction):

1. Target the 66% of in-scope dam owners who said they could be interested in participating in a low flows scheme by:
    - focusing marketing efforts on the things these landowners care about
    - clearly answering any questions and concerns they may have.
2. Nurture an open, positive relationship with this audience by providing clear, simplified information about how to participate, and one-on-one technical and auction advice and support.
3. Monitor the locations of those interested in participating by tracking the registrations for shed meetings and the properties that request more information and submit an EOI. This is important to ensure a geographically wide but strategic spread of participants. If, for example, there is a low representation of dam owners at the bottom of the catchment at the 'shed meetings' stage, further engagement will be needed to encourage and enable these dam owners to participate.

For Goal 2. (Persuade in-scope dam owners who currently do not support returning low flows to change their opinion):

4. Alongside a, b and c above, encourage the 50% of in-scope dam owners that are unsupportive of the low flows concept to 'join in' the process by:
    - demonstrating hard evidence and the positive outcomes that emerge from the participation of supportive dam owners
    - removing the barriers to acceptance as the project rolls out; this will sometimes require DEWNR providing personalised services, such as solving individual water security issues where possible.
5. Encourage a 'let's do this together' attitude, so as to enable participation from critical geographical locations by:
    - nurturing relationships with industry and advocacy groups in the EMLR (and which represent many EMLR landholders), starting with the pilot Angas Bremer catchment as a priority, before the EOI period opens

- working one-on-one with in-scope dam owners who say they are unsupportive because they have water security concerns and find different ways (e.g. bore, recharge aquifer) to solve their problems with them.

For Goal 3. (Promote F4F to a wider audience to generate a social 'push' to participate amongst all in-scope dam owners):

6. Get the wider community excited about and proud of low flows through stories, facts and figures posted on social media, traditional media, the website and direct emails
7. Link F4F outcomes to the SA Strategic Priority and Fight for the Murray.

- DEWNR's positioning for F4F

DEWNR's position is to seek and action the right balance of solutions for: (a) premium food and wine production, (b) optimised productivity, and (c) healthy catchments with more natural flows. Seeking a mechanism to allow low flows to pass is just one part of a whole suite of solutions for (a), (b) and (c) above.

Under the Eastern Mt Lofty Ranges and Marne Saunders Water Allocation Plans, DEWNR expects that low flows will be passed on. DEWNR does not wish to use a 'big stick' approach but seeks voluntary involvement by in-scope dam owners.

- DEWNR's brand strategy and 'personality' for F4F

DEWNR is offering the opportunity for land managers to (a) decide on the device, method and price of passing on low flows on their properties, and (b) secure funding to pay for installation.

DEWNR staff must possess a 'let's do this together' attitude. They need to be matter-of-fact about the need to pass on low flows and focus on getting it done, not on whether it should be done at all. They need to focus on landowners that are conducive to the idea of low flows and not try to directly persuade those that are not, other than to ensure that information if available is they require it.

- DEWNR's identity for F4F

Integral to this process is on-ground staff who can engage with dam owners on their properties. They will need an affinity with primary producers, an ability to communicate complex science in easy-to-understand terms and good administration skills to track and follow-up on landholders' specific questions or concerns. There will need to be enough to conduct personal engagement with those interested in the auction.

Contractors who have worked in this sector might provide the best solution. The more the landholders feel that they are getting advice from someone who knows the practical and has affinity for the landholders' experiences, the more they will trust the program (this could be measured in bid prices and participation rates). If field officers are badged as DEWNR and have the department's needs as their priority, landholders may have less confidence in the process being tailored to suit them.

5. Market research outcomes

Market research with landholders who draw on water sources in the EMLR was conducted in late January and early February 2016. The main objectives were to determine the:

- proportion of in-scope dam owners willing to participate in a low flows scheme.
- proportion of in-scope dam owners that support low flows as a concept.

- needs and values of landholders (which may be used as *triggers* in the marketing campaign).
- concerns and issues of landowners (to identify the *barriers* to acceptance).

In-depth interviews were conducted with a sample of stakeholders to help contextualise the quantitative questionnaire. Phone interviews were then conducted at random with 111 landholders using a database of EMLR landholders provided by DEWNR.

The results below only reflect the responses of in-scope dam owners. See Appendix 1 for the results for all respondents (i.e. including out-of-scope dam owners and landowners without dams).

• Results

Of the 111 people surveyed, 36% (40 people) knew they had dams with a capacity of 5ML or more, which is 'in-scope' for this project. While a further 18% of respondents were unsure of their dam size, their responses have not been included in this section.

Willingness to participate in a scheme to return low flows

Encouragingly, 66% of in-scope dam owners said they would be interested in participating in a scheme to return low flows (53% wanted to participate in a scheme to define a solution and price, and 13% preferred the government to set the solution and price) (Figure 1).

When the potential Australian Government funding model was presented, there was a good level of support with up to 63% saying they would be interested in accessing this funding if they could choose how to pass on low flows on their property (43% said they would definitely be interested; 20% said 'maybe').

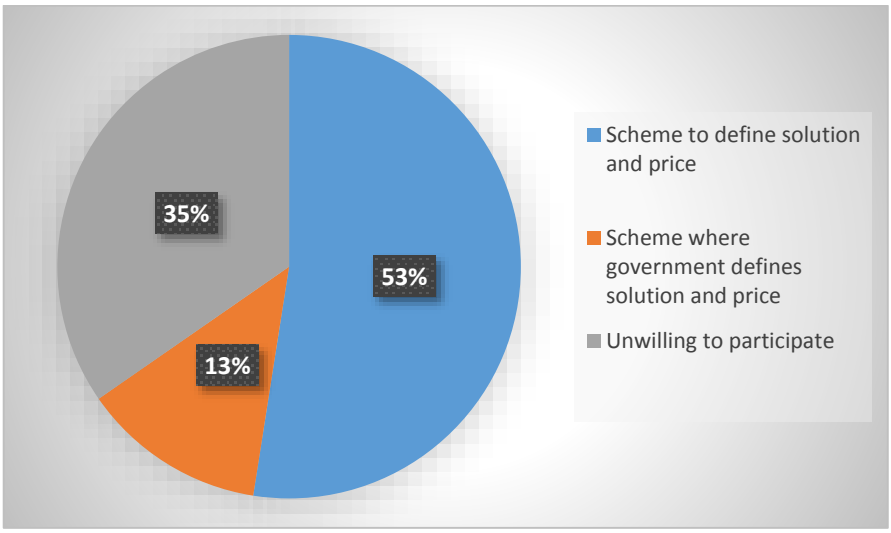


Figure 1. Proportion of in-scope survey respondents who may participate in a scheme to pass on low flows. (Numbers do not equal 100 due to rounding.)

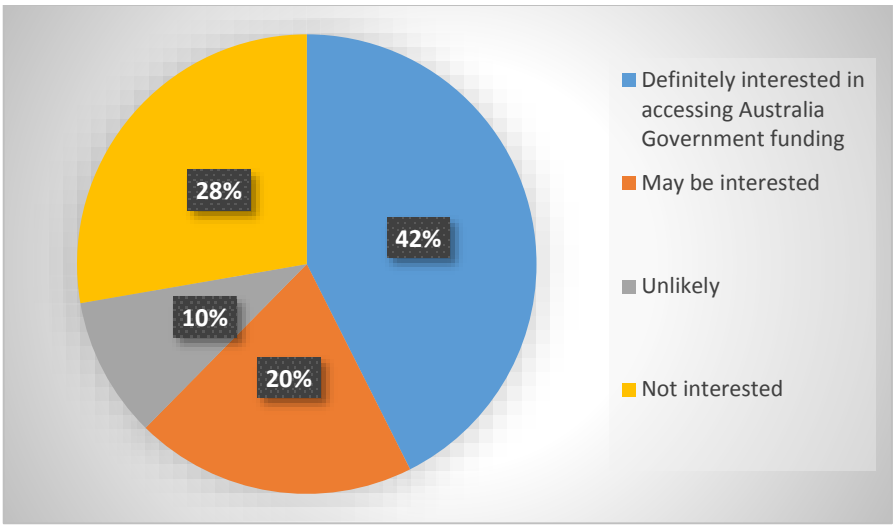


Figure 2. Proportion of in-scope survey respondents that may access Australian Government funding to pass on low flows.

Support for low flows

The research found that up to 51% of in-scope dam owners could support the low flows concept:

- 43% gave full or qualified support (23% supported in full and 20% could support it if they had more detail specific to their property)
- 8% were unsure.

If we extrapolate this to the 1500 in-scope dam owners in the EMLR, we could expect around 645 dam owners (43% of 1500) to give their full or qualified support to the concept. This is a good level of support considering low flows is a new, early-stage environmental water concept, and considering that land owners have been involved in several water projects in recent years.

A further 50% of in-scope dam owners, however, did not support the concept of low flows. The reasons for not supporting low flows in principle included:

- Will not have enough water if implemented (35%)
- believing it is not sustainable for their property (10%)
- believing it will be too expensive to implement (10%)
- other reasons (45%), including not believing it would contribute to catchment health.

These are the barriers that F4F needs to break down to ensure these landowners consider participating in the auction.

Also, a potential issue is that if unsupportive landowners are over-represented in a particular geographical area (e.g. downstream of a sub-catchment), there could be negative consequences such as:

- not enough low flows passed on in a particular sub-catchment
- low flows passed on at the top of the sub-catchment won't make it through the lower parts.

Appendix 7

Awareness of obligation to pass on low flows

Only 49% of in-scope respondents were aware that water licence holders could be asked to play a role in passing on low flows (a commitment made at the time water licences were issued). Part of the marketing strategy challenge is to communicate, without using a 'big stick', this obligation and the consequences of not taking part in low flows solutions.

Awareness of the low flows concept

Despite nearly half of respondents not knowing about the water licence obligation to pass on low flows, 88% had heard of the notion of low flows (Figure 3). DEWNR's previous efforts to engage landowners during Securing Low Flows has resulted in this high level of awareness. The challenge is to convert 'awareness' to 'support' amongst those dam owners who are currently unsupportive.

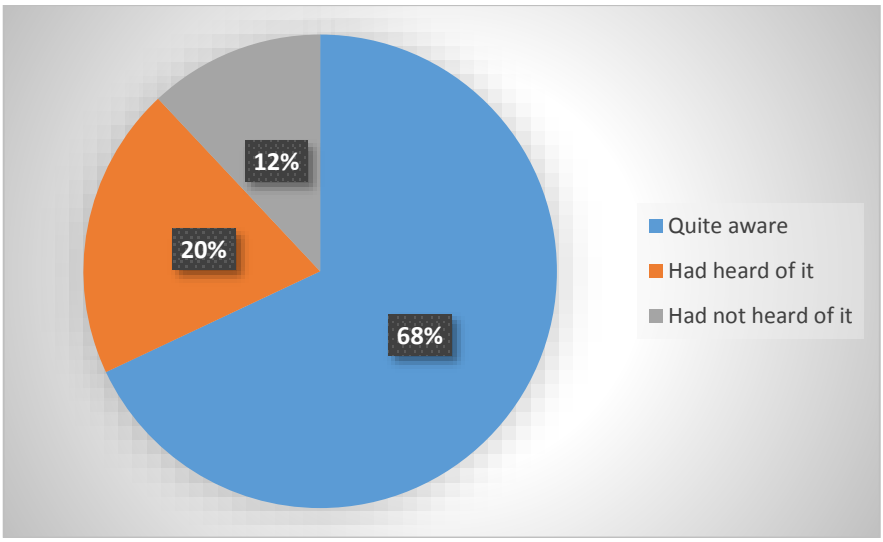


Figure 3. Proportion of in-scope survey respondents and their awareness of the low flows as a concept.

Barriers to acceptance

Of those that did not support the low flows concept, there were concerns that they will not have enough water for their properties, that the science around low flows is unproven, and that it would be too expensive to implement low flows solutions.

Many respondents thought that the creeks and streams in their catchment are already healthy, or did not believe there would be a benefit to water courses as a result of passing on low flows.

These are barriers to accepting low flows, and communication activities with landowners that are currently unsupportive or sceptical need to focus on removing these barriers.

Triggers to acceptance

Among the respondents who supported the low flows concept, the biggest reasons for supporting it were to help the environment and to maintain water flows in the catchment.

And amongst all in-scope dam owners, whether they supported low flows or not:

- 95% agreed with the statement that 'Premium food and wine from the Ranges depends on a healthy environment'
- 59% agreed with the statement that 'Tourism in the Ranges is just as important as other businesses in the region'
- 58% agreed that dams carry risks (such as risks to safety).

There is a real opportunity to tap into the 'supportive' landowners, who could act as advocates or at least provide a social 'push' to landowners who are unsupportive. The key will be to tap into their intrinsic values in relation to improving the health of the catchment, tourism in the region, and primary industries. There is also scope to promote the benefits of removing or updating their dams with a view to improving safety.

• Where to from here?

There are three key drivers which determine whether people will buy an idea, product or service. These drivers are: (1) benefit to oneself (feel good factor with self-interest and what's in it for me? on one end of the spectrum to a sense of altruism on the other); (2) fear (or risk management and minimisation, or opportunity cost); and (3) inertia (or convenience or ease of purchase).

People are fearful of the unknown.

For the low flows proposition to succeed, it needs to:

- Present a strong and unambiguous value proposition with a clear set of communicable benefits.
- Provide assurance that landholders will not be worse off in terms of water requirements.
- Guarantee a simple way to be a low flows participant.

The low flows proposition at the moment is some way from meeting these criteria and there is some level of anxiety among the non-supporters of low flows. While there are challenges, the research shows that the majority of landholders are prepared to consider the proposition of low flows, and even among non-supporters, there is interest in being involved in framing the solution.

6. Stakeholders and other audiences

The audiences that will be targeted for each of the three goals outlined in section 3 include:

• Audience 1 – Supportive or potentially supportive in-scope dam owners

This audience includes those who support low flows and/or are interested in the competitive auction as well as those who are either unsure about supporting low flows but may if they have the right information or incentive

These landholders are open to receive information and want to know how the auction will work and what it is to achieve. Depending on their location in the catchment, they are most likely to contribute to the first goal of this plan.

Supportive landholders may also discuss the auction opportunity with their advisers (such as economic, on-farm – pasture, animal production and so on, or their local farming systems, advocacy and interest/support groups.

The market research found these dam owners in this audience are likely to:

- be a commercial producer (55%) or a hobby farmer who receives off-farm income (23%).
- operate an irrigated horticulture or viticulture property or graze and produce pasture.

- value and understand the importance of allowing water to pass through the catchment during low flows.

This group requires clear and concrete details on the competitive auction process and small group conversations to ask questions and build trust in the project and the process.

Those who are uncertain may require a tailored science case using language and concepts they can understand and small group conversations to build trust in the project and the concept. Industry champions may help gain their support.

- Audience 2 – Unsupportive dam owners

This audience includes those who have in-scope dams but do not support securing low flows and/or are not willing to participate in the auction.

While the market research found that about half of those with in-scope dams currently may not support returning low flows, there was 66% who said they would be interested in participating in a scheme to do so. That means 23% of those who could be interested in accessing funding do not support low flows and so should be targeted in MC&E.

The reasons given for not supporting low flows included: disagree with the science, distrust the government, have had enough of changing water policy and/or feels like farmers are doing all the work and no one else is making sacrifices.

However, for some, the reasons for their lack of support are barriers that may be overcome with targeted communication. With the right information, modelling, scientific data and one-on-one assistance, they may increase their understanding, and hence may change their view to supportive rather than unsure.

This group may be sensitive to 'losing' the auction and after one round of the auction there will be stories circulating and affecting this group. This means that preparing and adjusting for stages in the multiple round auction are needed.

- Audience 3 – Conservation groups, out-of-scope dam owners and general public

Audience 3 primarily includes conservation groups, out-of-scope dam users, other stakeholders and the wider community.

For those who reside in the EMLR, they will not be directly affected by having to secure low flows on their property but they may be one of the following:

- Observe a change in their catchment or nearby stream
- Know people in their community who are affected
- Part of environmental groups and so has an active interest in the region, its catchments and waterways
- Hear/read about the project in the media.

See Appendix 2 for a detailed list of stakeholders, including the names of industry and advocacy groups to be engaged.

The auction will be piloted in the Angas Bremer catchment and, depending on available funds, may be rolled out to the Marne Saunders followed by other priority areas. We will localise the campaign by targeting the producers, advocacy and industry groups, and community of the Angas Bremer to ensure maximum engagement in that catchment. Once the auction is complete there, F4F will have numerous auction material and examples to use in other target catchments where the same approach will be applied of localising the campaign for maximum engagement.

7. Key messages

Key messages are important to ensure consistency in communication between all involved with the project. F4F messages are divided into four sections – overarching messages about the need to secure low flows as well as messages that contribute to the three goals of this plan.

Overarching messages on the need to secure low flows

- The long-term productive future for the communities and industries of the Mount Lofty Ranges depends on a healthy catchment to provide a water supply that is secure and high quality.

- Water demand in the EMLR and Marne Saunders is high; the regions' water resources are allocated and the landscape is developed to the extent natural watercourse flows have been altered significantly.

- Passing on low flows is a requirement under Water Allocation Plans for the EMLR and Marne Saunders where, during the planning process, allocations were made above sustainable limits on the provision that low flows would be secured.

Goal 1 – Maximise the number of in-scope dam owners who participate in the competitive auction

- The *Flows for the Future* Competitive Auction is voluntary and the aim is to enable landholders with in-scope dams to be innovative in deciding how to secure low flows and the price for doing so on their property.

- The auction will be easy to participate in and support will be available to guide landholders through the application process, and to provide technical on-property advice.

- The auction is a competitive process which means bids will be assessed on the value for money they provide and to what extent they deliver the desired outcome for the catchment.

- While operation and maintenance costs are the responsibility of landholders, there are a range of costs which may be factored in to their auction bid. It is up to the bidder what costs are included.

- The first auction round will be piloted in the Angas-Bremer catchment. Subsequent rounds will be subject to available funding.

- The auction will finish when the government reaches the returns it is seeking, all the money is expended or it sees no more value for money in a voluntary approach. The next opportunity may not be voluntary nor be as generous because there will be more information available about the market cost of securing low flows.

Goal 2 – Persuade in-scope dam owners who currently do not support returning low flows to change their opinion

The key messages integral to this goal require information on the supporting science of low flows and the effectiveness of low-flow bypasses, which is currently being developed by the department. Other key messages include:

- Securing low flows is a requirement of water licence holders; the auction is an opportunity to get your solution funded for something that needs to happen anyway.

- The SA Government acknowledges primary producers are already investing heavily in improving water use efficiency and has secured Australian Government funding to help with on-property options to pass on low flows.

- The auction process is structured so that as the landholder, you have freedom of choice. You get to decide what to implement on your property, you put a price on the work and submit a bid in the auction for funding.

- The aims is to reinstate more natural flow patterns in the EMLR during periods of low flow to keep catchments healthy while not impacting landholders' water security or quality.

Goal 3 – Promote F4F to a wider audience to generate a social 'push' to participate amongst all in-scope dam owners

- F4F is enabling the $195 million per year agriculture industry in the EMLR to be productive, clean, green and safe while returning up to 1.6 gigalitres to the EMLR and Marne Saunders catchments.

- It will help reverse degradation of waterways and improve catchment health while supporting an ongoing and viable irrigation industry.

- The SA Government has recognised the good work primary producers have done in improving water use efficiency and has secured federal funding to help them pass on low flows.

- Landholders with dams greater than 5 megalitres can volunteer to participate in an auction to pass on low flows down the catchment. This is the first time in Australia an auction to secure low flows has been held.

- Landholders considering this auction need your support and encouragement. For many, it will be a big change on-farm and an unfamiliar process which they will be dealing with.

8. Communication and engagement tools and tactics

MCE activities will be rolled out over 12 stages, from 'Pre-funding announcement' to 'Works commence' and then 'Preparation for subsequent rounds' if more than one round is to be conducted through to 'Project completion'. The approach to communication and engagement takes into account the experiences of DEWNR and Natural Resources SAMDB staff. For example, public meetings are often not effective; people with a genuine desire for information often do not get what they need at these meetings because of the many questions and comments from those who disagree. Therefore, direct and small conversations are the preferred form of engagement, supported by other platforms for landholders who are time poor or have higher priorities than engaging with the project.

The market research found that in the target audience, email, mail and printed material were the most popular forms of communication (43, 39 and 37% respectively). The website, phone and media were not (10, 7 and 5% respectively). This likely reflects that 96% of those who responded to the market research were aged above 40, 67% were over 55.

Appendix 7

The stages of communication and engagement are listed below, including an outline of the different methods for the various segments of the target audiences.

Target audience	Method/tool	Goal being addressed
Stage 1: Pre-funding decision		
DEWNR, SAMDB NRM	**Internal communication** • Commence internal staff training using meetings, iShare	N/A
Landholder advocacy groups	**Engagement** • Meet with industry advocacy groups to explain what is happening and seek their feedback • Updates on an as-needs basis with groups as news unfolds • NRM representatives to meet with industry leaders and discuss potential for a tougher stance on securing low flows	1, 2
Stage 2: Australian government funding awarded – July/Aug 2016 (TBC)		
DEWNR / SA MDB NRM	**Internal communication** • Advise relevant staff • Start planning/fostering close working relationships with staff between relevant departments/organisations and the Minister's office	N/A
Stage 3: Announce		
Government - SA	**Internal communication** • Communication material within government departments and SA MDB NRM through internal publications and CE updates	3
Landholder advocacy/farm groups	**Engagement** • Book meetings with industry advocacy and farming systems groups and other industry influencers, ie, landholder advisers • Conduct meetings and develop reference group of industry leaders, leading influential producers and trusted farm advisers with contacts in a database	1, 2
All	**Media** • Media announcement by relevant Ministers/Departments • Identify other complementary material and positive background stories for media	3
All	**External communication** • Develop content – written, visual, video – for each stakeholder group's communication outputs, ie, newsletters, websites	1
All	**Website** • Develop webpage on SAMDB NRM site to provide a high level overview of the project but clearly detailing	1, 3

	timeframes • Develop a 'register for updates' function for supportive landholders and stakeholders to be kept up-to-date	
Stage 4: Launch		
In-scope dam owners	**Direct mail** Information pack mailed to in-scope dam owners including: • Letter from the head of the project • Brochure outlining the facts about securing low flows and an outline of the competitive auction process. The brochure must include evidence-based information, written positively for those who support securing flows and want to participate in the auction. • The science case. Easy-to-understand material about the science behind low flows which will resonate with primary producers. • Visual resources – using maps and diagrams to tell the low flow story • FAQs on the auction, including how the auction will happen, who pays for what to develop the bid. This should include a space for 'any more questions' and an invitation to write them down to ask a DEWNR officer in person. • Case studies, ie, from low flow bypasses in the Clare Valley or the trial sites in operation. • Examples of how the auction process will work on-farm. Develop case study type information for in-scope owners in different regions, industries, dam sizes and low flow solutions	1, 2
In-scope dam owners Landholder advocacy/farming systems groups All landholder, commercial, community groups	**Engagement** - 'In your shed' meetings … invite interested in-scope dam owners to organise a meeting in their shed for them and their neighbours with DEWNR officers for targeted consultation. Officers to explain the process, how it will work and take any questions on notice. - Launch F4F Hotline where people can ring through questions (which can be posted to website with response for wider access) - Meet with the boards and management of each group to fully explain what is happening and seek their input - Community displays at relevant events in the EMLR, ie, country shows, events, fairs, markets	1, 2
Media	**Media** • Develop a media kit including all the launch documents, identify media spokespeople for them to contact, and places where they can get regular information (ie, website,	3

	stakeholder updates) • Establish media monitoring where advisers can respond to misinformed media **NB:** Need a convincing spokesperson who is media trained and practised and can stay on-message.	
All landholder, commercial, special interest and community groups	**Stakeholder updates** • Distribute a community e-update for those who have registered as part of the reference group (must ask at meetings for contacts)	1
All	**External communication** • Develop content – written, visual, video – for each stakeholder group's communication outputs, ie, newsletters, websites	1
All	**Advertising** • General advertising campaign in print media alerting other industry, special interest and community groups to the auction process and where to get more information if they are interested. Target: The Murray Valley Standard, Victor Harbor Times, Stock Journal, Southern Argus, Mount Barker Courier	1
All	**Website** • Update website with all launch material • Include a 'Questions on notice' section where the public can post questions and responses can be given	3
Stage 5: Pre-auction		
In-scope dam owners	**Direct Mail** • Send a Competitive Auction Handbook outlining all the details of the auction and how to register • Profile the stories of 'industry champions' who definitely will register and who have identified what their securing low flows solution will be. This is to be third party endorsement … 'why I'm on board' (being careful of any commercial-in-confidence issues)	1, 2
In-scope dam owners Landholder advocacy/farming systems groups	**Engagement** • Host small group information sessions for landholders who are going to register and want more information • Small group tours of low-flow bypass under trial	1, 2

	Website • Upload industry champion stories, with video if possible	3
Stage 6: Expressions of interest		
All	**Media** Announcement that EOI is public	3
All landholder, commercial, special interest and community groups	**Stakeholder updates** • Update reference group on EOI call	1
In-scope dam owners	**Engagement** • Host Information Sessions to ensure all landholders who registered an interest can ask questions in an open environment while giving all landholders a final opportunity to participate. • Ensure DEWNR officers are available for last minute advice	1
All	**External communication** • Develop content – written, visual, video – for each stakeholder group's communication outputs, ie, newsletters, websites	1
Stage 7: Field Assessment		
All landholder, commercial, special interest and community groups	**Stakeholder update** • Update on the field assessment step, what is involved, ie: After registering - Book a site assessment (by DEWNR) - Get quotes from contractors / price up the job - Pay for separate advice if needed/wanted. DEWNR should consider a standard contribution payment of, e.g. $100 that is redeemable with an invoice if the bid is unsuccessful. Also consider creating a register of external advisers for landowners to seek independent advice.	1
Stage 8: Bid submission		
All	**Media** • Announcement on number of applications and other news	3
All	**External communication** • Develop content – written, visual, video – for each stakeholder group's communication outputs, ie, newsletters, websites	1
All	**Website** • Update site with key stats and information	3
All landholder, commercial, special	**Stakeholder update** • Update on stats and 'what's next'	1, 2

interest and community groups		
Stage 9: Land manager notification		
In-scope dam owners	**Direct Mail** • Notify in-scope dam owners of the outcomes	1, 2
In-scope dam owners who participated in the auction but did not receive an offer of funding	**Stakeholder support** • DEWNR officers or contractors give feedback to individuals about their bids • Options about participating in the next round of funding (if any) are explained • Process for grievances is in place	1,2
All landholder, commercial, special interest and community groups	**Stakeholder update** • Communication to reference group list of the outcomes	1, 2
All	**Media** • Media announcement once successful bidders accept terms	3
Stage 10: Works commence		
All	**Media** • Identify suitable media opportunities for Ministerial/government representatives as work begins	3
All	**External communication** • Develop content – written, visual, video – for each stakeholder group's communication outputs, ie, newsletters, websites	1
All landholder, commercial, special interest and community groups	**Stakeholder update** • Communication to reference group on work schedule	1, 2
Stage 11: Preparation for subsequent rounds		
All landholder, commercial, special interest and community groups	**Stakeholder update** • Communication to reference group on next round, timeframes and how to be involved	1, 2
Landholder advocacy/farming systems groups	**Engagement** • Book meetings with industry advocacy and farming systems groups and other industry influencers, ie, landholder advisers	1, 2

All	**Media** • Media announcement of new round and where landholders can get more information	3
	Repeat stages 4-10 but include practical examples of success stories. A subsequent round will be conducted in a new catchment and so target audiences will not be familiar with the auction process.	
Stage 12: Project completion		
Landholder advocacy/farming systems groups	**Engagement** • Conduct project finalisation meetings with groups as a form of relationship building for future water-related projects.	1, 2
All landholder, commercial, special interest and community groups	**Stakeholder update** • Compile a final project 'wrap-up' e-communication with stories outlining its success and the volume of water returned on an ongoing basis	All
All	**Website** • Update site with success story material	All
All	**Media** • Work with a journalist in the target catchment area who has written positive stories about the auction to do a final wrap-up of the project • Overall media announcement	3

9. SWOT analysis

See Appendix 3 for a full list of the Strengths, Weaknesses, Opportunities and Threats to successful project implementation.

• Strengths and Opportunities

The strengths and opportunities of the project are helpful to our objectives, and we must ensure we capitalise on them. They can be grouped into the following:

1. There is a **clear funding model** (should Commonwealth Government funding be awarded).
2. There is a **clear impetus**: if low flows are not secured, a review of the WAP/s will need to be undertaken.
3. There will **be clear evidence**: once the results of the trial sites are known.
4. The **decision-making power is with the community**, which is important because many members of the community (a) support the need for catchment health, (b) are already taking action to save water, and/or (c) say they have enough or more than enough water for themselves.

• Weaknesses and Threats

Weaknesses and threats are harmful to our objectives and are addressed in the Risks section of this plan. They can be grouped into the following:

1. The **costs of passing low flows is unknown** on individual properties; this is mitigated by the voluntary, open price auction format.
2. The **uncertainty post-auction**; will in-scope dam owners be required to pass on low flows in the future if (a) they don't participate in the auction or (b) they participate but are not offered funding?
3. There are **project management challenges** (e.g. short timeframe) – these are mitigated via Risk analysis.
4. There are **external environment challenges**, such as dry weather and low produce prices, which may encourage some dam owners to view the project negatively or think the timing is not right.
5. Landholders may resist uptake.

10. Risk management

Risk	Risk level	Mitigation strategy
Project timing		
• Growers are currently in a hot, dry summer on the back of a dry spring.	M	The timeframe of the Australian Government decision-making process is such that the auction is likely to be released in winter.
• Short project timeframes	M	While the project timeframes are short, the communication and engagement is designed to be intensive and focused, ensuring that all landholders are aware of the project and have ample opportunity to enquire and access information.
• Trial site success is not yet finalised	M	Market research identified landholders' desire for clear and concise information, particularly about the science supporting low flows. Part of the work is to complete this science and use a marketing and science communication approach to convey this. Ideally the trial sites in the EMLR would be operational and successful to use as case studies but if not, there are other low flow bypasses installed in the Clare and Barossa Valleys, which neighbour the EMLR.
• NRM Board gets tough on language and then has to back down because they don't get the funding	M	The NRM Board will hold on making any further public statements until the outcome of the business case submission is known.
Community support and buy-in		
• Growers do not participate in the auction because they are already very upset about water meters and having to pay water levies. This is all on the top of a year	M	This issue is addressed in the strategy. The SA MDB NRM Board has discussed strengthening its messaging around the need to pass-on low flows as a requirement of the EMLR Water Allocation Plan. In addition, however, the market research identifies that landholders who feel this way are unlikely to support low flows or be interested in participating in the auction in the first place. They are likely to complain to their industry advocacy or production group and so engaging these groups and

when prices have been consistently below cost of production.		explaining that we understand the current environment and building trust will be important.
• Key industry groups and industry leaders do not support the auction	H	As above, relationships need to be built with key advocacy and production groups to ensure they have a positive view of the project and the unique opportunity it provides to their members to secure low flows with the help of government funding.
• Lack of support in a complete sub-catchment which is more strategic in securing low flows than another site	M	This risk will be tracked through landholder engagement in the early phases. Landholders are being encouraged to register their interest in the project as well as book a shed meeting for themselves and their neighbours. This will serve as a guide from where in the sub-catchments the interest is coming and if one strategic site is left out, to target more communication and engagement activity in that area.
• Tough opponents of the project are vocal about their opposition and views on the project's weaknesses	M	As with any project, there are likely to be those who are vocal in their opposition. These people can take up a disproportionate amount of time of officers involved in the project with little likelihood of changing their opinion. They are also likely to be quoting misinformation in the media. Where practicable, officers will engage these people directly in the early stages of the project because their opposition might be based on misinformation. However, if they do not change their view and do not wish to be engaged, officers should continue to provide information to them but spend their time on people who will be constructively engaged and may participate in the auction. Any incorrect media reports can be corrected with the journalist directly, or through providing comment pieces to the paper for publication. This will be picked up via media monitoring.
Media • Potential for extensive media coverage of those who do not support securing low flows, with minimal coverage of the positives of the auction	M	It is expected that some landholders will complain to their advocacy or production group, which is why open and honest dialogue with these groups is important. Media will seek comment from leaders of the advocacy groups as spokespeople for their industry. It is proposed that key journalists will be briefed with the same information as landholders so they can understand the project and know as much as the landholders. Journalists should be able to speak with the head of the project (who is media trained) to ensure there is no feeling that they are being controlled. Questions that journalists ask are likely to be based on earlier conversations with a landholder, and we can identify these questions at the outset to ensure we have a rapid response available.

		Incorrect media reporting will be identified through media monitoring and managed by contacting them, pointing out the error and asking for a clarification to be published. Ideally, good media relationships would be developed where journalists can ring and check facts before publication. This will be possible with regional media but more difficult with metropolitan.
Project pre-auction and EOI phase • Landholders collude	M	Messaging around the auction will be clear that collusion is not allowed and can be fined under ACCC law.
Project outcomes • Landholders may do all the work in submitting a bid and then not be funded.	H	This is certain to happen and will be difficult to manage because landholders will be disappointed, particularly if they put a lot of their own time and energy into developing their bid. Initially, it could be suggested that they bid is 'suspended', meaning it could be picked up in future auction rounds of the project, pending a decision for a second round.
Project legacy • Potential for perceived inequality between the eastern and western Mount Lofty Ranges	H	This can be addressed in the messaging behind the project: 'If funds are secured to roll out low flows in the East and the project is very successful, DEWNR will be in a good position to request funds from the State Government to roll out a similar project in the West. DEWNR will have an excellent idea of the costs, barriers and benefits involved and should be able to make a strong case.'
• The management of landholders who do not participate … will they have to participate in future?	M	At present, the message is that passing on low flows is a requirement of the EMLR Water Allocation Plan. Any change to this message is a policy decision for DEWNR/SAMDB NRM. Part of this may be addressed in the location of those who do not participate – are they in a strategic site where they can pass on low flows at the required threshold rate.

11. Monitoring and evaluation

Testing and evaluation of communication and engagement activities during the project is important to ensure that messages remain relevant and meaningful to the community and are amended as appropriate. Monitoring and evaluation measures need to be both quantitative and qualitative to capture participation rates and changes in attitudes.

It is proposed a central feature of monitoring and evaluation is a survey before and after the project to determine changes in behaviour and attitudes toward securing low flows. It is proposed that a sample of the target audience (in-scope dam owners) is surveyed to determine their attitudes to securing low flows and their likelihood to participate in an auction now that funding has been confirmed. Then following the project, the same sample group will be tested to measure the differences in their behaviours and attitudes, including that if

they did participate in the auction then how likely it is they would recommend the experience to other landholders to inform future auction rounds. This research will to determine whether the MC&E activities have made the difference that was anticipated.

The progress of the project against its three main goals will be monitored at various stages as shown in the table below.

Goal/Objective	Measurement
Goal 1 – Maximise the number of in-scope dam owners who participate in the competitive auction	
Objective 1 a) Attract 990 in-scope dam owners to express interest in the first and/or subsequent rounds of the auction.	• Number of shed meetings scheduled • Number of EOIs received • Number of field inspections scheduled Note that if some regions of the EMLR are unrepresentative in any of the above measures during the project, DEWNR can take action to address this
Objective 1 b) Increase the proportion of in-scope dam owners that support the low flows concept from 43% to 66%.	• Compare pre and post-survey trends to determine attitudinal and behavioural changes.
Objective 1 c) Achieve a satisfaction rating of 80% or higher from participants about the auction implementation, the field assessment service and the overall project at the completion of the project.	• Market research with those who participated in the project to gauge their satisfaction rating and the likelihood that they would recommend the auction process to other landholders.
Goal 2 – Persuade in-scope dam owners who do not support returning low flows to change their opinion	
Objective 2 a) Define and communicate a compelling case why in-scope dam owners need to be part of the auction while funding is available as well as the implications of not participating in securing low flows, ie, that licence holders will be expected to implement low flows solutions with no government funding support in the future.	• Compare pre and post-survey trends to determine attitudinal and behavioural changes.
Objective 2 b) Decrease the proportion of in-scope dam owners who do not support the low flows concept from 50% to 35% by removing some of the barriers identified by respondents verbally in the market research.	• Track interested but unsupportive dam owners through a customer relationship database. • Compare pre and post-survey trends to determine attitudinal and behavioural changes.
Goal 3 – Promote F4F to a wider audience to generate community support	
Objective 3 a) Promote outcomes of the various stages of F4F (e.g. announcement of funding, opening of EOI period, auction participation	• Market research • Website hits • Positivity of media stories

rates, auction outcomes, case studies) through social media, traditional media, the website and direct emails and by linking outcomes to the Strategic Priority and Fight for the Murray.	

12. Arising issues (reactive)

An issues management register will be used to record and log communication issues that arise during the project. Media will be monitored and meetings take place to be kept informed about current or emerging issues to ensure that appropriate strategies are put in place to respond.

13. Acknowledgement and branding

MC&E materials will feature the branding of Natural Resources SA Murray-Darling Basin and adhere to the organisation's branding and style guide. The Australian Government will be acknowledged as the funding provider in all material.

All other acknowledgement and publicity for the project will adhere to requirements outlined in funding deeds between the SA and Australian Governments.

APPENDIX 1 – Overall market research results

This includes market research results for all 111 respondents in the EMLR: 40 in-scope dam owners (36% of respondents), 40 out-of-scope dam owners (36%), 20 dam owners who weren't sure of their dam's capacity (18%), and 11 landowners without dams (10%).

It may be used to compare with the responses of the 40 in-scope dam owners in Section 5 (Market research outcomes).

Support for low flows

- Up to 60% of all respondents already support or could support the low flows concept.

  Almost half of the respondents (49%) in the EMLR catchment gave full or qualified in principle support to allowing low flows at critical times to maintain enough water for natural processes. A further 11% were unable to provide a view.

  Of those who gave their qualified support (22%), the majority were landholders holding a water licence who indicated that they were not aware of their low flows obligations, i.e. they were unaware that when water licences were issued, licensed dams and watercourse diversions as well as stock and domestic dams over 5 ML may play a role in passing low flows in the future.

  41% did not support the low flows initiative.

- 62% would be interested in participating in a low flows scheme if funding was made available.

- 64% of respondents said they would be more encouraged to participate in passing on low flows on their property if they were directly involved in making decisions on the method. 28% said that they would not be more encouraged to participate. 8% were unsure.

Dam sizes and property types

<u>Size of dams</u>
In-scope:
- 10 ML and over (29%)
- 5 to less than 10 ML (7%)

Not sure:
- Unsure (18%)
- No dams (10%) – could divert water

Out-of-scope:
- 2 to less than 5 ML (18%)
- <2 ML (18%)

<u>Type of activity</u>
- Grazing (53%)
- Irrigated horticulture or viticulture (33%)
- Pasture production (15%)
- Conservation and natural environments (9%)
- Cropping (6%)
- Other (3%)

Type of property

- Small or hobby farm (39%)
- Commercial irrigation (27%)
- Intensive animal husbandry (15%)
- Lifestyle/non-income producing (7%)
- Other (e.g. plant nursery, non-commercial vineyard)

Attitudes to water

- 79% of respondents feel they have enough water (20% more than enough; 18% quite enough, 41% just enough)
- 63% agreed that 'The creeks and streams in my catchment are healthy'
- 50% agreed that dams carry risks (and 6% were unsure)

Barriers to acceptance

- Of those that don't support the low flows concept:
  - some are worried it will affect the amount of water they currently have access to
  - some are concerned about the cost and who would pay
  - some don't think it can work on their property (for various reasons)
  - some don't think it will benefit the ecosystem/catchment
  - some already have water bypassing their dam; e.g. properties that already allow a lot of run off, and in dams that overflow
  - some only get low flows, so they can't participate or their entire water supply will run out
  - some say they have plenty of water in winter but not in summer
  - some simply don't trust government

- 44% were unaware that water licence holders may be asked to play a role in passing on low flows (a commitment made at the time water licences were issued)

Triggers to acceptance

Things that respondents value

- 40% think there could be a benefit to the environment (and 14% are unsure)
- 61% agreed that 'Tourism in the Ranges is just as important as other businesses in the region'
- 90% agreed that 'Premium food and wine from the Ranges depends on a healthy environment'
- 64% would be more encouraged to participate in low flows if directly involved in making decisions on the method (8% were unsure)
- 41% like the idea of replacing old leaky dams (17% unsure)

Funding models

- 42% would definitely be interested in accessing Australian Government funding if they could (and a further 20% said 'maybe')
- Of the 62% that would be interested in participating in a fully-funded scheme, 51% prefer participating in a scheme to define a solution and price, and 11% prefer the government to set the solution and price
- Other than financial reimbursement, other things that would encourage participation are:
  - enough water to pass on/more rain
  - legislation
  - scientific evidence
  - evidence that the environment will be helped

- people to actually do the work, including someone to do the design and pipe layout, and to provide technical advice
- clear explanation of how it would be done
- increase dam capacity/water allocation, or access to recharge bore
- honest people who keep their word
- education for landowners about water
- flexibility when it comes to water licences, especially use of groundwater
- anything that would benefit me
- fairer access to water, including reassurance that upstream landowners comply
- if all landowners had to do it
- personal visits by the department
- seeing it implemented in an integrated way; a targeted plan to get best bang for buck
- reimbursement for loss of production due to less access to water
- planting more trees
- greater control and balance between population, conservation and farmers
- common sense
- nothing
- not sure

- 96% of respondents were over 40 years of age

APPENDIX 2 – Target audiences in the Eastern Mount Lofty Ranges

Target audiences for a competitive auction to secure low flows

	Primary	Secondary
Landholders/primary producers and those who work closely with them		
Landholders	Landholders with in-scope dams (5ML or more) in the Eastern Mount Lofty Ranges	Landholders with out-of-scope dams or no dams
Landholder advisers	Off-farm advisers that landholders bring into advise on specific elements of their operation, ie, pasture, production, business management, environmental.	
Landholder advocacy, interest and support	▪ Adelaide Hills Wine Region ▪ SA Murray Irrigators ▪ SA Apple and Pear Growers Association ▪ SA Wine Industry Association ▪ Primary Producers SA ▪ Livestock SA ▪ Horticulture Coalition of SA ▪ Winegrape Council of SA ▪ Cherry Growers Association of SA ▪ Langhorne Creek Wine Grape Growers ▪ Currency Creek Grape Growers ▪ SA Chamber of Fruit and Vegetables ▪ Barossa Wine and Grape Association ▪ SA Dairyfarmers Association ▪ Business SA ▪ Australian Blueberry Growers Association (SA contacts) ▪ Almond Board of Australia (SA contacts) ▪ Olives South Australia Inc	
Landholder farming systems groups	Production / farming systems ▪ Natural Resources SA Murray-Darling Basin ▪ Angas Bremer Water Management Committee ▪ Barossa Improved Grazing Group ▪ Dairy SA	
Environmental interest and support groups	▪ Eastern Hills and Murray Plains Catchment Group (EHMPCG) ▪ Goolwa to Wellington Local Action Planning ▪ Mannum to Wellington Local Action Planning ▪ Coorong and Districts Local Action Planning ▪ Conservation Council of SA ▪ The Finniss River Catchment Group ▪ The River, Lakes and Coorong Action Group ▪ Conservation SA	

	▪ Nature Conservation Society of SA ▪ NatureFoundation SA	
Commercial businesses	▪ Beston – milk plants at Murray Bridge and Jervois ▪ BD Farm Paris Creek (Beston has an interest) ▪ SADA Fresh ▪ Parmalat	
Government, political and media		
Government - South Australia	▪ Ian Hunter, Minister for Sustainability, Environment & Conservation and the Minister for Water Security and the River Murray ▪ Leon Bignell, Minister for Agriculture, Food and Fisheries ▪ Geoff Brock, Minister for Regional Development ▪ Other Department for Environment, Water and Natural Resources staff (not directly involved with the project) ▪ Primary Industries and Regions SA ▪ Natural Resources SA Murray-Darling Basin ▪ Environment Protection Authority (EPA)	▪ Martin Hamilton-Smith, Minister for Investment and Trade and Minister for Small Business ▪ Premier Jay Weatherill ▪ SA Tourism Commission ▪ SA Water ▪ Department of Premier and Cabinet ▪ Aboriginal Lands Trust (SA)
Members of Parliament – South Australian (not included in govt list)	▪ Member for Hammond Adrian Pederick ▪ Member for Finniss Michael Pengilly ▪ Member for Heysen Isobel Redmond ▪ Member for Kavel Mark Goldsworthy ▪ Member for Schubert Stephan Knoll ▪ Shadow Minister for Agriculture David Ridgway ▪ Shadow Minister for the Sustainability, Environment and Conservation and Shadow Minister for Water and the River Murray Michelle Lensink ▪ Member for Barker Tony Pasin ▪ Member for Mayo Jamie Briggs	▪ SA Greens MLC Mark Parnell ▪ SA ALP Senator Penny Wong ▪ SA Greens Senator Sarah Hanson-Young ▪ SA Independent Senator Nick Xenophon ▪ SA Family First Senator Bob Day

Government – Commonwealth	▪ Minister for Agriculture and Water Resources Barnaby Joyce ▪ Minister for the Environment Greg Hunt ▪ Assistant Minister for Agriculture and Water Resources Anne Ruston (SA Lib Senator) ▪ Murray Darling Basin Authority ▪ CSIRO	
Government - Local	▪ The Rural City of Murray Bridge ▪ Mid Murray Council ▪ Barossa Council ▪ District Council of Mount Barker ▪ Coorong District Council ▪ Alexandrina Council	
Government - other	▪ Regional Development Australia – Adelaide Hills, Fleurieu and Kangaroo Island ▪ Regional Development Australia – Murraylands and Riverland ▪ Regional Development Australia – Barossa	
Media	Print ▪ Stock Journal ▪ Southern Argus (Strathalbyn) ▪ Mount Barker Courier ▪ The Victor Harbor Times ▪ Murray Valley Standard ▪ The Leader (Barossa) Radio ▪ PowerFM (Murray Bridge) ▪ 1125 5MU (AM) ▪ Radio 5EFM (Victor Harbor) ▪ ALEX-FM (Goolwa) ▪ SPIRIT FM (Goolwa) Television ▪ ABC Landline	Print: ▪ The Advertiser ▪ The Sunday Mail ▪ The Australian ▪ Independent Weekly Radio: ▪ ABC891 Adelaide ▪ 5AA ▪ 5EBI ▪ 5RPH ▪ Radio Adelaide Television ▪ Channels 7, 9, 10 ▪ ABC Adelaide ▪ SBS
Additional audiences for support in securing low flows		
Organised groups - EMLR	▪ Recreational Fishing Committee ▪ Southern Fishermans Association ▪ Southern Alexandrina Business Association ▪ Boat owners/operators ▪ Ferry owners/operators	▪ Local individual businesses

	▪ Houseboat organisations ▪ Regional tourism associations and operators ▪ Lower River Murray Drought Reference Group ▪ SA Lower Lakes, Coorong and Murray Mouth Icon Site Community Reference Committee ▪ Local Knowledge Reference Group ▪ Scientific Advisory Group (SA MDB NRM Board group) ▪ Ramsar Task Force Committee for Coorong, Lake Alexandrina and Albert ▪ Southern Alexandrina Business Association ▪ Goolwa Boat Builders Association ▪ Hindmarsh Island Marina ▪ Chapman Group (Hindmarsh Island Development) ▪ Recreational Fishing Committee ▪ Southern Fishermans Association ▪ Narrung Wetland Group ▪ Teringie Wetland Group ▪ Progress Associations ▪ Lions Clubs ▪ Kiwanis Group ▪ Landcare Groups (Point Sturt, Hindmarsh Island) ▪ The Clayton Foreshore Group ▪ The Signal Point Riverine Group ▪ The Milang Old School House Community Centre ▪ Wetlands and Waterbirds Task Force ▪ CLLMM Ecology Research Cluster ▪ Regional Nature Links Committee ▪ Native Fish Working Group ▪ Water Quality Committee Coordinating Group ▪ South Coast Environment Group ▪ Wilderness Society (SA) Inc ▪ Friends of the Coorong ▪ Murray Watch (Friends of the River Murray Inc)	
Indigenous	▪ Ngarrindjeri Regional Leadership Authority ▪ Ngarrindjeri Heritage Committee ▪ Ngarrindjeri Native Title Committee	▪ NRM Board - Indigenous Facilitators

APPENDIX 3 – SWOT analysis of the *Flows for the Future* Project

HELPFUL (TO OUR OBJECTIVES)	**HARMFUL** (TO OUR OBJECTIVES)
STRENGTHS • The availability of Australian Government funds provides a clear funding model. Many (perhaps all) land managers* will be able to get their devices/other solutions installed with that funding • Participation in the auction is voluntary • The auction is a market based instrument that enables the best value for money projects to be funded • The auction gives the power to land managers to decide the device, method and price for managing low flows on their land • The auction seeks to make it easy for landholders to participate – staff will complete paperwork and land managers only have to set a price for their property • At the heart of the auction is a desire to stimulate innovation and minimise impact on agricultural production and profitability, as well as landscape-based industries such as tourism • The team at DEWNR is skilled and knowledgeable about low flow options and devices – is this true? • The team at DEWNR has strong relationships with key groups and land managers in the region	**WEAKNESSES** • We don't know the costs involved with installing and maintaining low flow devices • We don't know what the options/conditions will be for land managers who don't secure funding to pass on low flows through the auction system (either because they didn't participate or because their bids were unsuccessful) • The proposed project is for three years, which is a very short timeframe to roll the project out • Things tend to move slowly in DEWNR/government in general • The requirement outlined in the Water Allocation Plan to pass on low flows is unlikely to be recalled by water users • Scientific evidence is not yet available (but DEWNR is working on this)
OPPORTUNITIES • Passing on low flows is an identified need/component of the WAPs/water allocations in the region • Showcase the low flow diversion projects already successfully taking place in other parts of South Australia to remove some of the mystique surrounding low flows • Identify the land managers that are happy to participate, and enable them to participate in the first round of the auction • Liken the F4F auction to BushBids, which was a successfully implemented auction in the SAMDB region • Land owners will be provided access to project officers, who will be able to provide a high level of support including advice, and help with filling out paperwork, creating the design and technical know-how • Industry is already heavily investing in water system management; support from the Australian Government complements this • A unique chance to promote the tender as a way for landholders to have their say in where and how low flows are passed on • The EMLR scenario and the differences between the top and bottom of the catchment has parallels to how SA being at the bottom of the Murray-Darling Basin catchment.	**THREATS** • There is a demonstrated lack of support from several groups, especially; community and/or industry outrage could force the project to halt, or to fail • Some parts of the community and industry groups feel over-engaged, especially in relation to water meters, water levies and also low flows • If only a small number of land managers voluntarily take part in the auction, others may see this as evidence that the project isn't working/accepted • If the weather continues to be dry, the price of produce falls and/or other negative external factors arise, community and industry support for the project is likely to be low • Industry feels that because low flows will benefit the whole catchment, the cost imposition should not be solely on individual land managers • Industry feels that many dams are in topographies that will make the fitting of low flow devices difficult • If funding is secured for only the Eastern Mt Lofty Ranges, the Western community and industry may feel this is unfair • The general rural community feels its voice is being ignored by the current government, e.g. increase in the Emergency Services Levy, and this project could exacerbate that

Appendix 7

Flows for the Future

Reforming flow management in the Eastern Mount Lofty Ranges Region

ADDENDUM

Providing additional information to support the Business Case

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F4F Business Case Addendum	5.0	26.07.2016	Kym Rumbelow	Final Draft
F4F Business Case Addendum	6.0	04.08.2016	Kym Rumbelow	Final

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1. Introduction & Overview

1.1. Purpose

This addendum has been prepared by the South Australian (SA) Department of Environment, Water and Natural Resources (DEWNR) to provide additional information to support the *Flows for the Future Business Case* submitted to the Australian Government in March 2016.

This addendum should be read in conjunction with the *Flows for the Future Business Case*. It replaces some parts of the Business Case (as outlined below) as well as providing additional supporting information.

1.2. Background

The *Flows for the Future Business Case* (herein referred to as the Business Case) was provided to the Australian Government on 16 March 2016.

During March and April 2016 the Australian Government reviewed the Business Case which included independent technical advice.

In May 2016, the Australian Government met (via teleconference) with the SA Government following receipt of the technical advisors report to provide feedback and to discuss a process to finalise the due diligence assessment of the Business Case.

A key central plank of the Business Case was using a voluntary auction process to roll out the program. (Refer to Parts 5 and 6 of the Business Case). At the 3 May teleconference, the Australian Government identified the auction process as being a material risk to achieving the project outcomes. The risks identified largely relate to the level of uptake required as well as the location of uptake. The Australian Government suggested that DEWNR consider an alternative delivery model that better addressed these risks. In addition to an alternative delivery model, the Australian Government also requested clarification on DEWNR's strategies and tools (regulatory, project design, etc.) that will maximise uptake of the program by landholders.

This addendum specifically addresses these two key elements in that it:

- Outlines a new delivery model that will provide more certainty regarding uptake and location, and
- Provides more detail regarding the strategies that will be used to maximise uptake of the program by landholders.

1.3. Outline of the Addendum

This addendum includes 6 Parts, some of which replace parts of the Business Case and others which support the information contained within the Business Case. These changes are outlined in Table 1.

Table 1: Comparison of changes between Flows for the Future Business Case and the Addendum

Flows for the Future Business Case	Addendum	Nature of Change
Part 1- Overview of Business Case	Part 1 – Introduction and Overview	Not related as each address specific documents
Part 2- Context & Drivers	-	No change
Part 3-The Problem and Investment Rationale	-	No change
Part 4- Defining the Proposal	-	No change
Part 5 – Strategic Response	-	Part 2 of the Addendum replaces parts of this chapter in the Business Case
Part 6- Auction Design	Part 2 Delivery Options and Part 4-Targeted Delivery Model	Replaces Part 6
Part 7-Assessment of Investment Scenarios	-	No change
Part 8- Project Scope	Part 4 – Targeted Delivery	Part 4 of the Addendum replaces some of Part 8 of the Business Case
Part 9- Accountabilities and Governance	-	No change
Part 10- Project Implementation	Part 4- Targeted Delivery	Part 4 of the Addendum replaces some of Part 10 of the Business Case
Part 11- Financial Estimates of Preferred Option	Part 5- Financial Estimates	Replaces Part 11 of the Business Case
Part 12- Identification and Management of Risks	Part 6 – Identification and Management of Risks	Replaces Part 12 of the Business Case
Part 13- Marketing, Communication and Engagement Plan	-	No change
Part 14- Monitoring & Evaluation	-	No change
Part 15 – Compliance and Audit Strategy	-	No change
Part 16-Approvals	-	No change
Part 17- Project Close	-	No change
Part 18- References	-	No change

2. Delivery Model

2.1. Strategic and Targeted Program Delivery

2.1.1 Ensuring Priority Sites that Connect Through the System

As outlined within the Business Case (Part 6), the catchments in the Eastern Mount Lofty Ranges (EMLR) region have been divided into multiple management zones.

The nature of the surface water catchments in the EMLR Region means that management zones flow into those downstream, giving rise to a nested or cumulative arrangement. The management of a zone that receives water from upstream zones, considers such factors as, the total runoff received from the whole upstream catchment area, the total demand against that runoff, and the low flows returned across that whole upstream catchment area. Therefore, a given site returning low flows will contribute to multiple points of interest, including the outlet of the zone it is located in, and the outlet of any downstream zones.

A process to define priority scores for management zones based on the nature of water-dependent ecosystem present and the level of water resource development has been developed (Refer to Part 6.3 in the Business Case). This technical process to determine the priority catchments is outlined in the technical report, 'Securing Low Flows Implementation Ecological Prioritisation' developed by DEWNR in 2015.

An individual zone may have a low priority score, but may also contribute low flows to a higher priority zone downstream. Treating a high priority zone further down in the catchment is therefore likely to require low flows to be returned from upstream zones.

2.1.2 Targeting Strategic Location within Priority Sites

As outlined within the Business Case (Part 6), there are opportunities to strategically locate low flow devices within a surface water management zone[1], so that fewer devices are required to achieve the low flow targets.

Modelling, undertaken in the Angas and a portion of the Bremer catchments indicates that, on average, 70% of in scope dams within a management zone, could achieve the total required low flows for the desired ecological response.

This result varies across the catchments and zones within the project area, however, what is clear, is that a program targeting key sites within the catchments will provide a better return for investment. In other words, low flow levels can be obtained without the need to install low flow devices at 100% of in scope sites. Critically though, for this to be effective, the sites must connect through the system to successfully provide flows (as described above).

The new delivery model MUST ensure that sites in high priority management zones, or that contribute flow to high priority management zones are given priority.

The delivery models outlined in this chapter are premised on having a process that ensures high priority sites are a delivery focus, with strategic location modelling providing guidance on final targeted locations.

[1] *Management Zones are the myriad of smaller sub catchments that make up the major catchment areas of the EMLR region. A prioritisation process has been undertaken to give a relative ranking of urgency of action for surface water management zones across the region (source Flows for the Future Business Case part 6.3.1)*

2.2. Delivery Options

The Flows for the Future Business Case proposed a voluntary auction process to deliver the project. The voluntary auction was proposed as it was seen as a method that would provide a market-determined return on investment and give ownership to the local community in deciding how best to return low flows as well as manage their water needs. Through the Australian Government's assessment of the Business Case, material risks were identified in the voluntary auction process that may not achieve adequate uptake of the program (as it is voluntary) and it limits South Australia's ability to influence where the devices are installed to achieve maximum environmental outcomes.

The Flows for the Future Project Working Group (PWG) reconvened to consider alternatives. In doing so the group developed a set of key criteria to compare the costs and benefits of various delivery options. The key criteria considered the Australian Government's measures of success for the project and the risk based nature of the decision process.

The new delivery method must demonstrate the following:

- That it can ensure the required level of uptake of the program by the community to achieve the environmental flow requirements
- That the required number of devices in strategic (high priority) locations can be successfully installed within the funding timeline
- That connectiveness of sites required to achieve flows through the system can be achieved
- That it can ensure that the required flows can be obtained to meet environmental outcomes
- That the devices can be operated and maintained by the landholders into the future, and
- That the method presents the overall lowest risks that can be managed (environmental, economic, community etc.).

In summary the new delivery model must be a **targeted model** that directs investment to high priority management zones first, and focuses on gaining uptake at strategic locations from the outset.

Three options were considered and are summarised in the next section. Each option offers a different focus for delivery, providing corresponding risks and opportunities to the participant and funding body.

The options considered include:

1. Landholder Managed Program (Grant Agreement Program)
2. State Government Managed Program, and
3. Preferred Targeted Delivery Model – a combination of the above models whereby landholders or State Government may project manage the installation.

An overview of each option is provided below as well as a summary of the assessment of the models.

2.2.1 Landholder Managed Program (Grant Agreement Program)

A Landholder Managed Program would be delivered through a grant agreement and target Landholders in strategic locations beginning in highest priority areas and then throughout the project region based on the size of the program. This model provides the successful landholder with grant funding to project manage the engagement of contractors and the installation/construction of the agreed device in a defined time period. Landholders would then own, operate and maintain the device(s).

The main risks associated with this process is the ability to obtain adequate uptake and ensuring projects comply with tight delivery timeframes while maintaining quality standards.

2.2.2 State Government (DEWNR) Managed Program

A DEWNR delivered program would target strategic locations beginning in the highest priority areas and then throughout the project region based on the size of the program. Under this model the state government project manages and engages contractors for the installation/construction of the agreed device in a defined time period. Landholders would then own, operate and maintain their device(s).

This model allows industry standard project management procedures to be applied consistently across the project to ensure cost and quality parametres are controlled and that the program is delivered within the defined time frames. However, it does not leverage the opportunities to the project by allowing a greater level of engagement by landholders in delivering the on ground works.

The State Government managed device installation model is feasible and recommended, but not the preferred delivery model.

2.2.3 Preferred Targeted Delivery Model

The preferred model combines the best of both the State Government Managed Program (2.2.2) and the Landholder Managed Grant Program (2.2.1) to target strategic locations beginning in highest priority areas and then throughout the project region based on the size of the program. It would allow for landholder (or third party[2]) delivery of simple devices, as well as landholder management of contractors and the project on their property if they choose to, with the support and oversight of the department.

In situations where the landholder does not want to manage the contracting or project, or where the project is assessed as complex or the landholder cannot demonstrate the required level of project management capability, the contract management and project management will be undertaken by DEWNR.

This model provides for delivery by interested and proactive landholders, while complex projects or those with less enthusiastic landholders can have installation organised on their behalf.

The Preferred Targeted Delivery Model mitigates a number of risks that each model individually could not mitigate. It provides the opportunity for full landholder engagement and ownership, as well as the achievement of outcomes at more difficult sites within tight project timeframes. Although cost efficiencies could be achieved by the State Government project managing the installation of all devices, the benefits of willing and appropriately capable landholders managing installation at their sites outweighs modest cost savings.

Landholder and contractor delivery would be subject to detailed funding contracts and timelines.

At completion of the project the landholder would own and operate the device.

The Preferred Targeted Delivery Model combines the best of options one and two to provide a model which promotes higher landholder involvement and ownership, but with the control and overall project management by the state government. The flexibility of this model will promote an increase in early adopters in each priority management zone which will support the targeted process rollout.

Uptake mechanisms and processes for the project will be the same for all delivery model options provided. The Preferred Targeted Delivery Model is considered the model that provides the most incentive and least barriers to landholder participation and provides the greatest flexibility for the project to reach its deliverables.

The Preferred Targeted Delivery Model is feasible and recommended, and the preferred option for the Flows for the Future targeted delivery model.

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[2] In some cases a third part such as an industry body (for example South Australian Dairy Association) or community body such as a landcare group, or other party may be the appropriate owner or utilized by the project as a body trusted by landholders to support delivery.

2.3. Delivery Model Assessment

As with any list of alternatives, each has their pros and cons which need to be considered in respect to risk management, delivery potential, and uptake by the landholder community. These are outlined in Table 2.

Table 2: Assessment of Delivery Models

Delivery Model	Ensure Uptake	Can be installed within the funding timeline	Environmental outcomes and flows required can be obtained	The devices can be operated and maintained into the future	Cost	Other Consideration	Overall Assessment
Grant Agreement Program	Having to project manage the delivery of installation would provide a barrier to uptake by a proportion of landholders.	Risk with landholder managing installation that delivery will fall behind tight project timeframes. Devices left unfinished or not initiated at all.	Landholders do not have a developed understanding of the requirements to pass low flows on their properties, including; volumes, timing, and specification of devices.	Landholders would be responsible for maintenance. This is likely to be better understood if they have been involved in the design and installation of the device.	No economies of scale with each individual landholder approaching contractors independently. Potentially Lower project management costs to project with landholder performing those tasks cheaper. May provide cost savings if landholders do some of the install themselves.	Potential substandard work and cost blow outs. May provide opportunity for innovation – landholders may feel they have more freedom to come up with something new.	Risks continue regarding uptake barriers and time and quality of deliverables under this approach. **Not recommended**
State Government Managed	Incentive selling point to participate in	Reduced risk of project implementation	Quality control coordinated.	Landholders may have less knowledge and or	Potential economy of scale engagement of	Some landholders prickly about	This approach manages the risk regarding uptake and strategic

Device Installation Program (landholder owns device)	project now – government project manages installation.	timeframes slipping. More control over procurement, quality assurance, evaluation and reporting delivery risks. Better chance to manage limited contractor availability.	Government can ensure roll out is in line with strategic priorities.	ownership if not involved in installation.	contractors and ability to purchase devices in larger numbers and at lower cost.	who is on their land. Less ownership & innovation by landholder. Landholder doesn't bear any of the technical risks with the infrastructure installation Enforcement of total project onto landholder would cause likely backlash.	locations however it does not encourage landowner ownership. **Feasible and recommended, however not the preferred option**
Hybrid	At the time of developing the Action Plan, the landholder will be invited to manage the installation based on a number of criteria including their capabilities and the design option. Where; landholder does not wish to oversee installation, the project is complex, or the State is not	This risk is mitigated as DEWNR can appropriately plan installation	Provides multiple avenues to achieve low flows on the ground and in strategic locations.	Landholders operate and maintain devices. Likely to be better ownership and understanding of requirements at landholder-managed sites.	Higher project management costs compared with option 1. Economies of scale can be achieved for some projects.	Landholder's integral in design and planning stage to maintain ownership.	Mitigates a number of risks that each model individually could not mitigate. It provides the opportunity for full landholder engagement and ownership, as well as the achievement of outcomes at more difficult sites within tight project timeframes. This model combines the advantages of the state-government managed model to

	satisfied with their capability to manage the installation, the State will project manage the installation.						meet the project scope in line with cost, quality and time parameters and couples it with the major positive of option one, the increase in landholder ownership, acceptance, and early voluntary uptake. **Feasible and recommended, PREFERRED OPTION**

3. Ensuring Uptake

Outlined within this chapter is further information regarding the strategy that will be used to maximize uptake of the program by landholders. The strategy outlined in this section will be the same for any of the three delivery model options provided in section 2. The Preferred Targeted Delivery Model refers to how the devices are installed, that being by landholders or DEWNR.

It must be noted that although voluntary uptake with early adopters is preferred to ensure positive ownership of the devices that are installed, the targeted delivery model, unlike the voluntary auction model, does not rely on voluntary uptake for project delivery. A complex strategy (detailed below) to promote uptake will be designed and executed with the goal to encourage as much voluntary participation as possible, but not be reliant on that element to achieve the project outcomes.

Flows for the Future will employ a strategy comprising three key components to ensure uptake including:

1. The **Preferred Targeted Delivery Model** as outlined in Part 2 and Part 4 of this document. This model provides for delivery of projects on ground through a targeted grant to landholders or by DEWNR delivery. It provides the best opportunity for full landholder engagement and ownership of the outcomes for the longer term, as well as DEWNR project management and delivery to achieve outcomes at the required quality and cost, within tight project timeframes. It targets strategic locations to ensure connectiveness of sites required to achieve flows through the system. This will achieve the best value for money environmental outcomes.
2. A comprehensive **communications and engagement campaign (C&E)**. The C&E program will create enthusiasm for the project and encourage maximum participation through evidence of the positive benefits it creates, as well as outline the regulatory incentives of the project, and
3. Use of **regulatory tools** to encourage and ultimately compel landholders to participate.

This strategy will deliver all components simultaneously and collectively to significantly increase the uptake potential of the program. The Communications and Engagement Campaign will inform the public about the project, the opportunities provided by the preferred delivery model and the requirement that low flows be passed, underpinned by the licensing system and NRM Regulations. This will be provided as a single package of information, with full transparency of the tools available to the State to ensure the environmental water requirements are met at the management zone level. The provision of this information and the ensuing formalisation of low flow requirements using regulatory tools, will provide incentive for a higher proportion of landholders to willingly participate on the first approach.

As all stages of the program will be delivered as a package (each priority area/management zone), any landholders identified within a strategic location who have not volunteered to participate during initial discussions will be approached and encouraged to participate based on the compulsion provided by the regulatory tools. This process will take place within a defined timeframe within each priority management zone. The stages mentioned as part of the strategy can run concurrently with other stages, depending on the strategic location and uptake choices by individual landholders.

Therefore, stages outlined in figure 1 and described later in this document (section 4.2), will not necessarily come one after another, with some landholders progressing into the project via different stages at the same time, reducing any potential time lag issues.

To simplify the process, it has been broken down into stages highlighted by figure 1, but these stages will be within a single package of information and project delivery for each priority management zone.

The regulatory tools exist, with the administrative processes currently being mapped and developed. There is a possibility that licence conditions for the delivery of low flows may be placed on the licence in advance of project

delivery in a priority management zone, but this timing is yet to be finalised as part of the administrative process development.

Each of these components are further outlined below as well as in Figure 1, which provides an overview of the strategy to ensure uptake using all of the components.

3.1. Preferred Targeted Delivery Model

The targeted delivery model has been outlined in Part 2 of this document and is further outlined in Part 4 – Targeted Delivery Model.

Key to the targeted delivery model increasing uptake is the option for landholders to manage their own project delivery or for DEWNR to manage and implement the required devices. This allows landholders to participate in a way that works for them. Initial planning indicates the major component of the project will be DEWNR delivered.

Landholders and DEWNR will work together to develop an action plan that will identify the best solution for their situation. Subject to the complexity of the solutions, capability and willingness of the landholder, the action plan may recommend that the project be delivered by DEWNR, the landholder, or a third party. Importantly this action plan will be finally signed off and submitted by the landowner, ensuring that the recommendations are supported.

The action plan will be reviewed by an independent Expert Assessment Panel before final approval. Once approved, the project will be delivered either via a grant to the landholder or directly by DEWNR.

The program will hold meetings across the catchments/ management zones in priority order (and thus order of program roll out). Initial meetings for a priority region will identity those landholders who volunteer early to participate and those where further negotiation is required. This will allow rapid implementation of negotiations and regulatory tools to leverage uptake by landholders in strategic locations who do not volunteer initially. This work will take place during a defined and strict delivery window period for each priority area/management zone.

Action Plans will be developed by Specialist Field Officers, with projects within each plan independently priced and approved by the Expert Panel. This process will determine the funding provided to any project. Landholders 'holding out' or reluctant to participate will not be offered increased incentive over those volunteering. Funding for all particpants will be based on independent and technical development of the Action Plan.

DEWNR will also investigate the potential to use peer support of champions within the community and well established relationships with key industry groups to promote uptake and ownership

3.2. Communications and Engagement Campaign

The comprehensive communications and engagement campaign (C&E campaign) (outlined in detail in Part 13 of the Business Case) will focus on delivering the following key messages to landholders:

- Providing evidence and promotion of the catchment and environmental benefits provided by project
- Guaranteed funding now to support installation (funding and support may not be available at a later date)
- Promotion of the production benefits of returning low flows, particularly water allocation levels
- Landholders can choose to have the State Government to project manage and contract manage the design and installation of devices removing burden of delivering a complex device,
- Regulatory tools that may be implemented in the near future to require installation of low flow devices
- Landholder involvement is integral to design and approving device, and
- That funding for this project relates to existing dams, with new dams requiring landholders to install low flow devices as a condition of approval (new dam costs for low flows paid by landholder).

Ultimately through the C&E campaign, landholders will be provided with the information designed to encourage participation in the program while Flows for the Future funding is available. The C&E campaign will make it clear that funding is limited and that if landholders do not participate and their site is considered high priority then in the future it is likely that a requirement to return low flows will be placed on the water licence.

The C&E campaign will utilise key community and industry influencers, and a focus on established trial sites with key community champions.

3.3. Regulatory Arrangements

As outlined above, if a landholder chooses not to participate in the Flows for the Future project then DEWNR has regulatory mechanisms available, including:

- the ability to place a requirement on water licences that low flows be returned, and
- utilising the Natural Resources Management (NRM) Act Regulations to require Stock and Domestic dams over 5 ML to return low flows.

Information regarding the introduction of regulatory requirements will be provided initially as an incentive to volunteer to participate in the program, but can be used to compel participation at those key strategic locations where up take is not volunteered. This informing process will be initiated during the C&CE period, with any sites required to be compelled to participate within a clearly defined time period in the priority management zone being delivered. This is to ensure the timely development of Action Plans.

The Government is prepared to engage these tools to ensure project success, and has placed various conditions on water licences in water resource areas to enforce its policies. For example in some areas of South Australia (such as Eastern Mount Lofty Ranges, Mallee and the River Murray) it is a condition of the water licences to require the licensee to supply meter reads to DEWNR on a quarterly basis. Landholders involved in the self-read water meter program have been advised of their responsibility and the requirement to comply with this licence condition.

4. Preferred Targeted Delivery Model Overview

This chapter provides further detail about the Preferred Targeted Delivery Model and how it will be rolled out under Flows for the Future.

4.1. Defining Elements

The Flows for the Future Program will utilize a targeted delivery approach focussing on strategic in-scope locations to achieve the required level of up-take and to provide greater certainty of achieving the environmental flow requirements. It targets strategic locations and will ensure connectiveness of project sites to ensure low flows pass through the system. This will achieve the best value for money environmental outcomes.

Key defining elements of the delivery model include:

- Sites in priority areas and connected strategic locations along flow paths will be targeted and prioritised.
- The program will provide site specific funding for the installation and construction of fit for purpose and agreed low flow devices (which includes the removal of dams).
- Specific regions will be targeted, beginning in high priority areas and moving throughout the project region through the life of the program.
- Initial modelling indicates 70% of strategic locations may provide the low flows to meet environmental outcomes. The preferred delivery model focusses on this element, but also provides some opportunity to support early adopters, key regional champions, and strategic projects which promote the project and enhance uptake, and ultimately lead to better project outcomes.
- When rolled out in a region, landholders will be contacted by DEWNR to be involved in the project. Landholders will be engaged as a sub-regional group to develop an action plan of rollout in their immediate area.
- The program has an emphasis on collaboration between parties to identify and agree on the best device for each in scope site, and between landholders within sub-regions to obtain the best result collectively.
- Landholders, in consultation with project Specialist Field Officers will determine if the project is best delivered via a grant or by DEWNR directly.
- All action plans developed by the landholder and Specialist Field Officer will be independently reviewed by an Expert Assessment Panel before approval of a Steering Committee.
- Utilising the same monitoring and evaluation methodology on installed devices as set out in the original business case

Figure 1 provides an overview of the process of engaging and working with landholders through the life of the project. Please note that stages indicate a process stage, not a timeline stage, meaning multiple stages of the process can be delivered at the same time, depending on the landholder situation and the technical implications of the strategic location of sites.

4.2. Implementation Stages

This section and figure 1 provides a brief summary of the activitiy types that would be implementated to deliver the Preferred Targeted Delivery Model. A detailed implementation plan will be developed as part of the project if funding is confirmed. The Business Case and detailed implementation plan will outline in more detail elements of implementing a project of this type, such as establishment of formal governance arrangments, involvement of boards, project management system development, and monitoring and reporting processes. This section aims to provide a high level overview of the role out of the Preferred Targeted Delivery Model.

A key element of the delivery model is working closely with the landholders to obtain as much positive participation and early adoption at strategic locations as possible, and to prepare action plans that suit their situation and circumstances. Gaining this positive participation includes informing the stakeholders that low flows are required to be passed for environmental outcomes with regulatory processes to support the outcome. Outlined below are the key steps that will ensure landholders maintain ownership of the process and outcome, and that DEWNR is able to deliver the project to time, cost and quality standards.

Stage 1 – Prioritisation & Communication

The Flows for the Future Project team will work through the priority management zones in a series of delivery rounds. As a region is targeted by the Program, an intense platform of communications and engagement activities will take place to begin the conversation. This will include collaboration with Industry Representative Bodies and community groups detailing the project rollout in specific areas. This process aims to provide multiple avenues and trusted sources of information to inform landholders of the process. Communication material will include the full range of incentives to participate voluntarily, including the impending addition of low flow requirements on licence conditions.

Technical modelling of strategic locations will occur for each priority management zone being delivered to identify key sites. Further modelling will also take place through the engagement process to link strategic locations with factors such as early adopters, cost of devices and complexity of locations. This will combine to provide, in real time, the best delivery options for the zone.

Stage 2 – Region Meetings and comprehensive strategy

Each landholder in the priority management zone will be invited to attend an information session with their fellow landholders regarding the program. At the meeting details of the project in their region will be summarised. The information sessions will focus on providing information on important stages of the process, including registering interest, accessing assistance, receiving a site assessment, understanding eligible actions, developing an Action Plan, and developing a funding application.

Once landholders have attended an information session, and registered their interest, they are encouraged to ensure they plan their project in a coordinated and collaborative manner within their region.

Stage 3- Contact with Field Officer and Action Plan

A Flows for the Future Specialist Field Officer engaged by DEWNR will visit each property that has registered their interest to participate in the project.

The Specialist Field Officer will work with the landholder and discuss which dams or diversions to include in the plan and what actions are suitable for those dams and diversions to deliver program benefits.

The Specialist Field Officer and landowner will develop an Action Plan which will provide the plans and detailed designs of devices, and a project schedule and timeline. Landholders will be actively involved in the development of options and agreeing on the final design.

Once an Action Plan is finalized and all parties agree, an estimation of project cost will be performed by an independent party.

Stage 4 – Assessment

The action plans will be independently assessed by an Expert Assessment Panel before being approved by the Project Steering Committee.

The catchment benefits of returning flows from each project will also be assessed and data gathered to help with the process of assessing applications against the cost of the project, their strategic location and flows provided. This will ensure strategic location is matched with value for money.

Step 5 – Contracting and Project Delivery

Once the project is approved the Action Plan will form a schedule in the installation agreement, whether it be a Grant Agreement or a Contract with a Service Provider.

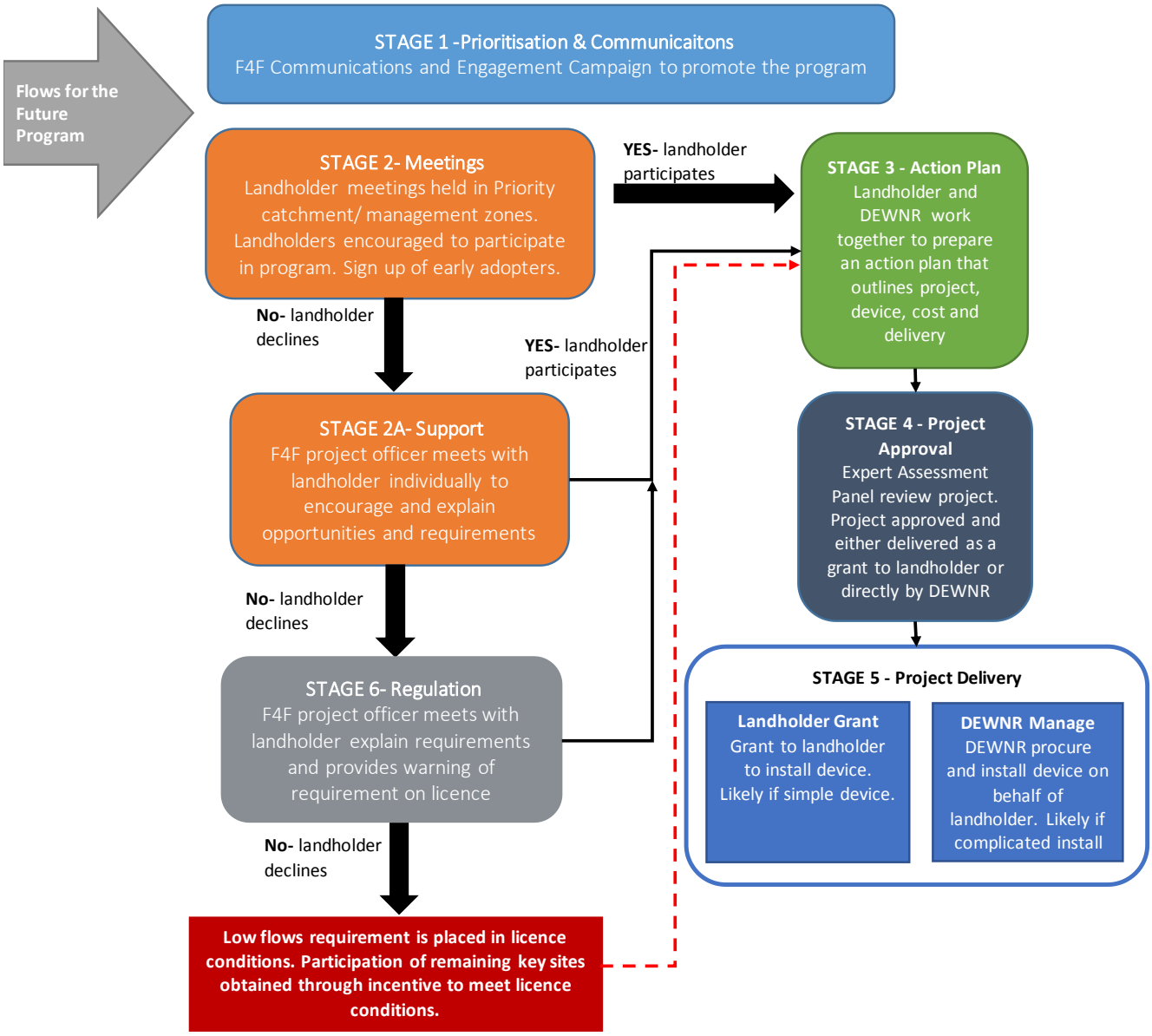
Once the contract has been finalized, the project will either be delivered by the landholder or by DEWNR. This decision is provided as a recommendation within the Action Plan and requires endorsement by the DEWNR Project Manager and the Expert Panel.

Stage 6- Regulatory Tools

Throughout the process landholders will be encouraged to participate in the program. Those who do not indicate willingness will be followed up by the project team in coordination with the relevant Specialist Field Officers to understand their reasoning.

Ultimately however landholders who do not participate in the program will be informed of the process to place the requirement on their water allocation licence (or through the Natural Resources Management Act 2004 Regulations for Stock and Domestic in scope sites). The project will work closely with these landholders to ensure participation in the project is achieved and they are fulfilling their licence requirements.

Figure 1: Flows for the Future Targeted Delivery Model (Note – different stages can occur concurrently)



4.3. Project Implementation

Flows for the Future will be rolled out with the delivery model set out in figure 2.

Figure 3 provides an example of how the project will roll out over a twelve month period. Figure 3 is an example only, with actual delivery processes finalized during project implementation.

Figures 2 and 3 provide a brief summary of how the Preferred Targeted Delivery Model may be implemented. A detailed implementation plan and schedule will be developed as part of the project if funding is confirmed.

4.3.1 Specialist Field Officers

The Australian Government considered that the Voluntary Auction Model provided too great a risk concerning uptake, securing participation from key strategic sites in the project area, and achieving full connectivity of sites through the project region. The Preferred Targeted Delivery Model has been designed to mitigate a considerable amount of those risks, but it will require increased resourcing, particularly in the Specialist Field Officer role.

The Specialist Field Officer role under the Auction model was a technical role to produce Action Plans for willing Landholders. The completion of an Action Plan for each site was estimated at between 1.5 to 3 days, time allocated depending on how many dams were owned by one landholder. The Auction model involved total landholder delivery through Grant Agreements. The Specialist Field Officer role will now expand to include more holistic project delivery activities, particularly if there is a large amount of sites requiring the installation to be project managed by the department.

A Specialist Field Officer will be allocated a priority region to deliver. It is envisaged that each Specialist Field Officer will complete 40 sites in a 12 month period, with the likely process outlined in Figure 3. As a result, to achieve the 110 sites in year one, three Specialist Field Officers will need to be engaged to cover three to five priority project regions. The number of Specialist Field Officers required each year of the project is determined directly by the number of sites to be achieved that year, based on the 40 sites per officer. Priority Project Regions will consist of a number of grouped priority water management zones.

The increased resourcing for the Specialist Field Officer roles is considered critical for successful delivery of the new delivery model, and to mitigate a significant amount of risk associated with project delivery.

4.3.2 Expert Panel

The new model also includes an Expert Assessment Panel (which replaces the Auction Expert in the original Business Case) The Expert Panel is required to review project designs and provide specialist support to finalise Action Plans. This helps mitigate program risks based at the site specific scale, ensuring designs work as they should and to identify risks associated with site complexities. It will include a hydrologist, an engineer and independent specialists relevant to the project.

4.3.3 Stage and Key Activities

Figure 3 provides an example of key stages and activities for implementing the project. The model will be delivered through an iterative process. This includes 'rounds' of delivery focussing on priority zones delivered concurrently, before moving onto the next batch of priority zones and repeating the delivery processes. As a result, figure 3 provides a scenario over a twelve month period, highlighting one 'round' of delivery. In the first year for example, 110 sites is the outcome, which would involve as many priority sites (and rounds of delivery) to achieve that goal. The example in Figure 3 provides an example of one of those 'rounds', or round 1. Rounds delivered during this period currently will have the same activities and stages as stage 1.

Figure 3 also captures a trial engagement process on a limited number of sites that would take place during the very first round of deliveries. This is designed to streamline and prepare the engagement process for delivery

during the major deliver rounds. Any sites that agree to participate in the project during the trial period will have their implementation incorporated as part of the first round's on ground delivery.

4.3.4 Review Points

The initial trial period suggested in Figure 3 relates to testing, streamlining and improvement of the engagement and uptake processes. This will feed improvements into the full delivery of the first round of priority areas. Once the initial round of priority sites have been delivered and devices are installed, a full review of the implementation arrangements will be performed to ensure they are achieving or significantly contributing to the project goals. Review points will be established after each round of priority area delivery is completed to instigate continuous improvement into the program, across the life of the program.

Figure 2: Flows for the Future Delivery Model

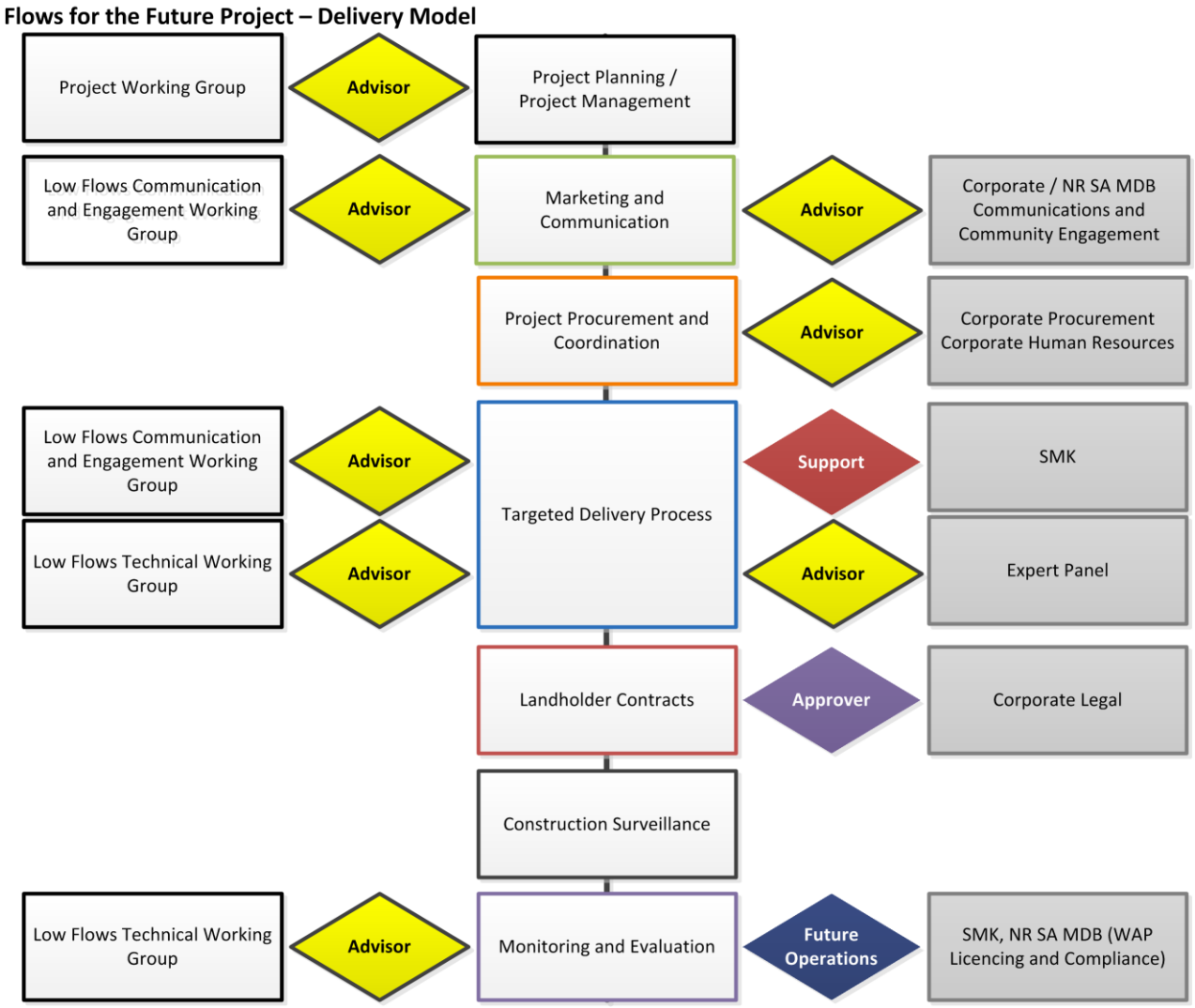
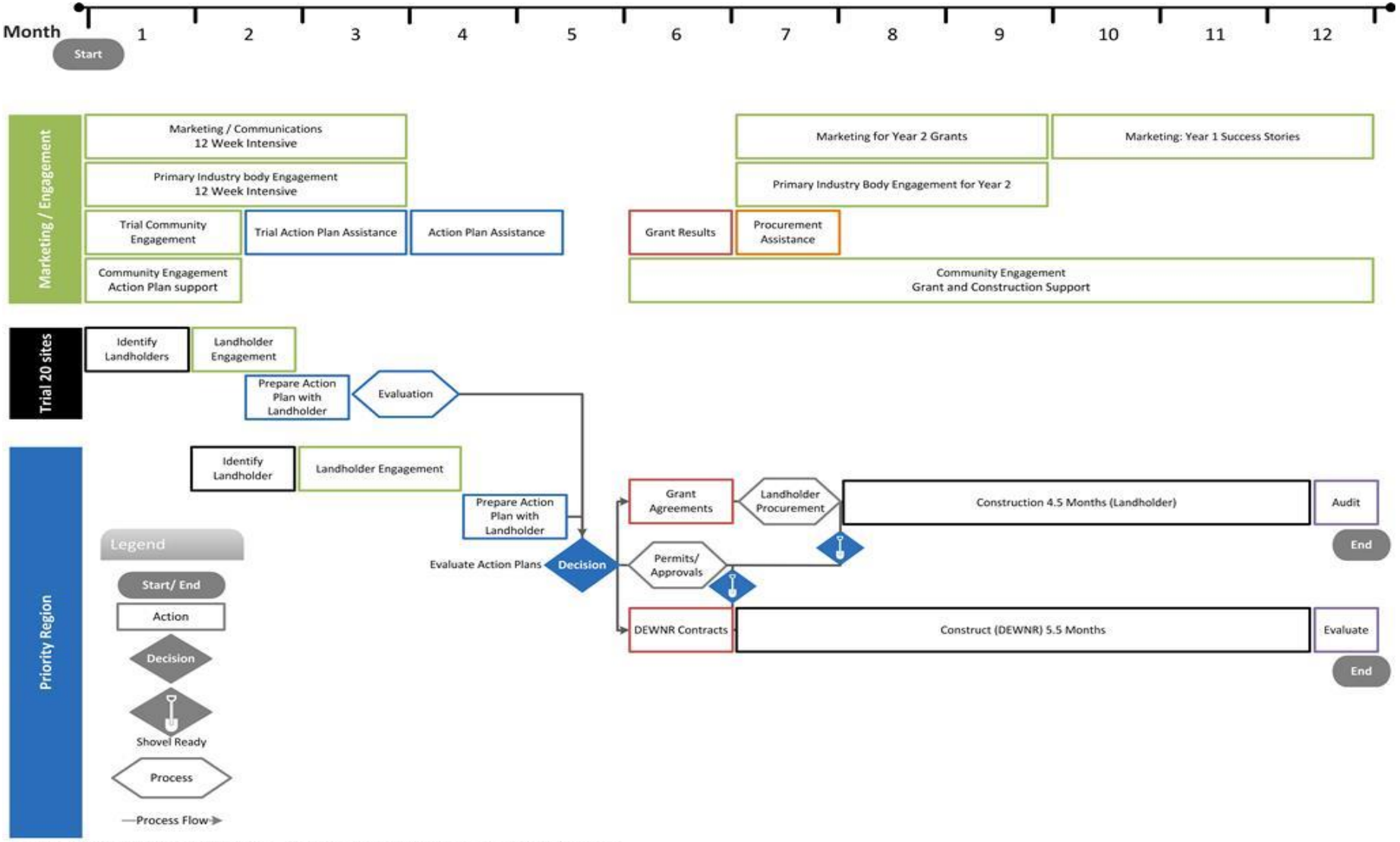


Figure 3- Flows for the Future Stages and Key Activities



Stages and Key Activities

A breakdown of the key activities are outlined below.

Table 3: Flows for the Future Activities

Key Activity	Description	Responsibility	Dependency
Project Management and team development	HR and Procurement - Engage Project Team and delivery contractors	PM	Funding application successful. Department has resources in place to develop specifications and engage team and contractors
Marketing, Communication and Community Engagement	Targeted program of messages and engagement regarding project to maximize participation	PM, C&CE Officer	Appropriate resourcing for strong engagement process
Targeted Delivery Process	Priority zone information sessions, group landholder engagement, individual landholder engagement, Industry Group/Community Organisation engagement, participation achieved, planning & development of Action Plans, approval of Action Plans by all parties, assessment applications, procurement approval.	PM, Project Coordinator, Project Officer, Specialist Field Officers	Timely and adequate resourcing, Project Team construction and operation, engagement. Engagement of Field Officers, development of Expert Panel, Marketing, communications and community engagement activity accomplished with effect.
Contract and Grant Agreements	Grant Agreements and Contracts developed and executed, Grant delivery managed, contract delivery managed, landholder communication maintained	PM, Project Coordinator, Project Officer, Specialist Field Officers	Timely delivery of participation in priority regions and contracting of participants for delivery.
Construction auditing	Auditing of finished devices against Action Plan specifications and Grant Agreement/Contract.	PM, Project Coordinator, MEA&R Officer, Specialist Field Officers	Timely engagement of participants and execution of Grant Agreements/Contracts to deliver installation of devices.
Monitoring, Evaluation and Reporting	Surface Hydrology monitoring, Ecological response monitoring and program delivery and Australian Government reporting.	PM, Project Coordinator, MEA&R Officer	Timely delivery of devices installed. Appropriate resourcing for appropriate contracting, monitoring and audit services.

5. Financial Estimates

5.1. Investment Model

The *Flows for the Future* Targeted Delivery Model will require a total investment of [redacted] million over six years. This represents an increase of [redacted] from the original investment outlined within the Business Case. This increase is a direct result of the new model requiring significant resourcing to mitigate the risks identified by the Australian Government. The Preferred Targeted Delivery Model requires an increase in project support (field officers) and management, as well as the establishment of an Expert Panel. Table 4 provides a comparison of the original investment and the new investment.

Table 4: **Budgets for both models broken into activity components**

	Auction Model			**Targeted Model**	
Project Component	**SPP Total**	**SDL Total**		**SPP Total**	**SDL Total**
Project Delivery/Technical Requirements	[redacted]				
Construction/Installation Grants					
Project Management					
Total					

Consistent with the SA-09 schedule and with the Murray Futures Program arrangements, cost sharing arrangements in the budget are split on the basis of 90:10 ratio (Australian Government: State Government). The SDL component is funded 100% by the Australian Government.

The SA Government acknowledges that the provision of funding for the implementation of the *Flows for the Future* project does not give rise to any Australian Government obligation to fund any other proposals or expenditure arising from or in relation to the project.

Funding for the three year period from 2016/17 until 2018/19 of [redacted] is sought from the Australian Government through the State Priority Project stream with [redacted] provided by the State Government to implement the preferred option of the *Flows for the Future* project.

Funding for the three year period from 2019/20 until 2021/22 of [redacted] sought from the Australian Government through the Sustainable Diversion Limits stream.

The proposed project expenditure assumes implementation and delivery of the *Flows for the Future* project over six years from 1 July 2016 to 30 June 2022 to provide consistency with information in the Business Case. Alternative dates and delivery outcomes will need to be considered if approval of the project is delayed significantly.

A rounded investment budget is provided in Table 5 below.

Table 5: Project investment

Organisation			**Total**
	SPP Total	**SDL Total**	**TOTAL**
SA Government	[redacted]		
Australian Government			
TOTAL PROJECT IMPLEMENTATION COSTS			

In addition to the funding set out in Table 5 (above), there is considerable in kind provided by the SA Government and regional communities. This is set out in Table 6 below.

Table 6: Other contributions to the project outcomes

IN-KIND ($)	2016/17	2018/18	2018/19	SPP TOTAL	2019/20	2020/21	2021/22	SDL TOTAL	SPP & SDL TOTAL
DEWNR - Regional Water Allocation expertise provided in support of project									
DEWNR - In kind contribution of long term compliance and auditing									
DEWNR – In kind contribution of long term monitoring and evaluation of hydrological and ecological changes from project (after project completion)									
Community - Estimated value of landholder in-kind contribution to development and implementation of flow infrastructure at $500 per dam									
Community - Operations and Maintenance in kind contributions by the landholder in the long term (calculated at $9,000 per device over 15 year period) for 1,100 devices.									
TOTAL IN-KIND CONTRIBUTIONS									

5.2. Budget Calculations

The Preferred Targeted Delivery Model requires a budget that reflects the resourcing required to deliver a more intense and focussed program. The Preferred Targeted Delivery Model budget has a focus on Specialist Field Officer resourcing and supporting the establishment and operation of an Expert Panel. As these are the primary additions of significance, they are described below. Budget lines containing no or minimal change from the Auction model have not been described in detail in this Addendum, as this information is provided in the Business Case.

The Targeted Delivery Model proposed budget is provided in Table 7.

5.2.1 Specialist Field Officers

The budget for this line was calculated by estimating how long an individual project would take to deliver from start to finish (from first meeting and negotiations, to Action Plan development, procurement/grant development, installation/construction, and closeout). This is calculated to be one week per site and it was considered that one Specialist Field Officer could manage 40 sites in one calendar year. The amount of sites proposed to be delivered each year was then divided by 40 to produce the number of FTE's required.

5.2.2 Project Officer Implementation - SDL

This role in the Auction Model was not funded in the SDL period from 2019/20 – 2021/22 to deliver the program as there are fewer sites to deliver under in that period. As already stated, the Targeted Model presents a much higher resourcing need to ensure success and this role was considered important on the final three years of the project to ensure uptake at difficult sites. It is envisaged this will be a trouble shooting role which will focus on sites proving a challenge to complete in the initial project period, and ensure they successfully deliver low flows as part of Flows for the Future.

Part 6- Financial Estimates

Table 7: Targeted Delivery Model Budget

Project Component SPP & SDL Six Year Budget	SPP				SDL				ENTIRE PROJECT
Financial Year	**16/17**	**17/18**	**18/19**	**SPP TOTAL**	**19/20**	**20/21**	**21/22**	**SDL TOTAL**	
Project Sites	**110**	**340**	**230**	**680**	**220**	**130**	**70**	**420**	**1100**
Project Delivery/Technical Requirements - TOTAL	[redacted]								
Expert Panel - review & assessment of action plan feasibililt									
Specialist Field Officers to support collaborative design with Landholder and develop project site plan (technical advice and Monitoring)									
Hydrologist - Strategic Location and catchment investigations to support Targeted Delivery									
Engineer - innovation review and design approval									
Probity support									
Communications and Community Engagement Officer									
Monitoring and Evaluation, Auditing and Reporting Officer									
Ecological and surface flow monitoring analysis and modellin									
Low Flow contract installation and construction Audit									
Communications and Community Engagement Activities									
Heritage Assessments									
Legal and Approvals									
Monitoring and evaluation infrastructure and field activities									
Project database development									
Construction and Installation of Devices Payments									
Project Management - TOTAL									
Project Manager									
Senior Project Officer Implementation									
Project Officer Implementation									
Contract Management and Procurement Support Officer									
Project Audit Fees									
TOTAL									

Table 8: Full Time Equivalents in New Targeted Delivery Model

	2016-17	2017-18	2018-19	SPP Total	2019-20	2020-21	2021-22	SDL Total
Project Delivery / Technical Requirements								
Specialist Field Officers	[redacted]							
Community Engagement								
M&E and Audit Officer								
Project Management								
Project Manager								
Senior Project Manager – Implementation								
Project Officer – Implementation								
Contract Management Support Officer								
TOTAL								

Note: ***Auction Model*** *funded* [redacted] *FTE Field Officers under SPP and* [redacted] *FTE Field Officers under SDL*

6. Identification and Management of Risks

6.1. Process of identifying risks

A comprehensive analysis of risks for the project delivery have assessed by DEWNR using the *DEWNR Risk Management Procedure* (Ref: DEWNR 84/2039). This is guided by the DEWNR Risk Management Policy, SA Government Risk Management Policy (November 2009) and AS/NZS ISO 31000:2009 Risk Management – Principles and Guidelines.

Risks for the project are summarized in a risk register that has been developed based on 'risk workshops' with members of the project working group. The register will be maintained by the Project Manager and quarterly updates will be conducted in 'risk review workshops' with the project team and selected key stakeholders.

Risks from Contractors providing goods and services to DEWNR for the project are identified and managed during the DEWNR Procurement and Contract Management Process and entered into the project risk register and the DEWNR Risk Register.

The project risk register includes a description of, the cause, risk and consequences and then uses the risk matrix below with defined metrics for likelihood and consequence to analyse and rate the severity of the risks.

Table 9: Risk Register Categories

Likelihood / Consequence	(1) Insignificant	(2) Minor	(3) Moderate	(4) Major	(5) Severe
(A) Almost certain	Low	Medium	High	Extreme	Extreme
(B) Likely	Low	Medium	High	High	Extreme
(C) Possible	Low	Medium	Medium	High	Extreme
(D) Unlikely	Low	Low	Medium	Medium	High
(E) Rare	Low	Low	Low	Medium	Medium

Risks are described in two ways, firstly as a raw risk (with no controls in place) and residual risk (with risk treatment). Risk owners are identified and existing DEWNR risk management is described and for high and extreme rated raw risks, responsibility for project specific risk treatments are assigned, and the risk treatments are implemented and monitored.

The strategies for this risk treatment in order of preference are to avoid, reduce or transfer risk.

The Risk Register containing treatment plans and residual risk is highlighted in Table 10.

Table 10: Risks Register update

Corporate and Government Risk

Commonwealth Engagement	**Project Team: Inadequate monitoring and evaluation** to demonstrate the benefits of the project results in reputational damage with the Australian Government	Corporate and Government	Unclear definition of project objectives outcomes baseline conditions Measurement methods Targets / KPIs	(C) Possible	Moderate (3)	Medium	**2. Monitoring and Evaluation Plan is well designed** to enable measurement of benefits, flexible to allow adaptive management, and provide justification of how threshold flows are calculated and critical sites selected. Monitoring and evaluation includes collection of baseline data and the needs of Australian Government reporting.	(D) Unlikely	Minor (2)	Low
Project Management	**Conflict between project stakeholders** which results in delays to the project and not fully achieving project outcomes.	Corporate and Government	Competing interests between stakeholders, reluctance of some landholders to participate in project.	(A) Almost certain	Moderate (3)	High	**3. Governance arrangements include representatives from project stakeholders** and has defined project roles for support, advisor, endorser, approver and investor. Engagement early with industry bodies to form a collaborative network of credible representatives advising landholders. Participation tools identified and communicated clearly at start of project to compel voluntary participation.	(C) Possible	Moderate (3)	Medium

Health, Safety and Welfare

Construction	**Construction Contractor: Injury** to person during construction works	Health, Safety and Welfare of staff and the community	Car accident Earthmoving machinery Power supply Power tool / hand tool Slips / Trips / Fall Drowning	(B) Likely	Moderate (3)	High	**17. Grant conditions require that the Landholder is responsible for WHS on their site and Construction Contractor must prepare a risk assessment for the landholder and conducts works in accordance with it** and amends it if risk levels or hazards change,	(C) Possible	Moderate (3)	Medium
Construction	**Project Team: Injury** to project team member during site visit	Health, Safety and Welfare of staff and the community	Car accident Slips / Trips / Fall Drowning	(B) Likely	Moderate (3)	High	**18. Site visits are conducted by Agency staff using Agency WHS procedures** including a project travel plan and site visit risk assessment. Contractors conducting site visits for DEWNR are required to prepare and their staff to adhere to their WHS plan.	(C) Possible	Minor (2)	Medium

Operational

Human Resources	**Project Team: Changes in key project team members** which results in delays delivery of the project and loss of Corporate knowledge.	Operational (business performance and service delivery)	Project Team: Inability to retain key staff	(C) Possible	Moderate (3)	Medium	**19. Liaison with Agency Human Resources and Finance as well as Treasury** to secure project resourcing requirements efficiently and retain for the duration of the project. Adequately resource project to protect against burnout, stress and unrealistic expectations on staff.	(D) Unlikely	Minor (2)	Low
Human Resources	**Project Team: Insufficient time to recruit project team** which results in delays to the delivery of the project.	Operational (business performance and service delivery)	Recruitment follows Agency recruitment process	(C) Possible	Moderate (3)	Medium	**19. Liaison with Agency Human Resources and Finance as well as Treasury** to secure project resourcing requirements efficiently and retain for the duration of the project. Project team structure developed as part of implementation plan in Business Case to support rapid mobilisation.	(D) Unlikely	Moderate (3)	Medium

Part 6- Identification & Management of Risks

Environmental

Delivery	**Landholders**: **Construction costs for designs are higher than anticipated** which results in less sites being able to be constructed and desired environmental outcomes not being achieved.	Environment	The cost of devices is higher than expected. Inflation increases more than expected and construction costs significantly increase during the project. Construction market competition increases costs.	(C) Possible	Major (4)	High	**4. Promotion of landholders** to complete simple projects themselves to reduce costs. Utilise efficiencies and procurement power to gain price reductions (competitive costings) by purchasing device installation through bulk orders. Engage service providers early in project before on ground delivery begins to prepare them for the increase in business needs through the project. Preparing the market for the project should reduce any price increases due to sudden increase in services from an un prepared market. Benchmark actual costs of construction from trial sites in the Mt Lofty Ranges in the Securing Low Flows Project.	(D) Unlikely	Moderate (3)	Medium
Delivery	**Landholders**: **Non-participation of particular landholders prevents critical sites being constructed** and results in low flows not occurring downstream and environmental outcomes not being achieved.	Environment	Landholders unaware. Landholders don't understand the reason for low flows. Barriers to participations, such as landholder capacity Landholders unwilling take on O&M of new asset. Landholders don't link water allocation with low flow diversion. Dry spring and summer decreases participation. Trial site success not finalised. Landholder expectations differ from project outcomes. Landholders upset about having to install water meters and pay water levies recently	(B) Likely	Major (4)	High	**5. Promotion of the project and funding with landholders and key stakeholders (Marketing and Community Engagement Plan)** including advertising, community meetings, individual landholder meetings at all critical sites, visits to trial sites to encourage participation and communicate realistic outcomes, engaging industry groups and representatives. **Participation tools** Promotion of landholder incentive on retaining water allocation by providing low flows. Informing the landholder of the licence and NRM Regulation tools being enacted on in scope sites. **Evaluation** of the effectiveness of project promotion.	(C) Possible	Moderate (3)	Medium
Landholder Engagement	**Industry Groups / Landholders: Not supportive of the project and don't want to install devices on their dams**. Results in grants that are not able to be fully provided to landholders.	Environment	Landholders unaware. Landholders unwilling take on O&M of new asset. Landholders don't link water allocation with low flow diversion. Landholder expectations differ from project outcomes. Industry groups not engaged effectively.	(B) Likely	Major (4)	High	**6. Promotion of the benefits of low flows and the upcoming Project with landholders and industry groups (Marketing and Community Engagement Plan)** including advertising, community meetings, individual landholder meetings to encourage participation. Project evaluation includes weighting bids from landholders based on the relative ecological importance of the dams and the catchment level effect of non-participation. **Participation tools** Promotion of landholder incentive on retaining water allocation by providing low flows. Informing the landholder of the licence and NRM Regulation tools being enacted on in scope sites.	(C) Possible	Moderate (3)	Medium
Delivery	**Landholders**: **Contractor or landholder risk costs are higher than anticipated** resulting in less sites being able to be constructed and all of the desired environmental outcomes being achieved.	Environment	Ground conditions are unknown, Weather conditions are unknown, Number of contractors is limited, early projects come with greater unknowns.	(C) Possible	Major (4)	High	**7. Provide landholders with clarity of scope** including: Location of device(s) and functional design requirements Materials requirements and geotechnical investigation requirements through a fully engaging Action Plan process. Develop plans on how to manage delays from wet weather and poor access during works. Negotiate efficiencies in supply market by engaging suppliers on multiple sites.	(D) Unlikely	Minor (2)	Low

Part 6- Identification & Management of Risks

Reputation

Landholder Engagement	**Project Team: Inadequate monitoring and evaluation to demonstrate the benefits of the project** results in reputational damage with landholders and the community particularly for the EMLR WAP	Reputation	Landholders unwilling take on O&M of new asset. Landholders don't link water allocation with low flow diversion. Landholder expectations differ from project outcomes. DEWNR does not develop a monitoring and evaluation plan.	(B) Likely	Moderate (3)	High	**2. Monitoring and Evaluation Plan developed and is well designed** to enable measurement of benefits, flexible to allow adaptive management, and provide justification of how threshold flows are calculated and critical sites selected. Monitoring and evaluation includes collection of baseline data.	(D) Unlikely	Minor (2)	Low
Delivery	**Industry Groups oppose the project** and results in negative media reports and community concern about the project	Reputation	Landholders unwilling take on O&M of new asset. Landholders don't link water allocation with low flow diversion. Trial site success not finalised. (science not proven) Landholder expectations differ from project outcomes. Landholders upset about having to install water meters and pay water levies recently	(B) Likely	Moderate (3)	High	**6. Promotion of the benefits of low flows and the upcoming project with landholders, industry groups and journalists (Marketing and Community Engagement Plan)** including advertising, community meetings, individual landholder meetings, site visits to Clare and Barossa Valley to encourage participation. Engage directly and regularly with industry groups to build strong relationship to leverage off.	(C) Possible	Moderate (3)	Medium
Delivery	**Landholders: Voluntary participants are not in a Strategic Location and not funded,** resulting in landholders that no longer support the project.	Reputation	Landholder project is not competitive from a cost point. Site is not a critical site identified by Strategic Location work. Landholder effort to voluntarily participate. .	(A) Almost certain	Minor (2)	Medium	**1. Preparation of sites** not identified as a strategic location, but assessed through developed criteria to provide significant benefits to the overall outcome of the project will be funded. This may be in the form of a high profile 'champion landholder' or a site located with high visibility to promote program.	(D) Unlikely	Minor (2)	Low

Part 6- Identification & Management of Risks

Financial

Landholder Engagement	**Communications: Promotion of project does not generate enough landholder interest** resulting in lower than desired voluntary participation at critical sites.	Financial	Landholders unaware. Barriers to participation (landholder capacity, project understanding) Landholders unwilling take on O&M of new asset. Landholders don't link water allocation with low flow diversion. Dry spring and summer decreases participation. Trial site success not finalised. Landholder expectations differ from project outcomes. Landholders upset about having to install water meters and pay water levies recently	(B) Likely	Major (4)	High	**5. Promotion of the project and funding with landholders and key stakeholders (Marketing and Community Engagement Plan)** including advertising, community meetings, individual landholder meetings at all critical sites, visits to trial sites to encourage participation and communicate realistic outcomes, engaging industry groups and representatives. **Participation tools** Promotion of landholder incentive on retaining water allocation by providing low flows. Informing the landholder of the licence and NRM Regulation tools being enacted on in scope sites. **Evaluation** of the effectiveness of project promotion.	(C) Possible	Moderate (3)	Medium
Construction	**Contractors: Not enough skilled contractors in the market to manage the peak construction workload** resulting in funds not able to be provided to finalise projects.	Financial	Number of project sites to be competed in the three year funding window. Market unprepared for rapid increase in service requirement as a result of project funding.	(C) Possible	Major (4)	High	**8. A Contractor EOI process in advance of first delivery round to give the market visibility of the project** and of future revenue and enable it to prepare to support Landholders in delivery.	(C) Possible	Minor (2)	Medium
Landholder Engagement	**Landholders: Promoting funding releases and success stories from first priority areas does not increase participation in later delivery areas** resulting in lower than desired voluntary participation at critical sites.	Financial	Landholders unaware. Landholders unwilling take on O&M of new asset. Landholders don't link water allocation with low flow diversion. Landholder expectations differ from project outcomes.	(C) Possible	Major (4)	High	**9. Promotion of success with landholders after initial delivery rounds in priority areas.** (Marketing and Community Engagement Plan) including advertising, community meetings, individual landholder meetings to encourage participation in project, communicate realistic project outcomes, utilise success stories from earlier project areas, landholder champions. **Evaluation** of the effectiveness of success story promotion. Communicate the message that low flows are required to be passed.	(D) Unlikely	Minor (2)	Low
Construction	**Landholders/contractors: Take longer than allowed to complete construction in each of the stages** results in final expenditure for the project being delayed and funding that is not expended.	Financial	Fixed project end date and number of sites. Weather and seasonal impacts. Complexity of individual project sites. Scale of site in project timeline	(B) Likely	Major (4)	High	**10. Project schedule is resourced and benchmarked** with the Securing Low Flows project and other regional environmental projects. Clear Action Plans are developed with strict timelines based on project needs and site specific installation requirements.	(C) Possible	Minor (2)	Medium

Part 6- Identification & Management of Risks

Human Resources	**Project Team: The project does not have enough resources to manage the peak project workload** resulting in funds not paid in a timely manner for completed works or able to be fully provided to landholders who want to participate.	Financial	Number of project sites to be completed in project timeframes. Project not resourced appropriately to consider high amount of individual sites and landholders that require negotiation to participate and development of action plans.	(C) Possible	Major (4)	High	**10. Project schedule is resourced and benchmarked** with the Securing Low Flows project and other regional environmental projects. Clear Action Plans are developed with strict timelines based on project needs and site specific installation requirements. Adequate budget for resourcing of staff to ensure complex and high volume/medium contract project delivery is supported effectively.	(D) Unlikely	Minor (2)	Low
Project Management	**Project Team: Not enough time allowed or resources provided for landholder engagement and sign up** by the project team results in delays in delivery to later project regions and funds that are not able to be fully provided to landholders or contractors.	Financial	Number of project sites to be completed in project timeframes. Project not resourced appropriately to consider high amount of individual sites and landholders that require negotiation to participate and development of action plans.	(B) Likely	Moderate (3)	High	**10. Project schedule is resourced and benchmarked** with the Securing Low Flows project and other regional environmental projects. Clear Action Plans are developed with strict timelines based on project needs and site specific installation requirements. Adequate budget for resourcing of staff to ensure complex and high volume/medium contract project delivery is supported effectively.	(D) Unlikely	Minor (2)	Low
Human Resources	**Project Team or Contractors**: **Too many sites** are being attempted in the available time results in higher costs per site or grants that are not able to be fully provided to landholders.	Financial	Fixed project end date 30 Jun 2019 and number of individual sites, landholders and suppliers to engage to achieve project outcomes..	(B) Likely	Major (4)	High	**11. Project team includes internal resources and procuring Contractors to meet project delivery peaks** expected prior to delivery, and during construction. Thorough planning of project delivery and engagement of service provider market early in project to prepare for increase in demand. Resource project team appropriately for a resource intense project consisting of a high number of project sites and therefore landholder and supplier negotiations.	(C) Possible	Minor (2)	Medium
Human Resources	**Project Team: Running multiple priority regions and construction processes in parallel can not be achieved** and results in funds that are not able to be fully provided to project sites.	Financial	Fixed project end date 30 Jun 2019 and number of individual sites, landholders and suppliers to engage to achieve project outcomes..	(B) Likely	Major (4)	High	**11. Project team includes internal resources and procuring Contractors to meet project delivery peaks** expected prior to delivery, and during construction. Thorough planning of project delivery and engagement of service provider market early in project to prepare for increase in demand. Resource project team appropriately for a resource intense project consisting of a high number of project sites and therefore landholder and supplier negotiations.	(C) Possible	Minor (2)	Medium

Part 6- Identification & Management of Risks

Procurement	**Project Team: Not able to mobilise the required project team** quickly enough results in delays to delivery and funds that are not able to be fully provided.	Financial	Need to comply with DEWNR Procurement and Human Resources processes	(B) Likely	Major (4)	High	**12. Prioritisation of the procurement of the project team and then the Contractors** required to promote the first delivery round, engage with landholders to support the project and prepare engagement and conduct the first meetings and delivery. HR needs identified as part of Business Case Implementation Plan providing rapid response capability if funding won.	(C) Possible	Minor (2)	Medium
Procurement	**Project Team: Not enough time for Contractor procurement** and delays delivery resulting in funds that are not able to be fully provided to projects.	Financial	Need to comply with DEWNR Procurement and Human Resources processes	(B) Likely	Major (4)	High	**12. Prioritisation of the procurement the Contractors** required to promote the first delivery round, engage with landholders to support the project and prepare engagement and conduct the first meetings and delivery. HR needs identified as part of Business Case Implementation Plan providing rapid response capability if funding won.	(D) Unlikely	Minor (2)	Low
Design	**Project Team: Technical uncertainty causes too many sites being attempted for delivery** and results in non critical sites being constructed and expenditure that is not efficient	Financial	Number of project sites to be competed in the three year funding window. Complexity of individual sites will differ.	(C) Possible	Moderate (3)	Medium	**13. Reducing technical uncertainty** by providing qualified and trained field officers to develop an agreed Action Plan using best available data, defendable and consistent modelling for ecological importance, hydrology and hydraulics, and engineering. **2. Monitoring and Evaluation Plan is well designed** to enable measurement of benefits, flexible to allow adaptive management, and provide justification of how threshold flows are calculated and critical sites selected. Monitoring and evaluation includes collection of baseline data.	(E) Rare	Moderate (3)	Low
Delivery	**Landholders: Poor rate of voluntary participation in early priority areas results in more intense use of participation tools, causing delays and less sites being able to be constructed** and grants that are not able to be fully provided to landholders.	Financial	Landholders unaware. Landholders don't understand the reason for low flows. Barriers to participations, such as landholder capacity Landholders unwilling take on O&M of new asset. Landholders don't link water allocation with low flow diversion. Dry spring and summer decreases participation. Trial site success not finalised. Landholder expectations differ from project outcomes. Landholders upset about having to install water meters and pay water levies recently	(B) Likely	Major (4)	High	**5. Promotion of the project and funding with landholders and key stakeholders (Marketing and Community Engagement Plan)** including advertising, community meetings, individual landholder meetings at all critical sites, visits to trial sites to encourage participation and communicate realistic outcomes, engaging industry groups and representatives. **Participation tools** Promotion of landholder incentive on retaining water allocation by providing low flows. Informing the landholder clearly and early of the licence and NRM Regulation tools being enacted on in scope sites. **Evaluation** of the effectiveness of project promotion.	(C) Possible	Moderate (3)	Medium

Part 6- Identification & Management of Risks

Design	**Construction Contractors: Poor quality materials** used, results in repairs or replacement required.	Financial	Inadequate functional or technical specification	(B) Likely	Major (4)	High	**14. Design Information provided to landholders in Action Plan will be used by Contractors for minimum material quality** including referencing relevant Australian Standards. DEWNR will conduct construction surveillance audits of completed sites to confirm that materials and workmanship are acceptable.	(D) Unlikely	Minor (2)	Low
Construction	**Construction Contractors: Poor quality construction workmanship** results in repairs or replacement being required.	Financial	Workmanship standards not defined. Inadequate supervision.	(B) Likely	Major (4)	High	**14. Design Information provided to landholders in Action Plan will be used by Contractors for minimum material quality** including referencing relevant Australian Standards. DEWNR will conduct construction surveillance audits of completed sites to confirm that materials and workmanship are acceptable.	(D) Unlikely	Minor (2)	Low
Design	**DEWNR: Design risk is not passed on to supplier** resulting in increased costs from modifications, repairs or replacement.	Financial	Inadequate scope of work in Action Plan and contract conditions.	(C) Possible	Major (4)	High	**15. Landholder contracts to pass on design risk to suppliers** including costs for modifications, repairs or replacement. **DEWNR defines functional design requirements through a clear Action Plan** including threshold flow rate for each dam and suitable options from design library.	(D) Unlikely	Minor (2)	Low
Construction	**DEWNR: Geotechnical and construction risk is not passed on to supplier** resulting in increased costs from modifications, repairs or replacement.	Financial	Inadequate scope of work in Action Plan and contract conditions.	(C) Possible	Major (4)	High	**16. Contracts to pass on geotechnical and construction risk to supplier** including costs from groundworks, dewatering, wet weather and access difficulties.	(D) Unlikely	Minor (2)	Low
Delivery	**Landholders**: **Construction costs for designs are higher than anticipated** which results in less sites being able to be constructed and cost over-run to achieve desired environmental outcomes.	Financial	The price of devices is higher than expected. Inflation increases more than expected and construction costs significantly during the project. Construction market competition increases costs.	(C) Possible	Moderate (3)	Medium	4. **Promotion of landholders** to complete simple projects themselves to reduce costs. Utilise efficiencies and procurement power to gain price reductions (competitive costings) by purchasing device installation through bulk orders. Benchmark actual costs of construction from trial sites in the Mt Lofty Ranges in the Securing Low Flows Project.	(D) Unlikely	Moderate (3)	Medium

6.2. Additional SDL Risks

Risk and Consequence Description	Category	Cause	RAW Likelihood	RAW Consequence	Raw Risk	Risk Treatment Plan / Monitoring	Managed Likelihood	Managed Consequence	Residual Risk
Low flow device failing or not operated and maintained effectively results in threshold flow diversion not occurring.	Operational (business performance and service delivery)	Semi-automated systems not set up by landholders prior to events (i.e. priming siphons, re-fuelling	(B) Likely	Moderate (3)	High	**21. Licence conditions mandating landholder operation and regular maintenance.** DEWNR monitoring flows throughout each catchment. Inspections to verify diversions are operating. Enforcement by DEWNR of the NRM Act against licensees for non-compliance.	(D) Unlikely	Moderate (3)	Medium
Manually operated systems not operated correctly by landholder(s) and results in threshold flow diversion not occurring.	Operational (business performance and service delivery)	Landholder not present/awake when event occurs Landholder error Deliberate non-operation	(A) Almost certain	Moderate (3)	High	**22. Licence conditions mandating landholder operation and regular maintenance** DEWNR monitoring flows throughout each catchment with inspections to verify diversions are operating Enforcement by DEWNR against licensees for non-compliance.	(C) Possible	Moderate (3)	Medium
Failure of one or more diversion in a catchment results in threshold flow diversion not occurring downstream to (Water Dependant Ecosystem)	Environment	Vandalism Stock damage Lightning strike Floods Bushfires Falling tree limbs	(A) Almost certain	Moderate (3)	High	**23. Landholders to include fencing or other barriers in their design or accepting risk of damage.** Licence conditions mandating landholder operation and regular maintenance DEWNR monitoring flows throughout each catchment with inspections to verify diversions are operating DEWNR monitoring condition of WDE. Enforcement by DEWNR against licensees for non-compliance. Asset is handovered to landholder and security and insurance for new assets is their responsibility.	(C) Possible	Moderate (3)	Medium
Threshold diversions causes contamination in the catchment to be spread downstream which results in damage to critical sites.	Environment	Increased connectivity of the catchment	(C) Possible	Moderate (3)	Medium	24. **Landholder general environmental duty** under Environment Protection Act to contain spills at source and perform clean-up, which is enforced by SAEPA	(C) Possible	Moderate (3)	Medium

Eastern Mount Lofty Ranges Flows for the Future Project

Sustainable Diversion Limit Adjustment Supply Measure

ADDENDUM

Providing additional information to support the Phase 2 Submission

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Department of Environment, Water and Natural Resources

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CONTENTS

1. Eastern Mount Lofty Ranges Flows for the Future Project

The Eastern Mount Lofty Ranges (EMLR) Flows for the Future (F4F) Project aims to deliver low flow diversions over six years to 1100 sites across the EMLR and return an additional 1.6 gigalitres (GL) on average per year to the EMLR system and up to 1.3 GL on average per year to Lake Alexandrina. Low flows are naturally occurring, regular, small flow events that are a part of the annual water pattern of a catchment. They are described in the State Priority Project funded (SPP) F4F Business Case (March 2016) as a small, but essential fraction of water that needs to flow across land through watercourses to maintain natural process and catchment health.

The first three years of the F4F project will be funded through South Australia's SPP funding until the completion of that funding program in June 2019. To ensure the maximum outcomes of the F4F program are achieved, including the additional inflows to Lake Alexandrina, the final three years of implementation funding is being sought from the Sustainable Diversion Limit (SDL) Adjustment Mechanism.

Since the submission of the Sustainable Diversion Limit (SDL) Adjustment Supply Measure Phase 2 Submission (March 2016) to the SDL Adjustment Assessment Committee (SDLAAC), there has been a change to the overall program delivery model, number of sites to be targeted and the estimated costs as a result of the Commonwealth's final due diligence assessment of the Addendum to SPP F4F Business Case (August 2016).

The purpose of this document is to outline the changes to the SDL Adjustment Supply Measure Phase 2 Submission (March 2016). This addendum should be read in conjunction with the original SDL Adjustment Supply Measure Phase 2 Submission (March 2016), the SPP F4F Business Case (March 2016) and the Addendum to SPP F4F Business Case (August 2016).

Table 1 outlines the elements of the that have changed against the Phase 2 SDL assessment criteria and with reference to the SDL Adjustment Supply Measure Phase 2 Submission (March 2016)

Figure 1 provides a map of the Eastern Mount Lofty Ranges Prescribed Water Resource Area (PWRA) and the Marne Saunders PWRA.

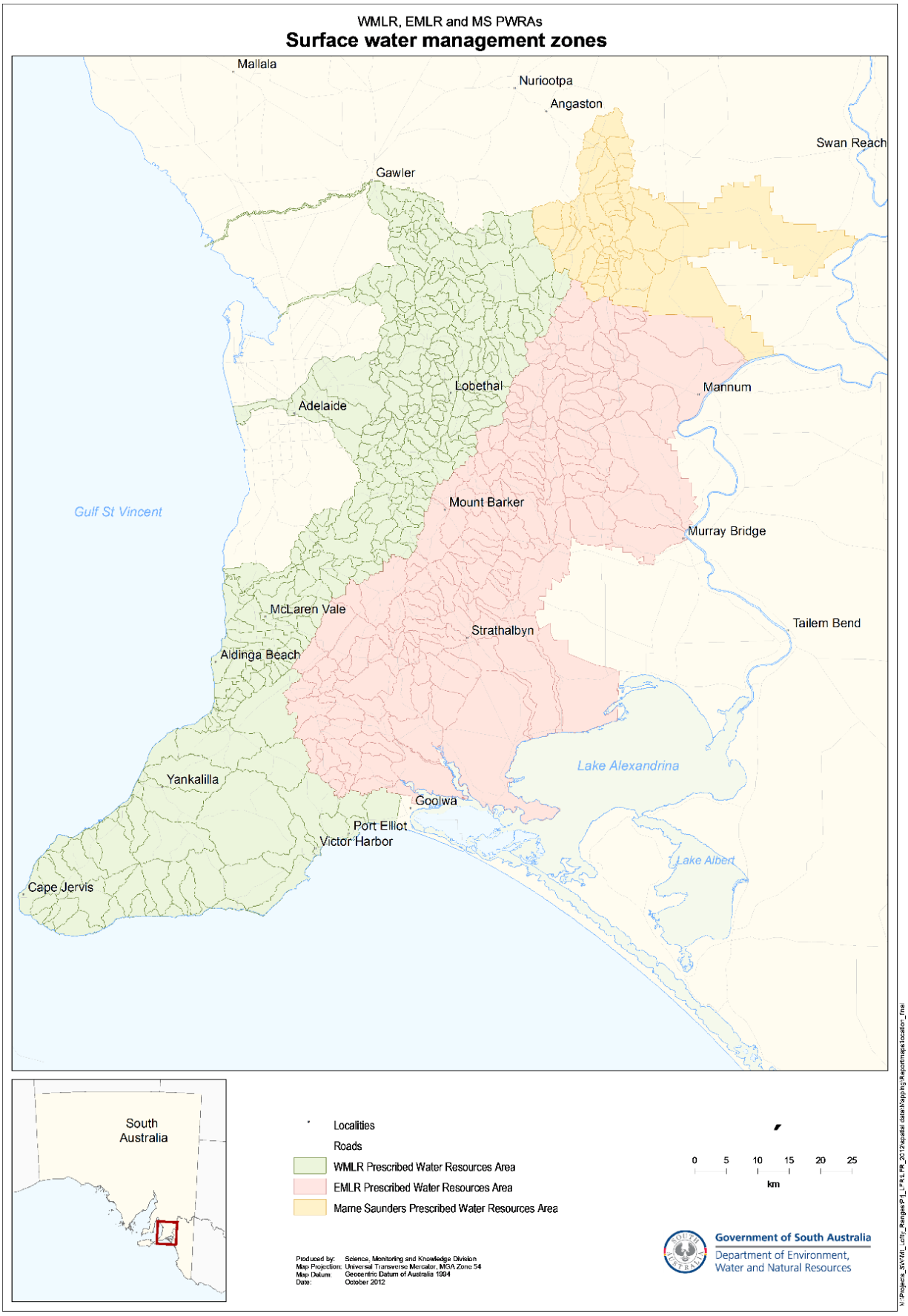

Figure 1: Mount Lofty Ranges PWRA surface water catchments

Table 1: **SDL Evaluation Criteria**	**SDL Guideline Reference**	**Relevant document and section of document**	
		SDL Adjustment Supply Measure Phase 2 Submission (March 2016)	**Addendum SDL Adjustment Supply Measure Phase 2 Submission**
Eligibility	Section 3	SDL - Section 3	No change
Project Details	Section 4.1	SDL - Section 2 refers to sections 3, 4, 5, 6, 8, 9 and 10 of the SPP F4F Business Case (March 2016). (NB the SDL adjustment submission only provides summary details with the detail in the SPP business case)	There has been a change to the Delivery Model and Project Scope. See sections 2.1 – 2.2 of this document.
Ecological values of the site	Section 4.2	SDL – refers to Sections 2.3 and 2.4 of the SPP F4F Business Case (March 2016).	No change.
Ecological objectives and targets	Section 4.3	SDL – refers to Section 4.1 of the SPP F4F Business Case (March 2016).	No change.
Anticipated ecological benefits	Section 4.4.1	SDL – refers to Section 4.3 of the SPP F4F Business Case (March 2016).	No change.
Potential adverse ecological impacts	Section 4.4.2	SDL – No adverse ecological impacts are identified.	No change.
Current hydrology and proposed changes to the hydrology	Section 4.5.1	SDL - Section 5 and Attachment 1	No change.

Environmental water requirements	Section 4.5.2	SDL – refers to Sections 2.4, 2.6, 2.7 and 2.8 of the SPP F4F Business Case (March 2016).	No change.
Operating regime	Section 4.6	SDL – refers to Sections 2.9, 3.1, 3.2 and Appendix 3 of the SPP F4F Business Case (March 2016).	No change.
Assessment of risks and impacts of the operation of the measure	Section 4.7	SDL - Section 6 Risk Management and also reference to Section 12 of the SPP F4F Business Case (March 2016).	No change.
Technical feasibility and fitness for purpose	Section 4.8	SDL – refers to Section 6.2 and Appendix 3 of the SPP F4F Business Case (March 2016).	No change.
Complementary actions and interdependencies	Section 4.9	SDL - Flows for the Future Project SPP funding is a predecessor to SDL adjustment funding.	No change.
Costs, benefits and funding arrangement for new unfunded projects	Section 4.10.1	SDL - Costs and Funding: Section 7 and also addressed in Sections 7 and 11 of the SPP F4F Business Case (March 2016).	There has been a change to Costs. See Section 4 of this document.
Costs, benefits and funding arrangement for Projects not seeking Commonwealth Supply or Constraint Measure Funding	Section 4.10.2	SDL – refers to Section 11 of the SPP F4F Business Case (March 2016).	There has been a change to Costs. See Section 4 of this document.

2. Key outcomes from Commonwealth final due diligence assessment of SPP business case

The Australian Government has approved funding of $12,138,102, representing 90 per cent of the total SPP project costs. The remaining 10 per cent will be contributed by South Australia, bringing the total Australian and State Government investment to $13,486,780.

As a result of the SPP due diligence process, there has been a change to the overall F4F program delivery model and SPP funded project scope which are described below.

2.1 Delivery Model

A new delivery model to enhance increased uptake by landholders was agreed to by the Australian Government in the Addendum to SPP F4F Business Case (August 2016). The content of the SPP Addendum was provided as additional information to the SDLAAC Secretariat on 8 August 2016 to support the assessment of the SDL Adjustment Supply Measure Phase 2 Submission (March 2016).

The original delivery model proposed a market based solution which involved encouraging landholders to bid for funds to install low flow devices and was described as a competitive tender or auction process.

The new targeted delivery model is a grants program which will target strategic locations to achieve the required level of up-take and provide greater certainty of achieving the environmental flow requirements by ensuring connectedness of project sites to ensure low flows pass through the system.

This new delivery model increases the required resourcing for the project as it requires additional specialists to be employed by DEWNR and a greater level of community engagement. A key element of the targeted delivery model is working closely with landholders to obtain as much positive participation and early adoption at strategic locations as possible and to prepare action plans that suit landholder situations and circumstances.

Landholders will be encouraged to participate in the program, those that decline will be advised of the regulatory process to place the requirement to install low flow devices on their water licence through the *Natural Resources Management Act 2004 Regulations*.

This new delivery model will achieve the best value for money environmental outcomes and it is proposed to use the same project team and project delivery methodology across the full life of the project.

Figure 2 provides an overview of the process of engaging and working with landholders over the full six years of the F4F project. The stages indicate a process stage, not a timeline stage, meaning multiple stages of the process can be delivered at the same time, depending on the landholder situation and the technical implications of the strategic location of sites.

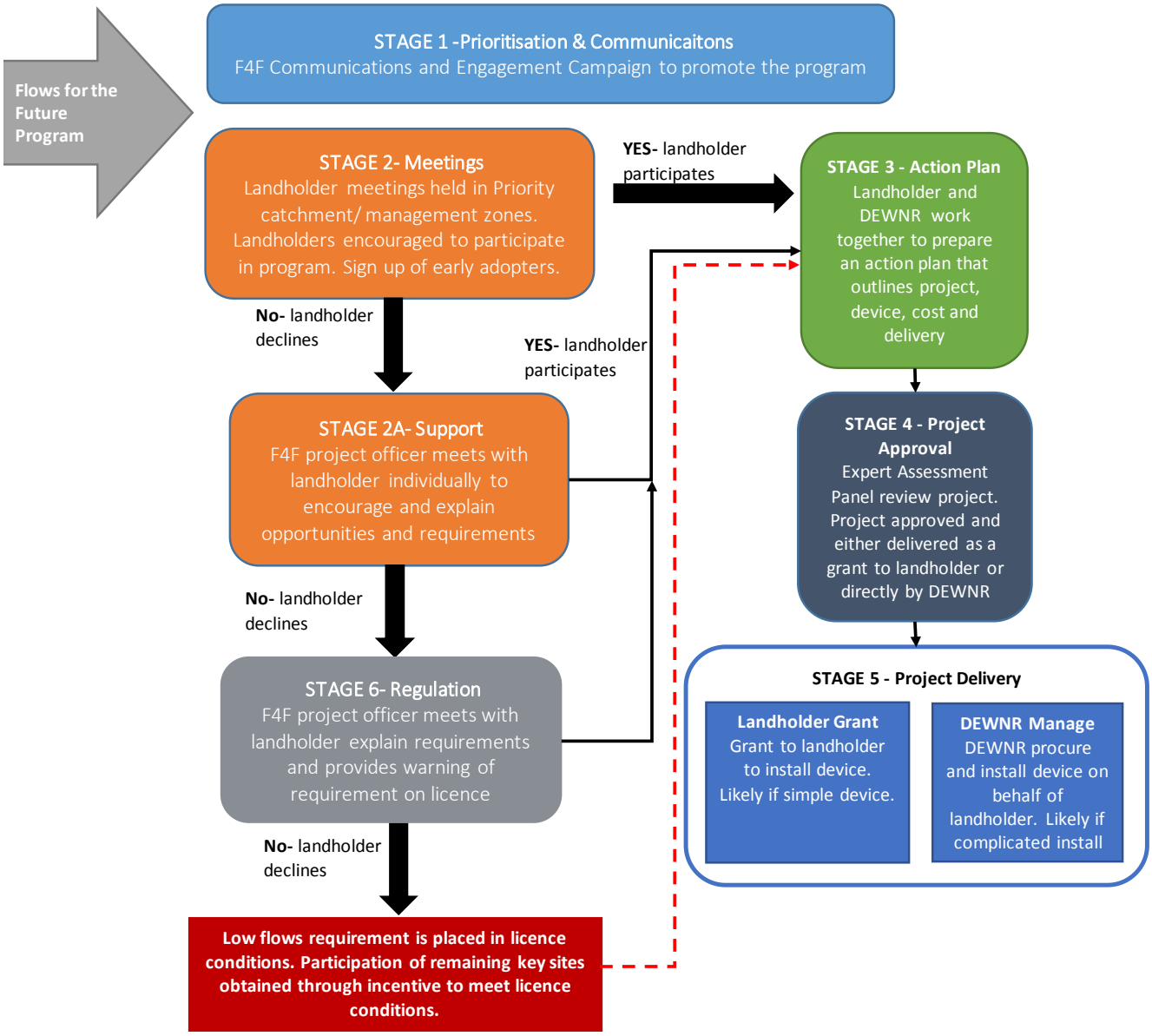

Figure 2: Flows for the Future Targeted Delivery Model (Note – different stages can occur concurrently)

2.2 Revised Project Scope

The approved SPP funded component of F4F targets 500 high priority sites from across the EMLR. The first three years of the project will focus on returning low flows to protect significant environmental assets within the EMLR in high priority catchments across the Angus, Bremer and Marne Saunders. The component proposed for SDL adjustment funding is provided in section 4.

Figure 3: Eastern Mount Lofty Ranges PWRA surface water catchments

3. Amendments to the Phase 2 SDL business case

3.1 Eligibility Criteria

No change as the F4F project still meets the criteria of a supply measure under Basin Plan cL7.03 and cL7.15.

3.2 Phase 2 SDL adjustment evaluation criteria

The relevant sections within each of the key documents that satisfy the Phase 2 SDL assessment criteria are described in *Table 1* of this document.

3.3 Hydrology

No change. The changed targeted delivery model does not change the previously modelled results.

3.4 Risk Management

The new targeted delivery model reduces the overall risk profile by mitigating the risks identified with the auction process. A revised risk management plan will also be prepared in the early implementation stages under SPP funding.

3.5 Costs and Funding

This section has been replaced by Section 4 of this document.

4. Costs and Funding

4.1 Revised overall F4F program budget

The revised total cost of the F4F program is [redacted]. This increase from [redacted] is attributed to the change in delivery model from a competitive tender/auction process to a targeted delivery model, and as such has reduced the project risk identified by the Commonwealth to an acceptable level for investment.

The new targeted delivery model requires a budget that reflects the resourcing required to deliver a more intense and focused program. The preferred targeted delivery model budget has a focus on Specialist Field Officer resourcing and supporting the operation of an Expert Assessment Panel.

The budget for Specialist Field Officer resourcing was calculated by estimating how long an individual project would take to deliver from start to finish (from first meeting and negotiations, to Action Plan development, procurement/grant development, installation/construction, audit, and closeout). This is calculated to be one week per site and it was considered that one Specialist Field Officer could manage 40 sites in one calendar year. The number of sites proposed to be delivered each year was then divided by 40 to produce the number of FTE's required.

The new delivery model also includes an Expert Assessment Panel (which replaces the Auction Expert). The Expert Assessment Panel will review project designs and provide specialist support to finalise Action Plans. The panel will include a hydrologist, an engineer and independent specialists relevant to the project.

4.2 Revised SDL adjustment supply measure budget

The second three years of the F4F program will target 600 high priority sites in addition to the 500 sites targeted in the SPP component. These sites are within the wetter catchments to the South including the Finniss River, Tookayerta Creek and Currency Creek that provide better connections to Lake Alexandrina and will return an estimated 1.3 GL on average per year to Lake Alexandrina. A number of other smaller,

catchments will also be targeted (Deep Creek, Reedy Creek, Long Gully, Preamimma Creek, Milendella Creek, Rocky Gully Creek, Salt Creek and Sandergrove Plains). Refer to Figure 3.

The SDL adjustment supply funding required is now [redacted] from 1 July 2019 to 30 June 2022 to implement the 600 critical sites. To ensure all the required flows reach the River Murray and Lower Lakes, the additional funding of [redacted] is being sought through the SDL adjustment funding envelope in response to the increase of high priority sites targeted from 420 to 600.

Table 2 shows the budget proposed in the original SPP F4F Business Case (March 2016) and Table 3 shows the new proposed budget.

Table 2: SPP Business Case proposed budget

Funding Source	Total sites in scope	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total
SPP	[redacted]							
SDL								
Total								

Table 3: Revised SDL adjustment supply funding budget

Funding Source	Total sites in scope	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total
SPP	[redacted]							
SDL								
Total								

DEWNR has recalibrated the project budget based on a 600 site project scope and applied the same costing assumptions used in the budget presented in the Addendum to SPP F4F Business Case (August 2016) and the Final Due Diligence Assessment.

Project Management: There has been no change to the total project management costs. The budget breakdown is summarised below in Table 4. It should be noted that rounding to the $'000 has been used.

Variable Costs: Budget lines 2 – 6, 9, 10, 12, 14 and 16 have proportionally increased. The funding required for these budget elements is directly related to the number of sites and the number of Specialist Field Officers and the Expert Assessment Panel.

Fixed Costs: Budget lines 7, 8, 11, 13 and 15. These are fixed costs and do not change, the same level of activity is required under the 420 site scenario as for the 600 site scenario.

Table 4: Flows for the Future SDL component Budget

	SDL Project Component - Three Year Budget	Revised SDL	Revised SDL	Revised SDL	Revised SDL
	Financial Year	19/20	20/21	21/22	Response to SPP DD Total
1	**Project Sites**	**280**	**220**	**100**	**600**
	Project Delivery/Technical Requirements - TOTAL				
2	Expert Panel - review & assessment of action plan feasibililty				
3	Specialist Field Officers to support collaborative design with Landholder and develop project site plan (technical advice and Monitoring)				
4	Hydrologist - Strategic Location and catchment investigations to support Targeted Delivery				
5	Engineer - innovation review and design approval				
6	Probity support				
7	Communications and Community Engagement Officer				
8	Monitoring and Evaluation and Auditing Officer				
9	Ecological and surface flow monitoring analysis and modelling				
10	Low Flow contract installation and construction Audit				
11	Communications and Community Engagement Activities				
12	Heritage Assessments				
13	Legal and Approvals				
14	Monitoring and evaluation infrastructure and field activities				
15	Project database development				
16	**Construction and Installation of Devices Payments**				
	Project Management - TOTAL				
	TOTAL				

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Water and Natural Resources