

Strategic Solution Gate 1 Submission: Submission Summary

28 September 2020



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Please refer to Annex 21 Submission Navigation and Glossary for the glossary of terms, definitions and abbreviations included in this document.

1 Key Messages

Within the next decade Southern Water needs to deliver multiple new large water resources in Hampshire. The largest solution, desalination, is part of the Gated Process. The ambition is to create an intelligent network which delivers greater environmental protection and a resilient water future in the South East.

Water is hugely valuable for the environment, health and wellbeing and leisure activities. We fully support the measures already in place to protect chalk streams, particularly the iconic chalk streams the Rivers Test and Itchen and as per the legal agreement with the EA we will use all best endeavours to deliver long term solutions by 2027 to achieve permanent reductions in the abstractions from these rivers.

Our current WRMP plans to deliver resilience against a 1-in-200 year drought event by 2027. The National Framework published in March 2020 indicates a move for the whole sector to plan for resilience in a 1-in-500 year event, and to align with the optimal solutions chosen by regional plans. We are supportive of these changes, and will seek to develop flexible solutions that not only take account of higher resilience requirements for the future but also deliver them so they can adapt to emerging requirements and future challenges as they arise. An example of this is the modular development of desalination capacity.

Our Base Case solution was set out in our WRMP19 and is to build a desalination plant on the South Coast and we remain committed to its delivery. This submission contains more alternative solutions than were available at the time of WRMP19 and the PR19 business plan. The Base Case plus alternatives can provide ways of meeting future resilience requirements over and above our need to reduce abstractions from the chalk streams within the decade.

We are recommending that all solutions proceed to Gate 2, but note that the WCSN is not a viable alternative to the Base Case, as it can deliver neither sufficient water, nor do so in time to meet the deficit, though it may have potential to be considered via regional plans and WRMP24. We request that RAPID makes a recommendation on the solution to be delivered this decade at Gate 2, to support the all best endeavours timetable required by the EA following the abstraction licence changes.

A new proposed option for inclusion in the selection of strategic solutions [REDACTED]

The timetable to remedy the deficit will place some limits on the extent to which we can anticipate and dovetail with the requirements and solutions that will be identified as part of the regional plan for the South East. However, Southern Water will play a full part in this process, and we will seek to identify the most flexible, best value opportunities when looking at our responsibilities to deliver resilient water supplies in the time beyond 2030. We aim to maximise these opportunities within the constraints we have, and will work with all our stakeholders to consider innovative approaches to these challenges.

1.1 Southern Water's Vision

In our PR19 business plan we set out our vision: to create a resilient water future for customers in the South East.

We support the need to protect the environment and the iconic chalk streams in the region, and the need to do so in ways that meet the needs and expectations of our customers. Recent abstraction reductions in place to protect the chalk streams mean there is now a significant supply and demand deficit in Hampshire in dry weather. We have an agreement with the EA that allows us to mitigate the risk in the short term via drought orders and drought permits. However this is not a long term solution and we are required to use all best endeavours to implement long term solutions by 2027.

The scale of the challenge is shown by the size of the deficit we will see in severe drought conditions, of about 190 MI/d. This is about two thirds of the water available for use in a drought before the reductions took place. The abstraction reductions to protect our rivers and habitats will be the first of many, and they will

extend to other parts of the area we serve, and to other companies that abstract from chalk streams or the chalk aquifer. Southern Water is the first company to address the need to protect chalk streams at this scale, the first to make submissions to RAPID and has a legal agreement to deliver with the EA. All these factors will set important precedents about how all stakeholders respond to the ever rising level of environmental ambition. Our timescales are very tight and speed of review by all regulators will be critical.

Hence we need to deliver a wide range solution within the decade, including consumption and leakage reduction, new storage facilities, new transfers from other companies and enhanced network transport capabilities. This presents challenges in terms of protecting the environment and providing best value to our customers, but also offers opportunities to take some significant steps in delivering our vision to create a resilient water future in the South East.

1.2 Board Assurance

The Southern Water Board endorses both this submission and the importance of delivering the best value for our customers and the environment. The full Board assurance statement is provided in Annex 1 of our submission.

We will need to work with RAPID and all our regulators and stakeholders to align the different regulatory requirements to allow us to deliver the right solution for our customers and the environment in a timely fashion.

1.3 The value of water

The importance of delivering secure resilient supplies cannot be overstated. There are benefits for people and society that go far beyond our duty to supply. For example, the National Infrastructure Commission's report *Preparing for a drier future*, concluded that the economic costs of relying on emergency measures in a severe drought would far exceed the cost of building resilient new infrastructure. The current worldwide health emergency is a reminder of the importance of reliable water supplies for everyone.

We fully support the need to value water in the environment, as well as for public use, and support the measures already being taken and planned to protect chalk streams, in particular the iconic chalk streams the Rivers Test and Itchen, which have traditionally been used to supply our customers in the west of Hampshire, including the City of Southampton. Overall the region supplies about 800,000 customers.

In March 2018, we agreed with the EA to reduce abstraction from the chalk streams in dry weather, with immediate effect¹. We are currently reliant on the use of temporary drought orders and drought permits, until the permanent solutions are implemented. We have set out in our business plan and WRMP19 the levels of service we expect to be able to provide to our customers, to give them the assurance that the water they need will be delivered on a sustainable basis, and appropriate to protecting the natural environment. In the longer term when our permanent solutions are in place, we must provide the standards of service our customers expect and Southern Water has promised without relying on unsustainable abstractions. To deliver on this vision for our customers we are undertaking significant activity within and outside of the gated process, and it requires a significant amount of co-ordination between Southern Water and regulators to avoid any barriers to delivery. The decisions taken as part of the Southern Water solutions through the gates will set important precedents for those that follow, affecting solutions across the whole of England. There are benefits of providing resilient water supplies that go beyond those normally considered when identifying the optimal solution from a range of engineering solutions, for example environmental net gain, regional resilience and natural capital.

In identifying the optimal solution we will make use of these additional benefits in our decision-making. We wish to work with all our stakeholders in considering innovative approaches to these challenges.

¹ The reductions relate to changes in the "Hands off Flow" volumes in the rivers. Once river flows fall below a threshold, we must cease abstraction altogether, The agreement allows for the temporary use of drought permits and drought orders. As flows reduce towards the threshold, we must begin the process of applying for the permits and orders. They can override the Hands off Flow conditions.

1.4 Opportunities to deliver future resilience

All of the solutions in this submission are designed to be resilient in a 1-in-200 year drought, as this is the standard planned to in our WRMP19. The WRMP models scenarios in a 1-in-500 event, but relies on drought orders and drought permits to protect against the drought. The Section 20 Agreement between Southern Water and the EA requires Southern Water to use all best endeavours to implement the long term scheme for alternative water resources set out in WRMP19. The Board and Executive of Southern Water are aware of the National Framework for Water Resources published by the EA, which indicates that water supplies should be resilient to a 1-in-500 year drought by the late 2030s, and that future WRMPs should align with the new regional plans (see Annex 3: Legal and Regulatory Framework).

We have taken this into account, and this submission identifies how the Base Case (75 MI/d desalination [REDACTED] and alternative solutions considered in this submission could respond to increased resilience requirements, whilst still recognising the need to commission at least one large new source within the decade to meet a 1-in-200 year standard. There are solutions included in this submission which could enable Southern Water to make steps towards meeting the higher drought resilience standards in Hampshire in advance of WRMP24, but a high degree of regulatory co-ordination will be needed to achieve this. We will work with all stakeholders to establish strong precedents for building effective processes.

The National Framework marks the move to strategic regional planning to ensure the right solutions are found for the whole nation.² For the first time the regional plans will set out how the supply of water for people, business, industry and agriculture will be managed in the region. The regional plan should create resilient water supplies for all users, while protecting and enhancing the environment for 25 years and further into the future.

We consider there is a need for new conversations about how to meet these challenges where there are multiple sector regulators whose aims may not always coincide. Flexibility built into solutions will be important to address the landscape that may emerge between now and 2050.

1.5 The value of future flexibility

Consistent with Ofwat's aims for this process there are more additional solutions described in the submission over and above those included in WRMP19 or the PR19 plan. We consider this a strength of our approach to meeting the long term supply and demand challenges in Hampshire. These alternative solutions are required to support and inform assessments required under the Gated Process and later DCO and planning process, such as SEA, HRA and WFDA, as explained in section 1.6.

In combination with these additional options, we have also taken a forward looking approach that ensures our solutions have innate flexibility to adapt to future challenges as they arise. An example of this is the modular development of desalination capacity. This allows treatment capacity at an optimum size for today's challenges with future potential for increases in the volume of water delivered in the future as new needs emerge, both locally, within the South East region and nationally.

1.6 New addition to the Gated Process

One of the additional solutions in this submission [REDACTED] in addition to the supply already planned to be transferred through Portsmouth Water's network. This also has scope for future flexibility. It is likely that increased resilience in a 1-in-500 year event will require both more storage (reservoirs) and more innovative water sources (desalination and recycling) in addition to transfers from areas where water remains in surplus to those where it is scarcer. In particular, it is likely that more resilience will be delivered where solutions can work in combination.

² In Southern Water's case the regional group is WRSE.

[REDACTED]
[REDACTED] This configuration also has the potential to be able to supply water for a wider area than just our West Hampshire zones.

Ofwat has requested that, as part of the Gated process, Southern Water also considers a number of alternative solutions in addition to the Base Case. The assessment of alternatives in this way also represents prudent risk management and business planning, to ensure that, should it be required, there is an alternative solution available to meet our supply obligation, in the event that for any reason it is not possible to implement the Base Case, despite Southern Water using all best endeavours to do so. Essentially, the alternatives act as 'back up' options, in case the Base Case cannot be implemented. In addition, the consideration of alternatives is required in order to support important assessments such as SEA, HRA and WFDA as part of the Gated Process, and EIA, HRA and WFDA in the context of the subsequent planning and consenting process for the Base Case.

1.7 Working with stakeholders

Our customer and stakeholder engagement programme is designed to ensure we have captured the relevant insight, built the right relationships and developed engagement plans to enable us to deliver the Water for Life Hampshire programme. For Gate 1 we started with an extensive immersion stage to summarise and triangulate all existing insight from within SW and outside of the industry. This included a review from WRMP19, PR19 engagement and workshops with global experts to inform SW stakeholder strategy. We are using external findings to look at 'real life' data to draw out recommendations from when customers' water sources had changed in the past and the impact it had.

After this comprehensive review of the existing landscape we launched an innovative programme for Gate 1, and followed CC Water best practice. SW ran a mapping exercise for tailored stakeholder engagement and to bring customers, stakeholder, technical and strategy leads together in one place, and to promote a continuous dialogue. Our innovative Customer Action Group uses a deliberative approach and newer techniques such as 'audience journalism' to capture views in 'real life', for instance when at home and in conversation with friends or families rather than in a more artificial focus group environment.

Other approaches are used to boost understanding where it's needed most – such as with more vulnerable audiences, customers of the future, businesses, those who have had water quality issues and knowledge professionals with a deeper knowledge of the potential impacts. We have developed good insights into the context in which we need to approach stakeholders, particularly customers:

- Customers have pre-conceptions and some misconceptions about water scarcity, resources and supply options;
- Participants in research need appropriate background (climate, water availability), context (long term strategic planning), and detail (options and impacts) to effectively contribute;
- The impact of the Covid-19 pandemic could present an option to engage further on the value of water and its scarcity;
- Customers will focus on the impacts to their bills and economic circumstances and this could see heightened focus on affordability;
- Customers see the solution as a package of options rather than one scheme that will work in isolation. The role of leakage, water efficiency, catchment management and any new options developed it is important to remember that these come together to form a package – so engagement needs to reflect this; and
- Engagement around the challenges and solutions needs to be tailored to different audiences.

Using these insights we have tailored the research to produce a detailed ranking of customer preferences for different types of solution. Typically "low impact" solutions rank at the top (e.g. reductions in leakage, reductions in consumption, catchment management) highly, while "high impact" solutions rank at the bottom (e.g. reservoirs, water trades, recycling, desalination). We provide details in Annex 15.

Our engagement with stakeholders and regulators has laid firm foundations for future stages of the programme. An initial focus on regulators, environmental groups and local authorities has ensured the views



of these key stakeholders have helped inform the approach to Gate 1. We will engage with a wider group of stakeholders, including local authority members and additional groups as we work towards Gate 2. We are still working with considerable uncertainties and imperfect data so future stakeholders views will be a crucial factor.

1.8 Gate 1 Submission

The purpose of the Gate 1 submission is to carry out PFAs of the Base Case and alternative solutions that have potential to be put forward in regional plans and company WRMPs, for construction from 2030 and beyond.

We have met that purpose by considering first the solution set out in our WRMP19 (the Base Case), and addressed the alternative solutions added in the PR19 final determinations (Re-use of treated water, or recycling, and the West Country North transfers). We have gone beyond those requirements by adding alternative options for the desalination and recycling solutions and as a potential additional solution [REDACTED]. We have provided PFAs for each of the four solutions. The table below shows whether each solution was in WRMP19, the final determinations or has been added by Southern Water.

In this submission, Solutions are defined as the overarching method for provision of water (i.e. desalination, water recycling, transfer). We have therefore prepared a PFA for each of the Solutions that were described in PR19 (namely desalination, water recycling and the WCSN transfer). We have also provided a PFA for an potential Additional Solution [REDACTED].

For each Solution we have considered a number of different configurations or options, which are the single proposed methods for provision of water considered as part of the Gate 1 submission. These are referred to in this submission as Options. The Options comprise A.1, A.2, B.1-B.5, D.1, D.2 and C, and these are covered in the PFAs as set out in Table 1.

Table 1 - Options considered in Gate 1 submission

Option no.	Option Name	In WRMP19	In PR19 FD	Alternatives to desalination and recycling	New Alternative
A.1	75 MI/d Desalinated water direct to Testwood WSW	✓	✓		
A.2	61 MI/d Desalinated water direct to Testwood WSW			✓	
B.1	61 MI/d Recycled water sent to Lower Itchen - treated at Otterbourne WSW			✓	
B.2	61 MI/d Recycled water sent to Upper Itchen / Environmental Buffer - treated at Otterbourne WSW			✓	
B.3	61 MI/d Recycled water sent direct to Otterbourne WSW			✓	
B.4	61 MI/d Recycled water sent to Otterbourne via [REDACTED]			✓	
B.5	75 MI/d Recycled water sent to Upper Itchen / Environmental Buffer ³ - treated at Otterbourne WSW	✓	✓		
C	West Country Sources (North) water transfers		✓		
D.1	A combination of 40 MI/d Desalinated and Demineralised water to an industrial supplier, displacing an existing bulk supply; additional flows would be made up of recycled water from Budds Farm			✓	
D.2	[REDACTED] raw water direct transfer to Otterbourne				✓

Option A.1 is also referred to in this submission as the Base Case. This is the Preferred Strategy within WRMP19 and Southern Water is under an obligation to use all best endeavours to implement the Preferred Strategy in accordance with the s.20. The other Options are therefore also referred to as ‘alternatives’ to the Base Case, which are being considered as strategic Options capable of substitution or addition, and also to support and inform assessments required during the Gated Process and the DCO and planning processes, including SEA, HRA and WFDA. For consistency with the terminology used in PR19 Final Determinations and the RAPID Strategic Solution Accelerated Gate 1 Submission: Initial Concept Design template, these alternatives are described as Options. However, because SW is using all best endeavours to deliver the Base Case, these are seen as alternatives as described above, rather than 'options' as such.

1.9 Moving from Gate 1 to Gate 2

Our ambition is to deliver a resilient water future for customers in the South East whilst ensuring bills are affordable and improving the environment. The timetable we need to work to in order to remedy the deficit using all best endeavours will place some limits on the extent to which we can anticipate and dovetail with the requirements and solutions that will be identified as part of the regional plan for the South East, including taking into account water use in other sectors including industry and agriculture.

However, Southern Water will play a full part in this process, and we will seek to identify the most flexible, best value opportunities when looking at our responsibilities to deliver resilient water supplies in the time beyond the 2030s. We aim to maximise these opportunities within the constraints we have.

³ This option was in WRMP19 as a strategic alternative, but not part of the preferred strategy covered by the Section 20 agreement with the EA.

We propose that the Base Case and alternatives should be progressed beyond Gate 1, to further assess and determine their feasibility between Gate 1 and Gate 2. It is possible that some of the alternatives may be determined not to be feasible or deliverable, in which case they will be discontinued prior to Gate 2, and information regarding their discontinuation will be provided at Gate 2. The Base Case and the alternatives which are not discontinued will be progressed to Gate 2.

At Gate 2 we propose that a recommendation should be made by RAPID as to which solution should be progressed through the remaining gates in the Gated Process (i.e. the Base Case or one of the alternative solutions - should be selected by RAPID, and all other solutions will 'fall away', save to the extent that they are relevant to WRMP24 and future programme delivery).

In this context it should be recognised that the Base Case and alternatives may evolve from the solutions described at Gate 1, such as in relation to their specific locations, capacities, their relationship with some of the other alternative, as further design, assessment and forward planning is undertaken, to reflect the optimal configuration for the relevant project both in isolation and as part of the wider programme, and consistent with the general duty 'to develop and maintain an efficient and economical system of water supply' under s37 of the Water Industry Act 1991. In the event that such an evolution takes place between Gate 1 and Gate 2, we will engage with RAPID in respect of the evolution, and information regarding the 'evolved' version of the relevant solution will be submitted at Gate 2.

We consider that progressing the Base Case and the alternative solutions in this way and to this point should provide sufficient information to support the key assessments required in relation to the Gated process and later requirements as part of the planning and consenting process, and will also ensure that appropriate alternatives are considered as a proactive risk management measure, whilst further assessment and design is undertaken in progressing the Base Case in accordance with the s.20. We consider that it is important that a decision is made by RAPID on the preferred solution at Gate 2, to enable Southern Water to progress through the planning and consenting processes with sufficient time to deliver the Base Case (or any other solution, if selected) in accordance with its 'all best endeavours' obligation.

2 Scope and purpose of this document

This document provides a high level summary and guide to our Gate 1 submission and sets out the strategic context of the submission, noting that there is a Preferred Strategy for the Hampshire water resource zones set out in SW's WRMP19 and that SW has a legal obligation to use all best endeavours to implement the Preferred Strategy in WRMP19, as explained in section 3.

Section 3 provides a summary of our initial work and findings at Gate 1, and outlines a new potential solution that is proposed for inclusion in the Gated process, [REDACTED] Increased transfer capacity may have the potential to enable a significant increase in the daily flow from the reservoir.

This document is not a Gate 1 requirement but is intended to assist understanding and navigation as a helpful guide. In addition SW has provided a guide to the submission that sets out what supporting information is provided in addition to the RAPID templates.

3 Situation and strategic context

Southern Water's WRMP19 identified a supply-demand deficit of c.190 MI/d, in a 1-in-200-year drought scenario, within the Western Area WRZ. The "Preferred Strategy" (formerly known as Strategy A) published in WRMP19 includes, amongst many other schemes, a 75 MI/d desalination plant to be delivered in the Hampshire Southampton West (HSW) WRZ by 2027. A strategic alternative published in WRMP19 was to meet this deficit by provision of a water recycling solution.

The s20 obliges Southern Water to use all best endeavours to implement the Preferred Strategy. The Preferred Strategy is the Base Case for the purposes of this Gate 1 submission following on from the PR19 process, and Southern Water is using all best endeavours to implement the Base Case, in accordance with the s20.

In addition, the PR19 Final Determination requested that, as part of the process of investigating Strategic Resource Options (SROs), Southern Water was to include the Base Case, River Itchen effluent reuse and West Country Sources North within the SRO process. During PR19 Southern Water requested, and Ofwat agreed to, gates that occur earlier than for other solutions in the process, to support the requirement for the company to use all best endeavours to implement the Base Case by 2027 (the “accelerated gates”).

For the Base Case, the PR19 Final Determination required us to develop a desalination plant on the south coast with at least three size options to be considered. Information on these sizes is supplied in the PFA on desalination. In addition to the Base Case, we are submitting information in relation to the alternatives at Gate 1 detailed in the submission, including three sizes of desalination plant (see PFA1.)

4 Summary of the position at Gate 1

4.1 The Section 20 agreement

WRMP19 went through a robust and comprehensive process and completed all necessary assurance and approval steps. It was approved for publication by the Secretary of State and was published in December 2019.

WRMP19 was created in parallel with the process that resulted in the s20 with the EA in March 2018 and the abstraction licence reductions on the Rivers Test and Itchen in March 2019. A supply and demand deficit in all but one of our Hampshire Water Resource Zones resulted directly from the abstraction licence reductions needed to protect the two rivers. The zones concerned had previously been in surplus.

We agreed to use “all best endeavours” to complete the long term system wide solutions to address the deficit in accordance with the timescales set out in WRMP19 by implementing the Preferred Strategy⁴. These solutions were set out in the WRMP published and confirmed in December 2019, including (amongst others):

- a 75MI/d desalination plant [REDACTED] by 2027;
- deliver significant reductions in both consumption and leakage;
- commission a new 20 MI/d bulk supply from Bournemouth Water;
- commission a new 9 MI/d bulk supply from Portsmouth Water;
- Portsmouth Water will build and Southern Water will pay for the construction and operation of the Havant Thicket reservoir and associated re-enforcements of PW’s network, in order to supply Southern Water with a new bulk supply of 21 MI/d;
- build two-way extensions to the grid to enable water to be transferred between the East and West Southampton zones, and from the South to the North of the Hampshire water resource zones;
- catchment management solutions to avoid losses due to water quality issues.

A summary of the Preferred Strategy is provided in Annex 2 of our submission, and can be found in full at Appendix 9 of SW’s published WRMP. Annex 2 also provides more detail on the s.20 and gives the reasoning for including alternatives at 61 MI/d for both desalination and recycling.

In light of the s.20, Southern Water can only change the Preferred Strategy with the agreement of the EA, unless (despite the company using all best endeavours to progress and implement it) it were proven to be undeliverable. Southern Water will therefore continue to develop both the Base Case, using all best endeavours, and the alternatives included in this Gate 1 submission, and to ensure that other relevant assessments such as SEA, HRA and WFD can be supported and informed by an appropriate consideration of alternatives, which may present better value for customers and the environment.

⁴ The Preferred Strategy in the final WRMP plans for delivery of the Havant Thicket reservoir by 2029. Note that with the exception of desalination the solutions are not part of the SRO process, though they are covered by the s. 20 agreement. The new bulk supplies are all subject to commercial agreement. The water recycling solution added in the Final Determination was in WRMP19 as a ‘strategic alternative’ but was not in the Preferred Strategy.

4.2 Development since the completion of WRMP19

There have been three important developments that influence both the solution needed to fill the largest component of the deficit and the timetable for delivery, as detailed below:

1. RAPID has been created to oversee the Gated process. As noted above, Ofwat has requested the consideration of a number of different configurations of a desalination solution, as well as a water recycling solution, as part of the Gated process;
2. Ofwat has set out its expectations that both these solutions would be suitable for Direct Procurement for Customers (DPC), which requires Southern Water to develop a procurement model where an alternative provider builds, owns and operates the asset to the end of its life; and
3. the regional water planning process has been strengthened via the new National Framework for Water⁵ Resources. The framework sets out, among other things, the need to work with the regional water resource groups to develop an optimum plan for the region (WRSE in SW's case), and the move to planning for resilience in a 1-in-500 year drought.

WRMP19 plans for a 1-in-200-year drought scenario, agreed in consultation with our customers in accordance with the then current guidance. The Base Case is therefore designed to be resilient in that scenario. The need to move to a 1-in-500 year event as the designed resilience standard in WRMP24 and beyond is now clear from the National Framework. To ensure a robust and responsive approach to potentially changing circumstances, Southern Water is considering which of the solutions in this submission have some capacity to respond to an extreme drought scenario. The PFAs consider which solutions have some capability to meet the higher resilience standards.

4.3 Base Case and alternative solutions

It is important, in order to ensure that Southern Water can meet its legal supply obligations, and that we develop at least one alternative solution as a contingency against risks around the delivery of the [REDACTED] desalination plant (where there remain some delivery risks and site selection work is continuing).

It is also important to inform the SEA, HRA and WFD assessments for the Gated process and to ensure that information that has come to light since publication of WRMP19 is taken into account. In addition, consideration of alternatives is important to inform and manage potential risks associated with HRA and WFD in the context of the later planning and licencing or development consent order application that will have to be made for the Base Case.

Southern Water will therefore continue to develop alternative solutions in parallel with using all best endeavours to deliver the Base Case.

5 Additional Solution proposed

Southern Water has developed the option of a new potential solution that uses an additional method for delivery of the water [REDACTED]. This would be in addition to the existing proposed 21 MI/d scheme to deliver treated water via Portsmouth Water's network.

We propose to include it as a potential additional Solution in the Gated Process. For the reasons explained above it should be considered as a potential enhancement or a potential addition that could provide benefits over and above the Base Case, and not just as a potential alternative in the event the Base Case were shown to be undeliverable.

Although it is in the concept stage of development, this option could potentially have a range of benefits:

⁵ [Meeting Our Future Water Needs: A National Framework for Water Resources](#), EA, 2020.

- [REDACTED]
it could potentially reduce the size of the desalination plant required to meet the WRMP19 1-in-200 drought scenario;
- the additional costs of water transfer are lower than the other solutions considered in the submission, and represent better value for money;
- it could provide increased flexibility to move water across Hampshire and the Isle of Wight, increasing the resilience of both regions, as the Isle of Wight is currently dependent on the Testwood supply works, and this alternative or addition would provide alternative sources in the event that the Rivers Test or Itchen were unavailable due to drought;
- it could potentially have a lower environmental impact than either desalination or recycling, for instance it will not impact the marine environment in the way that desalination does, and would consume less power than either desalination or recycling;
- [REDACTED]
[REDACTED]
- a future possible solution [REDACTED] could potentially be resilient to a 1-in-500 year drought as initial work shows that the lowest output flow at the relevant treatment works in an extreme drought would be higher than the flow required for the reservoir; and
- [REDACTED]
[REDACTED]

This potential alternative option also involves a number of challenges:

- it is not in WRMP19 [REDACTED] would need to undertake a revision of their WRMP19 plans and the consequential consultation, and / or it would need to be included in their respective WRMP24 plans;
- at this concept stage the timeline is not fully developed although, [REDACTED] it could not be operational before 2029 at the earliest based on current identified delivery timescales; and
- there could be a number of environmental impacts, as well as EIA, HRA and WFD assessment issues to be resolved, including issues associated with non-native invasive species considerations
[REDACTED]
[REDACTED]

We have provided a Preliminary Feasibility Assessment for this option in our submission, see PFA 4.

6 Schematic of solutions considered

We have investigated the potential feasibility and viability of the Base Case and nine alternative solutions within the Gate 1 submission, across four solution types: desalination, water recycling, water transfers and additional alternatives.

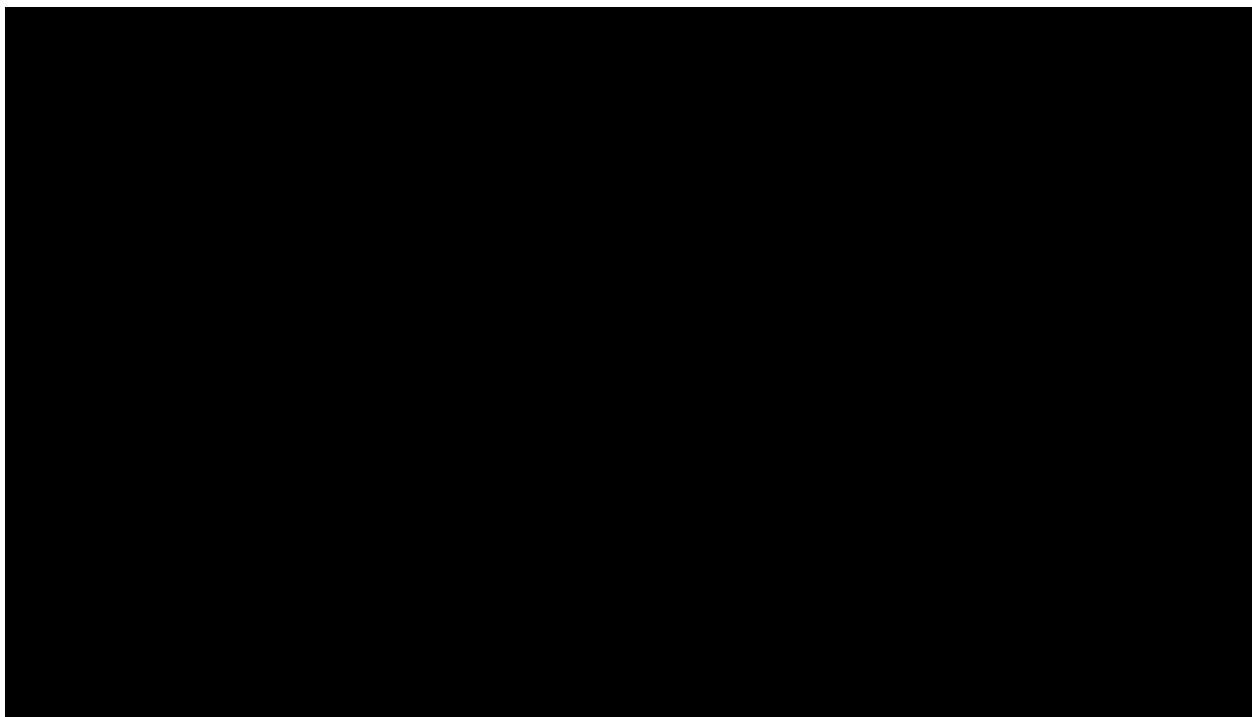


Figure 1 - Solutions considered in the Gate 1 submission

7 Conclusion

Southern Water has met the requirements of gate 1 and has gone beyond those requirements by identifying alternative solutions that have enhanced long term potential.

The s20 requires SW to use all best endeavours to implement the Base Case by 2027. In order to meet this obligation SW needs to have identified the solution to be taken forward for full design and planning consent by gate 2. There are potential conflicts between the gated process, the s20, the WRMP24 and WRSE processes and the choice of optimal solutions that address multiple needs in the required timetable. These are issues we wish to discuss with RAPID and the individual regulators represented on it.