

Regulators' Alliance for Progressing  
Infrastructure Development

December 2021



## Strategic regional water resource solutions: Standard gate one final decision for South Lincolnshire Reservoir



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## 1. Introduction

The purpose of this publication is to set out our final decision in respect of the South Lincolnshire Reservoir strategic regional water resource solution submitted for the standard gate one assessment by solution sponsors Anglian Water and Affinity Water<sup>1</sup>. The solution includes three options within it. Further information concerning the background and context of the Anglian Water and Affinity Water South Lincolnshire Reservoir can be found in the South Lincolnshire Reservoir publication document on the Anglian Water and Affinity Water websites<sup>2</sup>.

This publication should be read in conjunction with the final decision letter issued to each solution sponsor. Both this document and the final decision letters have been published on our website today.

The assessment process is overseen by RAPID, with input from the partner regulators Ofwat, the Environment Agency and the Drinking Water Inspectorate. The Environment Agency together with Natural England and, where a solution impacts Wales, Natural Resources Wales, have reviewed the environmental sections of the submissions, and have provided feedback to RAPID. The Consumer Council for Water provided input to the assessment on customer engagement.

The solution sponsors and other interested parties had the opportunity to respond to the draft decision during the representation period, which followed the publication of the draft decisions on 14 September 2021. We have taken all relevant representations into account in making our final decision.

We would like to thank Anglian Water and Affinity Water for the level of engagement, collaboration, and innovation that they have exhibited during this stage in the gated process.

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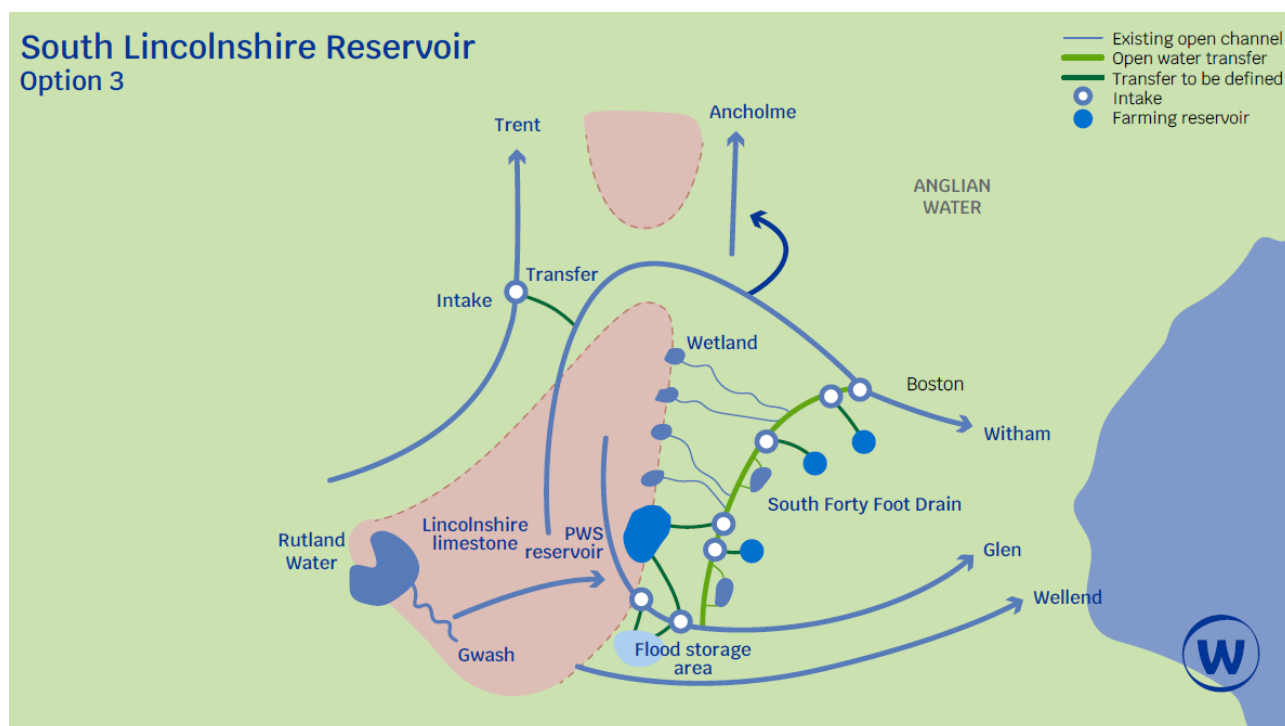
<sup>1</sup> Referred to in PR19 final determination as “South Lincolnshire reservoir”

<sup>2</sup> <https://affinitywater.uk.engagementhq.com/strategic-resource-options>

## 2. Solution summary

The South Lincolnshire Reservoir is proposed to alleviate the forecast water deficiencies in the Anglian Water area and (if selected) via the Anglian to Affinity transfer the shortage in the Affinity Water area. The reservoir would be fed by abstractions from the River Witham, South Forty Foot Drain (SFFD) and a transfer from the River Trent. A site has not yet been selected.

Figure 1: SLR Schematic



The reservoir would provide a deployable output (DO) of between 151 MI/d and 182MI/d.

This solution considers three options:

- Option 1: 52.5 million cubic metre multi-purpose water storage reservoir with water intakes from the River Witham and the South Forty Foot Drain. DO of 182MI/d.
- Option 2: 50 million cubic metre reservoir with wetlands. Water intake include intakes from the South Forty Foot Drain. DO of 151 MI/d.
- Option 3: 50 million cubic metre reservoir with wetlands, a flood storage reservoir and three farming reservoirs. Water intake include intakes from the Rive Glen and the South Forty Foot Drain. DO of 151 MI/d.

## 3. Summary of representations

### 3.1 Representations received

We have received the following representations relevant to South Lincolnshire Reservoir (SLR).

**Table 1 Summary of representations**

Representation from	Summary of representation
<p><b>Group Against Reservoir Development (GARD)</b></p>	<p><b>Transparency of cost estimates</b> GARD cites concerns over a lack of transparency in solution cost estimates generally, requesting further detail to the level that was included in the Fens reservoir gate one report.</p> <p><b>Deployable output and stochastic flow data</b> GARD is also concerned about a lack of transparency in deployable output (DO) assessments, suggesting the evidence should be made available for scrutiny of the assumptions, data, and outputs of the modelling.</p> <p>GARD have concerns over the reliability of stochastic river flow data, such as: inaccurate weather data for groundwater-dominated catchments; the stochastic weather base period not containing any long duration droughts; the base period excluding weather since 1997; and the geological difference in catchments not being reflected in the generated Thames and Severn flows.</p> <p><b>Carbon costing</b> Mentioned the SLR submission as an example of a high-quality carbon costing.</p>
<p><b>Oxfordshire County Council</b></p>	<p>Agreed that SLR should be progressed to gate two as it could provide significant benefit not only within the Water Resources East (WRE) area, but also to the Water Resources South East (WRSE) area given the linked proposal to transfer water to Affinity Water for London.</p> <p>Agreed that, for each option pursued, there is a need to further investigate the likely utilisation and the in-combination effects.</p>
<p><b>Affinity Water and Anglian Water</b></p>	<p>Due to an underspend at gate one and gate two estimations going over budget, it is requested that the underspend be carried forward. Anglian Water and Affinity Water would welcome further discussions on the over-arching approach for calculating the gate two funding allowance.</p>

	<p>Confirmed that no adjustments have been made to the costs claimed. Final accounts are broadly in line with the amount claimed in the gate one report.</p> <p>Confirmed that they are committed to working collaboratively with both the Environmental Agency and Natural England and will look to share a detailed work programme and full risk register with them.</p> <p>Mentioned that they would welcome further discussion to understand the details behind the “good” rating received in the environmental assessment area.</p> <p>Confirmed that the gate one drinking water safety plan will be expanded upon and any mitigation necessary identified for the gate two concept design.</p> <p>Highlighted that there have been notable differences in the DO calculation from Water Resource Management Plans 2019. For gate two, DO estimation will be reviewed using new climate datasets developed by the Met Office.</p> <p>Confirmed that the scheme has been incorporated into WRE regional system simulator alongside other competing demands, including from the energy sector and the resulting plan will include size and output from scheme, and an in-combination assessment.</p> <p>Confirmed that for gate two the invasive non-native species (INNS) risk assessment will be updated and the type of mitigations required will be revisited.</p> <p>Confirmed that work will be undertaken with the stakeholder group to investigate funding options to achieve maximum benefit.</p> <p>Emergency drawdown arrangements will depend on the final site; the gate one design should only be considered as indicative and inclusion of the SFFD is still to be confirmed. An emergency drawdown is a highly unlikely event, but a clear approach for managing this situation will be detailed for gate two, based on the preferred site location. flood protection will be central in the design.</p> <p>Confirmed that a robust decision-making process is being developed with stakeholders to achieve best value as opposed to least cost.</p>
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<b>The South Lincolnshire Water Partnership</b>	Stated their commitment to work with Anglian Water and Affinity Water, requested care and time is taken in the development of the option plans and asked for advice on maintaining their own local alliance through the process.
<b>Local Resident</b>	Raised concerns about the inclusion of a siphon to offload water to SFFD in times of emergency due to the rapid rise in water level in the SFFD during heavy rain.  Stated that the funds used to build boat lock at Black Sluice are unsustainable due to new flood risk posed as a result of the damage to the pumping station.

## 3.2 Our Response

We have taken the representations into account in our final decisions and set out below our response to the key points and issues raised.

### 3.2.1 Transparency in cost estimates

We do not consider information about solution costs to be material to gate one decisions. Gate one is a checkpoint and is the first opportunity to check the progress made by solution owners on investigations and development of solutions in the gated process. At gate one, all solutions were expected to progress to gate two and continue to receive ring-fenced funding unless there was a clear reason why they should not.

Solution costs will be considered further from gate two onwards and in regional plans and water resource management plans. We will provide companies with guidance on presenting and publishing solution costs in their gate two submissions.

### 3.2.2 Deployable Output assessments and stochastic flow data

We consider that the work completed on the DO assessment is sufficient for gate one. The water companies will continue to develop the solutions and evidence surrounding them. Guidance will be provided on our expectations for a more detailed examination of deployable output at gate two. The use of stochastic flow data reflects the requirement to test droughts larger than those observed in the historic record, such as drought events with 1:500 year return periods. Solutions generation of stochastic flow data is expected to follow Water Resource Planning Guidelines Supplementary Guidance: Planning to be resilient to a 1 in 500 drought (England), and Supplementary Guidance: Stochastics. We will pass on the specific



points raised to solution owners for consideration as they develop their deployable output assessments further.

### **3.2.3 Black Sluice pumping station and siphon to SSFD**

All impacts will be carefully examined by those responsible for the development of the solution, but also through the planning and consenting process. Neither the construction of the reservoir itself, nor any emergency arrangements, would be permitted by the Environment Agency if the risk of flooding to people and property is increased.

The decision to decommission by the Black Sluice Partnership was based on a rigorous study of the benefit of the pumps. More information is available from the Environment Agency, a member of the Black Sluice partnership.

### **3.2.4 Gate two plans – joint representation from Anglian Water and Affinity Water**

We welcome the work proposed by the SLR team to address the actions and recommendations as set out in the Appendix and have updated the section of our decision relating to gate two activities to reference this.

### **3.2.5 Utilisation of gate one underspend at gate two**

Some solution owners raised concerns in their representations regarding whether gate two allowances would be sufficient for completion of gate two activities and suggested that gate one underspend should be carried forward to gate two. The percentage allocations to each gate in our Final Determination at PR19 were inherently imprecise and were based on our understanding of likely profile of activities to be carried out in progressing the development and investigation of solutions taking into account companies' proposals in this respect. We now have an improved understanding of the activities to be carried out at gate two and consider that it will be beneficial to allow funding allowance that has not been used at gate one to be made available to solution owners for carrying out gate two activities.

We have therefore decided to merge gate one and gate two allowances for this solution. This will allow any underspend on gate one activities to be used for gate two activities. We will continue to scrutinise expenditure to ensure that it is appropriate and efficient. Companies remain responsible for management of cost risk to meet gate requirements

## 4. Solution assessment summary

Table 2 Final decision summary

Recommendation item	South Lincolnshire Reservoir
Solution sponsors	Anglian Water and Affinity Water
Should further funding be allowed for the solution to progress to gate two?	Yes
Is there evidence all expenditure is efficient and should be allowed?	Yes
Delivery incentive penalty?	No
Is there any change to partner arrangements?	No
Is there a need for a remediation action plan?	No

### 4.1 Solution progression and funding to gate two

The evidence suggests that the solution is a potentially valuable way of supplying water to customers. Based on our assessment of the potential solution costs and benefits we have concluded that the solution should progress through the gated process to gate two, and that further funding be allowed.

We are not changing the funding of this solution. This solution's total allowance and gate allowances remain the same as the final determination.

We have decided to merge the gate one and gate two allowances. This results in a total allowance of £7.27m being available at gate two. Companies remain responsible for management of cost risk to meet gate requirements.

### 4.2 Evidence of efficient expenditure

The PR19 final determination specified that any expenditure on activities outside the gate activities for the identified solutions (or solutions that transfer in) will be considered as inefficient and be returned to customers. We will consider whether gate activity is efficient by considering the relevance, timeliness, completeness, and quality of the submission which should be supported by benchmarking and assurance.

Our assessment of the efficient costs as spent on gate one activities results in an allowance for this solution of £2.38m (of £2.38m claimed). These costs reflect final and reconciled costs.

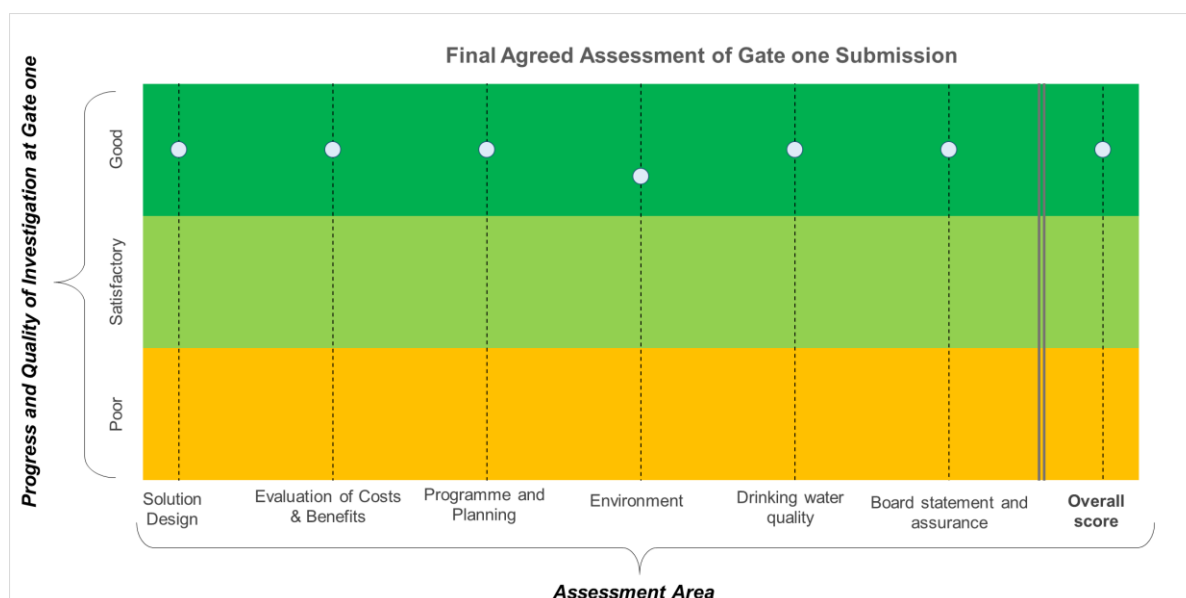
We have made no adjustments to the costs claimed.

## 4.3 Quality of submission

The aim of the assessment was to determine whether appropriate progress has been made towards delivery of the solution. We recognise at this stage solutions may be at different development points and the assessment takes this into account.

Figure 2 shows our assessment of the work completed on the solution, which was presented in the submission. Our assessment was made against the criteria of robustness, consistency and uncertainty to grade each area of the submission as good, satisfactory or poor in accordance with [our guidance published on 22 February 2021](#). We also assessed the Board assurance provided.

**Figure 2. Submission Assessment**



Our overall assessment for the solution submission is that it is good (meets expectations).

### 4.3.1 Solution Design

Our assessment of the solution design considered the quality of the evidence provided on the initial solution and options; the anticipated operational utilisation of solutions; the interaction of the solution with other proposed water resource solutions and stakeholder and customer engagement. The assessment also considered whether information was provided on the context of the solution's place within company, regional and national plans.

We consider Anglian Water and Affinity Water have provided good evidence of progress in developing the solution design for gate one. More detailed assessment of operation, utilisation, and interdependencies should be undertaken following regional modelling, including interaction with other options.

### **4.3.2 Evaluation of Costs & Benefits**

Our assessment of the evaluation of costs and benefits considered the quality of the information provided on initial solution costs; the societal, environmental and economic cost and benefits, water resource benefits and wider resilience benefits. The assessment also considered whether evidence was provided on how the solution delivers a best value outcome for customers and the environment.

We consider that Anglian Water and Affinity Water have provided good evidence of evaluating the costs and benefits of the solution to an appropriate standard for gate one, although we expect to see this expanded upon in the gate two submission.

Water customers should only be expected to fund solutions consistent with the proper carrying out of the functions of a water company. As the solution develops, we expect third parties who will benefit from the solution to contribute a fair share of costs according to their own responsibilities and the benefits they realise.

Regional model outputs should confirm the size and yield of the solution. Wider benefits, natural capital assessment and biodiversity net gain should be reassessed for gate two. We support the concept of providing resilience benefits to other water users and developing the solution so that it enhances environmental and flood resilience in the local catchment.

### **4.3.3 Programme and Planning**

Our assessment of the programme and planning considered whether Anglian Water and Affinity Water presented a programme with key milestones and whether its delivery is on track. The assessment also considered the quality of the information provided on risks and issues to solution progression, the procurement and planning route strategy and subsequent gate activities with outcomes, penalty assessment criteria and incentives.

We consider the evidence provided by Anglian Water and Affinity Water regarding the programme and planning, risks and issues and the procurement and planning route strategy for SLR to be of good detail and quality for gate one. A full risk register should be shared with the Environment Agency to ensure a work programme is in place to address environmental risks.

#### 4.3.4 Environment

Our assessment of environment considered the initial environmental assessment; the identification of environmental risks and an outline of potential mitigation measures; the detailed programme of work used to address environmental assessment requirements and the initial outline of how the solution will take into account the carbon commitments.

We consider Anglian Water and Affinity Water to have provided good evidence of progress in the environmental assessment, potential mitigations, future work programmes and embodied and operational carbon commitments for gate one.

The regulatory and environmental assessments will need to be refined, this includes reviewing the scopes of the environmental assessment and undertaking further monitoring. Anglian Water and Affinity Water will need to work with the Environment Agency and Natural England to ensure potential risks are addressed through detailed work program, including scope and mitigation requirements for identified impacts.

#### 4.3.5 Drinking water quality

Our assessment of drinking water quality considered drinking water quality and risk assessments; evidence that the solution has been discussed with the drinking water quality team and a plan for future work to develop Drinking Water Safety Plans (DWSPs).

We consider that the information provided in this submission on drinking water quality risks, stakeholder engagement and DWSPs for gate one was good. We expect to see further development of DWSPs, water quality monitoring, including for emerging contaminants, and wider stakeholder engagement with ongoing dialogue with the respective water quality teams in gate two.

#### 4.3.6 Board Statement and assurance

The evidence provided relating to assurance has been assessed as good.

The solution sponsors have provided Board statements that indicate:

- their support of submission recommendations for solution / option progression;
- they are satisfied that progress on the solution is commensurate with the solution being construction ready for 2025-30;
- they are satisfied the work carried out to date is of sufficient scope, detail and quality as would be expected for a large infrastructure project of this nature at this stage; and

- that expenditure has been incurred on activities that are appropriate for gate one and is efficient.

These statements are accompanied by an explanation of the approach to assurance and a description of the evidence and information that the Boards have relied on in giving the statements.

## **5. Proposed changes to partner arrangements**

There are no proposed changes to partner arrangements.

## 6. Actions and recommendations

Where the submission has not been assessed as ‘meeting expectations’ we have provided feedback on where we will seek remediation of the issues. We have also identified specific steps that solution owners should take in preparing for gate two.

We have categorised the remediation issues into priority actions, actions and recommendations.

Priority actions are those that should have been completed at gate one and must now be addressed on a short timescale in order to make sure the solutions stay on track. They require urgent remediation in full and for this reason directly relate to the assessment of delivery incentives set out in this publication. The response to the priority actions will determine whether a delivery incentive is imposed; and the extent to which the delivery incentives can be mitigated by the solution sponsors. If all priority actions are satisfactorily completed then the penalty will not be imposed. If one or more of priority actions are not satisfactorily completed then the whole of the penalty will be imposed.

We have also identified actions that should be addressed in full in the gate two submission. The response to these actions will influence the assessment of the gate two submission.

Recommendations are issues where additional information or clarification could improve the quality of future submissions.

No priority actions have been identified for South Lincolnshire Reservoir; therefore we do not require the solution sponsors to provide us with a remediation action plan. The full list of other actions and recommendations can be found in the Appendix.



## 7. Gate two activities

The solution will continue to be funded to gate two as part of the standard gate track.

For its gate two submission, we expect Anglian Water and Affinity Water to complete the activities listed in [PR19 final determinations: strategic regional water resources solutions appendix](#) as expanded on in its gate one submission and its representation.

## 8. Incentives for gate two

For gate two we maintain the same arrangements for incentives as applied in gate one – that is, a maximum penalty of 30% of company's total efficient gate funding that could be applied to solutions that have not made adequate progress, where work is of inadequate quality, or the submission deadline is missed.

Penalties will be determined on a case by case basis taking into account:

- the level of completeness and the overall quality of the work carried out in investigating and developing the solution based on the evidence summarised in the submission;
- the evidence and justification provided where aspects of the work carried out fall short of expectations; and
- the impact on the decisions and delivery of solutions, including the extent to which deficiencies adversely impact customers.

Penalties will be applied through the PR24 reconciliation mechanism, as described in '[PR19 final determinations: Strategic water resource solutions](#)'.

There will be no opportunity to remediate deficiencies identified at the assessment in order to defer penalties.


## Appendix: Actions and recommendations

<b>Actions – to be addressed in gate two submission</b>		
<b>Number</b>	<b>Section</b>	<b>Detail</b>
1	Evaluation of costs and benefits	Report the deployable outputs for 1:200 years drought and explain why the 1 in 500 years deployable output figures are higher than the 1 in 200 figure in the 2019 water resources management plan.
2	Solution design	The in-combination assessment should include all relevant interactions between options. It will be beneficial to consider the potential competing resources from the energy sector
3	Programme and planning	The invasive non-native species (INNS) treatment design should consider pathways, likely future risks and mitigation measures for the River Trent.
4	Evaluation of costs and benefits	Engage third parties who will benefit from the solution to contribute a fair share of the development costs, particularly where this significantly increases solution costs.
<b>Recommendations</b>		
<b>Number</b>	<b>Section</b>	<b>Detail</b>
1	Solution design	A permanent siphon into the South Forty Foot Drain (SFFD) is proposed for the safe removal of the water from the reservoir in an emergency. Evidence is needed to show the SFFD has capacity to accommodate high volumes of water in an emergency.
2	Evaluation of costs and benefits	Include which option is considered best value (rather than just least cost) for customers and the environment and the criteria and method used for best value. More detail on amenity features should be provided when the site has been selected

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3	Evaluation of costs and benefits	Develop as a priority environmental modelling, monitoring plans and approach to in-combination assessment. The yield of the solution should be considered in-combination with the Fens reservoir, the Anglian to Affinity transfer and existing water resources assets.
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