CABINET - SUBJECTS FOR CONSIDERATION, 01 MARCH 2007 8:45 AM

1 **New Initiatives/Policy Matters**

Not Relevant

102 MWSCS07/010 Minister for Water Security's Item (Karlene Maywald)
APPROVED

Not Relevant

102

LOCKED

Walked-in

COVER SHEET

1.	**TITLE:**	**LOCATION AND CONCEPT DESIGN FOR A TEMPORARY WEIR FOR WATER SECURITY PURPOSES**
2.	**MINISTER:**	Hon Karlene Maywald MP **MINISTER FOR WATER SECURITY**
3.	**PURPOSE**	To advise **C**abinet of the recommended location and concept design of a temporary weir across the lower **R**iver Murray, should one be required due to ongoing drought and extremely low inflows in the Murray-**D**arling basin.
4.	**RELEVANT GOVERNMENT POLICY and/or STRATEGIC PLAN TARGET**	**O**bjective 2 "Improving Wellbeing" : protecting the health and well-being of communities reliant on **R**iver Murray water for drinking and domestic purposes; **O**bjective 3 "**A**ttaining **S**ustainability"
5.	**ICT COMPONENT**	There is no material I**C**T component.
6.	**RESOURCES REQUIRED FOR IMPLEMENTATION**	**T**his submission does not seek approval for any expenditures.
7.	**COMMUNITY AND ENVIRONMENTAL IMPACT**	The purpose of a temporary weir (if required) is to ensure Adelaide and county towns reliant on water pumped from the **R**iver Murray downstream of Lock 1 continue to have water. **A**part from the land owners at each end of the temporary weir site, communities will be impacted by continuing drought and extremely low inflows along the **R**iver Murray, not by the location and design of the temporary weir itself. **S**eparate planning is underway to support drought affected communities via the **G**overnment's **D**rought **R**esponse **T**eam. **T**he matters dealt with in this submission do not, in themselves, impact on business. If required, construction of a temporary weir would have environmental impacts. If a temporary weir proceeds, these impacts will be assessed as part of the **C**ommonwealth *Environment Protection and Biodiversity Protection Act 1999* process.

8. RISKS

There is a risk that, if record low inflows continue and appropriate measures are not taken, SA Water's off-takes from the River Murray downstream of Lock 1 – which deliver water to in excess of 90% of the state's population – would cease operating due to falling river levels.

Construction of a temporary weir in the lower reaches of the River Murray (if required) entails a number of risks, such as greater than expected settlement of the structure, seepage and 'piping' in the structure or foundations. The recommended temporary weir concept design has been developed to mitigate as many of these risks as possible in the conditions and time available.

If a temporary weir is required, it is possible that construction will need to begin before it is certain whether or not a temporary weir is actually needed. This risk is unavoidable. However, staging any construction between distinct hold points will maximise the opportunity to cease work should water availability improve.

9. CONSULTATION

The overall water security strategy, including the possible need for a temporary weir, has been endorsed by the Water Security Advisory Group.

The need for a temporary weir in the event of continuing drought and record low flows has been recognised in the Dry Inflow Contingency Planning report to First Ministers.

All relevant SA government agencies are represented at the chief executive level on the Water Security Task Force.

10. COMMUNICATION STRATEGY

A communication strategy specific to the location and concept design of a temporary weir is being developed.

11. URGENCY

Urgent

12. **RECOMMENDATIONS** It is recommended that Cabinet:

Note that engineering consultants **URS** Australia Pty Ltd have provided a report on options and a concept design for a temporary weir near Wellington, should one be required for water security purposes;

Endorse the recommended location at the head of Lake Alexandrina east of Pomanda Island for a temporary weir, should one be required;

Endorse the recommended concept design for a temporary weir (should one be required) incorporating a +1.1 metre Australian height datum (AHD) rock fill embankment and causeway, with a +0.1 metre AHD spillway and sheet pile cut off;

Note that expenditure approval, if required, will be the subject of a separate submission.

I declare that I have no actual or potential conflict of interest in relation to the proposals contained in this submission.

Hon Karlene Maywald MP
MINISTER FOR WATER SECURITY

28 February 2007

MINUTES *forming* **ENCLOSURE TO** MWSCS07/010

TO: THE PREMIER FOR CABINET

RE: LOCATION AND CONCEPT DESIGN FOR A TEMPORARY WEIR FOR WATER SECURITY PURPOSES

1. PROPOSAL

1.1. To advise Cabinet of the recommended location and concept design of a temporary weir across the lower River Murray, should one be required due to ongoing drought and extremely low inflows in the Murray-Darling basin.

2. BACKGROUND

2.1. Under several possible drought and extremely low inflows scenarios, sufficient water may not be available to provide for basic needs in 2007/08 for those people reliant on the River Murray.

2.2. In response to record low inflows into the Murray-Darling basin, the Government convened a group of national water experts - the Water Security Advisory Group – in early November 2006. The group members are:

- Hon Karlene Maywald MP (chair) (initially Hon Kevin Foley MP)
- Mr John Scanlon
- Mr Denis Flett
- Mr Denis Hussey
- Mr Don Blackmore
- Mr Jim Hallion.

2.3. The Water Security Advisory Group has met to review the work of the Water Security Task Force, chaired by Mr Paul Case, and comprising the chief executives of Department of Water, Land and Biodiversity Conservation, Primary Industries and Resources SA, Department of Environment and Heritage, Department of Transport, Energy and Infrastructure, Department of Treasury and Finance, Department of Trade and Economic Development and SA Water.

2.4. The Task Force presented an interim report and recommended a water security strategy to Cabinet on 5 February 2007. Cabinet noted that, in the worst scenarios, a temporary weir is critical to providing essential water supplies to Adelaide and large country areas. A temporary weir would maintain a pool level below Lock 1 and above the temporary weir so that SA Water's major pumps can continue to supply Adelaide and country areas with water.

2.5. In brief, Cabinet approved the overall strategy, subject to further specific approvals for certain works, as follows:

WATER SUPPLY MEASURES	
Pump additional 2006/07 water into storages An additional 60 GL to be pumped from the river into Mt Lofty ranges storages to provide a buffer against water quality problems (eg toxic algal blooms)	Pumping schedule has been adjusted to allow the additional water to be pumped between approx March and June 2007
Disconnect selected wetlands This will keep water in the main river channel and reduce evaporation	Most regulated wetlands closed – unregulated wetlands and other water bodies under investigation
Modify SA Water's pumping stations to extend the time they can continue pumping as river levels fall.	Detailed planning is underway.
Prepare for and, if necessary, construct a temporary weir	Subject of this submission.
Identify an additional reserve of water In the worst case scenarios, the above measures will not be sufficient to meet all domestic needs.	Investigations under way.
SUPPORT MEASURES	
Bring forward new water filtration plants for 15 townships that currently receive unfiltered River Murray water.	All new plants will be commissioned by December 2007
Construct/arrange alternative public supplies At this stage, this will include a bulk water pipeline to Clayton, water carting for Point McLeay	From March 2007
Respond to ad hoc ancillary issues As river and lake levels fall, a range of issues will emerge that require government advice and/or assistance to solve.	Ongoing
Develop a water recovery strategy for managing the river and lower lakes as water inflows resume, including the removal of a temporary weir (if constructed), resumption of irrigation and re-filling of disconnected wetlands	Commence by March/April 2007

3. DISCUSSION

Purpose

3.1. The purpose of this submission is to advise Cabinet of the recommended location and concept design for a temporary weir, should one be required.

Forecast river flows

3.2. South Australia's minimum entitlement flow from the Murray-Darling basin is 1,850 GL, although in past years the actual flow has averaged more like 4,800 GL.

2006/07 water year

3.3. At the time of the last detailed briefing to Cabinet (February 2007), the predicted River Murray flow to South Australia in 2006/07 was predicted to be 1,470 GL.

3.4. South Australia's demand from the River Murray in 2006/07 is considered to be manageable with the present restrictions on urban users (level 3) and irrigators (60% of allocations).

2007/08 water year

3.5. At this stage there is no single prediction for 2007/08. The Murray-Darling Basin Commission (MDBC) has issued five scenarios for 2007/08, corresponding to the worst case (possibly 1:1000) and probabilities of 1:100, 1:10, 1:4 and 1:2. Under the worst case scenario, South Australia would receive only 337 gigalitres of water.

3.6. While the worst case does not have a high probability of occurring, it must be the basis for planning in the absence of better information. To not do so, and then have the worst case occur, would expose the state to a loss of essential water supply for the more than 90% of the state's population which is reliant on the River Murray. Similarly, while good rainfall in the Mount Lofty Ranges will assist, it cannot be relied upon and planning must proceed on the basis of worst case conditions.

3.7. On current information from the Murray-Darling Basin Commission, the temporary weir (if required) would need to be completed by February 2008. While it is understood that the MDBC have been developing updated figures which predict a more favourable situation than previously thought, these predictions have not been formally released by the MDBC. It would be dangerous to use anything other than certified and reliable information for SA's emergency planning. Consequently, planning needs to continue on the basis of the current official predictions.

Sites considered for a temporary weir

3.8. Engineering consultants URS Australia Pty Ltd considered a number of sites between Murray Bridge and the head of Lake Alexandrina, based on geotechnical surveys commissioned for that purpose in December 2006 and data from previous surveys, including:

- Bathymetric survey of river channel near Wellington (2003);
- Geotechnical data from pipe river crossing project at Tailem Bend;
- Circa 1930 piling data at the head of Lake Alexandrina;
- Highways Department data for the Swanport Bridge and soil investigations of different bridge location options from 1986;
- Hydro map survey dated November 2006
- Drawings (dated 1879) from the original rail and road bridge at Murray Bridge.

3.9. URS' findings are that the river foundations at Tailem Bend, Wellington and the head of Lake Alexandrina are all characterised by soft to very soft clay to at least 30 metres below the river bed. The only exception is along an east-west transect from the east side of the head of Lake Alexandrina extending for approximately 1300 metres to the west, toward Pomanda Island.

3.10. The only area where there is bedrock is around Swanport/Monteith where geotechnical data show the river base to be about 30 to 35 metres of silt and clay over granite, with the water depth in this area at 20 to 25 metres. One area near Monteith had 25 to 30 metres of clay over 15 metres of sand overlying granite. Available information is that the granite at these sites is weathered into large, steep sided boulders, with cavities and voids of up to 5.7 metres wide.

3.11. Although bedrock is present at Swanport/Monteith, this location was not considered to offer any benefits over sites closer to Wellington for the following reasons:

- River depth at Swanport/Monteith is considerably greater (20 – 25 metres) than further downstream near Wellington (4 metres);
- There is still a significant depth of clay at Swanport/Monteith which would have the same effect on sheet pile structures as building further downstream;
- It would not be feasible to 'toe' a sheet pile structure into the granite bedrock, given its irregular form.

3.12. Even after the location had been narrowed down to the head of Lake Alexandrina, URS assessed several different alignments running between Millowar and Pomanda Island on the western side and Jockwar and south of Wellington Lodge on the eastern side.

3.13. One transect – between Pomanda Island on the western side and Wellington Lodge on the east – has reasonable foundations on the eastern side and is therefore the preferred location.

Design options considered

3.14. In conjunction with assessing sites between Murray Bridge and the head of Lake Alexandrina, URS analysed a number of different single and double sheet pile type constructions at those sites. The designs considered and URS' analysis is summarised as follows:

Option	Description	Result of analysis
1	Single sheet pile cantilever wall 4 metre head differential Analysed using sheet pile, composite section and box pile sections, both drained and undrained (ie 6 sub-options)	The cantilever wall option is not considered appropriate due to insufficient bending capacity or excessive displacement. The weight of the sections would lead to significant settlement and affect wall stability. Even on the granite bedrock at Swanport, the 10 – 15 metres of clay would likely cause deflection and rotation. Not feasible to 'toe' the sheet piling into the granite bedrock.
2	As for option 1 but with a 2 metre head differential	Same as for option 1, even with only a 2 metre differential.
3	Single sheet pile wall anchored with catenary cables 4 metre head differential Analysed using sheet pile, composite section and box pile sections, both drained and undrained (ie 6 sub-options)	Not considered feasible due to insufficient bending capacity or excessive displacement. In addition, a massive foundation would be required to anchor the cables.
4	As for option 3 but with a 2 metre head differential	Not feasible for the same reasons as option 3, even with only a 2 metre differential
5	Single sheet pile wall supported by driven steel tubes (similar to a king post wall)	Not feasible due to excessive displacement. Depth of clay near Wellington sites means it is not known how far down tubes would need to be driven. Presence of clay at all sites would still cause deflection and rotation.

6	Double wall sheet pile cofferdam with internal ties and granular fill Width of 16 metres if water depth is 20 metres	Not feasible. Weak foundation soils creates likelihood of bearing failure and excessive settlement (of some 4.5 metres).
7	Cellular cofferdam near Swanport on the granite bedrock	While settlement could be managed, there would be significant risks due to the irregularity of the underlying granite which would affect stability.

3.15. In addition, once the site had been narrowed down to a transect between Pomanda Island on the western side and Wellington Lodge on the east, URS further considered a range of construction designs at that site as follows:

- Rock or earth fill embankment;
- Single line sheet pile wall;
- Single line sheet pile wall with downstream berm;
- Double line steel sheet pile wall;
- Cellular steel sheet pile wall.

3.16. All options apart from an embankment were considered not to be feasible on the soft clay foundation on the western half of the site at the head of Lake Alexandrina. While other options are technically feasible on the firmer eastern foundations, URS' assessment is that none had any advantages over an embankment and the single sheet pile wall option would not be as robust.

3.17. For these reasons, URS conclude that an embankment is the preferred option over the entire length of the weir. Over the western half, it is the only technically feasible option.

3.18. It is noteworthy that an often cited solution of piling up the mud on the bottom of the river into an 'embankment' is not feasible. Firstly, the material on the bottom of the river is not suitable for creating such a structure. Secondly, any structure would need to be made impervious to water. This can only be done by compacting the material, which cannot be done in the wet. An earthen embankment would normally involve constructing cofferdams on either side so that material can be placed and compacted in the dry. Even if the river bed material were suitable, such a construction would be just as difficult an undertaking as the recommended rock fill embankment.

Recommended concept design of a temporary weir

3.19. In considering the recommended form of a temporary weir, URS note that technical feasibility and reliability are the most important criteria given the importance of the impounded water not being lost by any failure of the weir, since more water is unlikely to be available to re-fill the weir pool if it is lost. It

should also be noted that while the weir (if required) will be temporary, the critical importance of reliable operation means that the design must be essentially equivalent to a weir designed for a longer timeframe (ie up to three years).

3.20. In this regard, URS note that an advantage of an embankment weir is that it is a simple but robust construction that can deal with a relatively wide range of operating conditions, is readily adaptable to suit local or unexpected conditions, and is relatively easy to stage, repair and remove.

3.21. Without duplicating URS' report, the recommended form of a temporary weir is as follows:

Design element	Reason
Form of temporary weir	Embankment over full width of lake head plus causeway between mainland and Pomanda Island An embankment is the only feasible option on the soft clay foundation on the western half of the site. While other options were technically feasible on the eastern side where foundations are firmer, none had any advantages over an embankment. Causeway provides a side levee to prevent water from outflanking the weir through the reed beds and isthmus north of Pomanda Island. Provides construction access to the western abutment.
Dimensions	Shallow slope of 1:4 on the western half to maintain stability over the soft sediments. Slope on firmer eastern side of 1:3. Height of crest is +1.1 metres AHD on both sides of spillway to provide protection against wave action caused by wind on the lake. Width of crest on spillway and eastern crest is 6 metres. Width of crest on western half is 8.5 metres.
Spillway	Central spillway of 300 metres length at a level of +0.1 metres AHD to establish an upper pool level for the duration of the weir's life. Designed for spilling up to 15 GL/day. Spillway constructed at end of eastern half where foundation is firmest. This will prevent the spillway from settling and requiring topping up.

Design element	Reason
Fill material	Approx 300,000 cubic metres of coarse, well graded, granular fill. Material will be sourced from local quarries and borrow pits where possible. Sides will be covered by two layers of cobble size rock to prevent wave erosion.
Geotextile base	Required to help provide stability and prevent excessive loss and mud waving on the weak western foundations. Settlement on the western side is expected to be 2 metres over the construction period and life of the weir, requiring topping up. No significant settlement expected on the eastern side (including the spillway).
Hydraulic cut-off	Sheet piling inserted over the length of the embankment and causeway required to prevent seepage and protect against piping in both the embankment and underlying foundation material. The sheet piling will cut the geotextile base but this has been independently assessed as manageable, providing sufficient settlement has occurred between constructing the embankment and inserting the sheet piling.

Staging of construction

3.22. URS' concept design envisages the temporary weir being built using a causeway-type method of end dumping fill to progressively extend the embankment over the water. The action of vehicles moving over the material will consolidate it, providing the required level of compaction. Fill would be transported by dump truck from a stockpile area, which is preferably located near the weir abutments. A large or long-reach excavator would shape the embankment from each end-tipped load. This work could be carried out by any medium-sized civil and earthmoving contractor, which means a number of South Australian contractors would be capable of undertaking the work.

3.23. The geotextile would be laid by barge and secured by ballast. URS note that placement of embankment fill by barge is not practical due to the lack of precision compared to working in the dry. A barge also is slower for placing fill due to the need for constant re-loading.

3.24. URS advise that construction may need to proceed from both sides – westward across the lake head from the eastern abutment and eastward from

Pomanda Island, following construction of the causeway from the main land to the island.

3.25. URS further advise that the embankment should be built up across the full width of the proposed weir using a 'layer cake' approach. This will support the gradual consolidation and strength gain of the soft foundation soil. Once the entire embankment has been constructed slightly above pool level, allowing traffic to traverse the whole length of the weir, further filling would proceed on a 'layer cake' basis. The western half should be built up first to aid consolidation and strength gain on the weaker side. Once the entire length of embankment has reached the spillway crest height of +0.1 metres AHD, further filling can continue until on either side of the 300 metre spillway until the final height of +1.1 m AHD is reached.

3.26. It is possible that the detailed design work may determine that a consolidation time for the western embankment of up to six months duration may be necessary.

Timing of completion

3.27. URS estimate a total construction time of 200 days, including 37 days for the causeway to Pomanda Island and 163 days for the lake crossing.

3.28. On current information from the Murray-Darling Basin Commission, if it is required, the temporary weir would need to be completed by the end of February 2008. While it is understood that the MDBC have been developing updated figures which predict a more favourable situation than previously thought, these predictions have not been formally released by the MDBC. It would be dangerous to use anything other than certified and reliable information for SA's emergency planning. Consequently, planning needs to continue on the basis of the current official predictions.

3.29. Further work on construction timing has superseded previously advised construction staging. URS have therefore provided two work scheduling options to meet the current worst case scenario of completion by February 2008: On the preferred schedule, which delays construction until later dates:

- Preparations would occur between March and late August 2007. This includes access roads and ordering of sheet piling and geotextile.
- The decision to commence construction of the weir would need to be taken in at the end of August 2007 for a closure date of end February 2008.

3.30. On this schedule any consolidation time required would delay piling completion, allowing some water seepage through the structure. If further advice allows a deferment of the deadline for construction of the weir the additional time available can be used initially for any required consolidation time, and then for deferment of the decision date to construct the weir.

Maintenance and removal

3.31. URS indicate that the key maintenance task will be to ensure the embankment crest and spillway levels are maintained. The embankment and/or Pomanda Island causeway will continue to drop due to post-construction settlement. The western half will need to be topped up with suitable fill. The eastern half is not likely to need topping up due to the firmer foundations on that side.

3.32. URS also note that the provision of monitoring instrumentation, along with regular site inspections, will be essential to identify any anomalous or problematic behaviour in the structure at the earliest stage. Some minor repair work may be required due to wave erosion on the embankment.

3.33. Once it is no longer needed, the weir will be removed. URS have advised that this would not proceed until the lake water level has risen to the weir pool level Once water levels have equalised on both sides, the embankment can be removed by essentially the reverse process to its construction. The sheet piling would be extracted and embankment material gradually removed and disposed of.

3.34. The removed fill would be taken from the river for disposal at a suitable site to be determined. The cost of removing the weir will be significantly influenced by the distance of the disposal site from the temporary weir site. Alternatively the removed fill could be scattered over the western river bed where it would settle into the soft bed material. While this latter option is relatively cost effective, it would be a slower process and would require environmental and other approvals.

Cost estimate

3.35. URS has estimated the total cost of construction at $113.2 million excluding GST. An independent review of the cost estimate has been obtained from international quantity surveyor company, Currie & Brown. Preliminary advice (to be formally confirmed) indicates URS' estimate is sound.

3.36. Estimated costs for construction and maintenance of a temporary weir at Pomanda Island comprise:

	$ million	$ million
Project delivery costs		
Design, land acquisition, delivery costs		16.13
Construction costs		
Access roads	1.89	
Causeway to Pomanda Island	12.38	
Pill material and delivery to site	21.39	
Embankment construction	21.79	
Maintenance (three years)	1.78	
General construction provisions	16.09	
Contingency (30%)	21.75	
Total construction cost		97.07
TOTAL COST, excluding removal & GST		113.20

3.37. URS have included a contingency of 30%. While this is high for a general engineering project, this figure reflects the uncertainties inherent in this project, especially with respect to the amount of fill that might be required on the western side of the embankment.

3.38. The estimated cost of construction does not include removal of the temporary weir. The estimated cost of removal varies according to available disposal option:

Option	Estimated cost excluding GST $ million
Removal of fill to abutment	9.6
Removal to dump site within 15 km radius	18.0
Removal to dump site within 30 km radius	19.9
Removal to dump site within 60 km radius	24.9
Dispersion on western river bed	13.1

Construction risks

3.39. The recommended location and concept design still involves some construction risk due to the soft underlying material on the western side. Settlement of the embankment will occur and construction care will be necessary to avoid construction slippages or failures. Extra material will need to be added to the western side over the life of the structure to maintain the embankment crest level.

3.40. The report from URS identifies a number of data gaps which need to be addressed by further investigation:

- The nature, source and engineering properties of proposed embankment rock fill. The fill material is a major source of cost and will significantly influence the engineering performance of the structure;
- Additional fill required during construction for that part of the embankment that would be built over the soft clay on the western side;
- The rate of consolidation and strength gain of the soft clay foundation on the western half and along the causeway to Pomanda Island.

Approvals required should construction need to commence

3.41. Legislation relating the construction of a temporary weir (if required) is the subject of a submission to be considered by Cabinet in conjunction with this submission. This legislation includes specific exemptions relating to preparatory construction work and interaction with other relevant Acts.

3.42. This project will also require appropriate approvals and/or agreements for native title and Aboriginal heritage matters. The Ngarrindjerri Heritage Committee have cooperated in expediting geotechnical investigations. Consultation for the construction of a temporary weir (if required) has commenced, but it is not clear whether heritage approval will be given.

3.43. An application for exemption for commencement of the construction of a temporary weir has been made under the Commonwealth *Environment Protection and Biodiversity Protection Act 1999*. It is understood this could be granted within 20 days of the Commonwealth receiving all required information, and be published on the Commonwealth Department of the Environment and Water Resources website.

3.44. Should an exemption be granted to commence construction, South Australia would need to prepare an environmental impact report for submission under the EPBC Act. A 20 day period of public consultation is required under the Act.

Economic, financial and budgetary implications

3.45. The estimated cost of a temporary weir is noted above. This submission does not seek any approvals to undertake works or expend funds.

3.46. Cabinet may wish to note that, should a temporary weir be required, the cost has not been incorporated in the forward estimates and will adversely impact the Government's budget. Costs incurred by SA Water may be passed on to Government through a reduced contribution (dividend and tax) in the absence of off-setting revenue. Final budget impacts will be dependent on funding arrangements, including negotiations with the Commonwealth.

Required resources

3.47. The estimated cost of a temporary weir is noted above. This submission does not seek any approvals to expend funds.

South Australia's Strategic Plan

3.48. If required, a temporary weir will contribute to:

- Objective 2 "Improving Wellbeing" : protecting the health and well-being of communities reliant on River Murray water for drinking and domestic purposes;
- Objective 3 "Attaining Sustainability".

Information and communication technology requirements

3.49. There are no ICT requirements.

Staffing implications

3.50. The matters dealt with in this submission do not entail an increase or decrease in staff numbers.

Impact on the community and the environment

3.51. The impact of SA Water being unable to pump water to the 90% of the state's population that relies the River Murray would be devastating, in terms of the impact on family and community well-being and on businesses that rely on water for some part of their operation. The cost to government of making alternative arrangements, such as tankering, would be huge.

3.52. The ongoing drought and extremely low inflows in the Murray-Darling basin is having a significant effect on the river environment. The environmental impact of a temporary weir will be assessed for Commonwealth Environment Protection and Biodiversity Protection Act approval processes.

Risk management strategy

3.53. There is a risk that, if record low inflows continue and appropriate measures are not taken, SA Water's pump off-takes from the River Murray downstream of Lock 1– which deliver water to a significant proportion the state's population – would cease operating due to falling river levels. The water security strategy approved by Cabinet on 5 February 2007 is specifically designed to manage this risk. A temporary weir at Pomanda Island is a critical component of that strategy, should it need to be actioned.

3.54. The inflows into the Murray-Darling basin and hence into South Australia may not be known with any greater certainty until after winter and spring rains (approx Sept/Oct 2007). It is therefore possible that construction could need to commence before there is certainty about whether or not a temporary weir is actually needed. This risk would be mitigated by breaking construction into stages that can be delayed for as long as possible.

3.55. On the other hand, another key risk is that of not constructing the temporary weir in time to maintain a pool of water for the SA Water pumping stations. This risk is being managed by monitoring the water draw down rate in the lower lakes, and by designing the temporary weir and its staging to meet

essential water supply needs under the worst case scenario. Other 'normal' construction risks exist and will be managed.

3.56. Construction of a temporary weir in the lower reaches of the River Murray entails a number of risks. The recommended temporary weir concept design has been developed to mitigate as many of those risks as possible in the conditions and time available.

Consultation

3.57. The proposed water security strategy for 2007/08 has been discussed with and endorsed by the Water Security Advisory Group prior to its presentation to Cabinet on 5 February 2007.

3.58. The water situation in South Australia, and proposed solutions, have also been discussed with senior officials from the Commonwealth, Murray-Darling Basin Commission, Victoria and New South Wales.

3.59. All relevant SA government agencies are represented at the chief executive level on the Water Security Task Force.

3.60. An extensive community consultation program has been underway utilising the services of Hon Dean Brown and Hon Neil Andrew (refer also below).

Implementation plan

3.61. This submission does not seek any approvals to commence works or expend funds. These matters will be the subject of a separate submission to Cabinet.

3.62. Staging of construction, should the temporary weir be required, is noted above.

Communication strategy

3.63. I will be meeting personally with land owners adjacent to the recommended temporary weir site, local indigenous community representatives and the local community action group. A media strategy is being developed to respond to media enquiries.

3.64. This is in addition to the strategies and mechanisms already in place to provide community engagement and communication on water security and River Murray drought issues. Actions to date have included:

- Public meetings in November 2006 to provide irrigators and community members with information on likely river flows, water allocations and how the government is managing the available resources of the River Murray. A number of these meetings have been personally attended by the Minister for the River Murray.
- Meetings with community groups and individuals regarding the possible weir, beginning on 5 December 2006. These have included meetings with representatives of the Ngarrindjerri, representatives of Lower Lakes communities, a meeting with mayors and council chief executives,

meetings with Regional Development Board chairs and chief executives. Again, a large number of these meetings have been personally attended by the Minister for the River Murray.

- The Hon Dean Brown and Hon Neil Andrew have been appointed as community liaison managers to provide a conduit between government and communities along the river (below and above Lock 1 respectively).

Executive Council

3.65. Executive Council consideration is not required.

4. RECOMMENDATIONS

It is recommended that Cabinet:

4.1. Note that engineering consultants URS Australia Pty Ltd have provided a report on options and a concept design for a temporary weir near Wellington, should one be required for water security purposes;

4.2. Endorse the recommended location at the head of Lake Alexandrina east of Pomanda Island for a temporary weir, should one be required;

4.3. Endorse the recommended concept design for a temporary weir (should one be required) incorporating a +1.1 metre Australian height datum (AHD) rock fill embankment and causeway, with a +0.1 metre AHD spillway and sheet pile cut off;

4.4. Note that expenditure approval, if required, will be the subject of a separate submission.

Hon Karlene Maywald MP
MINISTER FOR WATER SECURITY

28 / 2 /2007

In Cabinet

- 1 MAR 2007

APPROVED

PREMIER