

March 2023

**Strategic regional water  
resource solutions:  
standard gate two draft decision  
for South Lincolnshire Reservoir**

**Ofwat**

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# 1. Introduction

The purpose of this publication is to set out our draft decision about whether the South Lincolnshire Reservoir<sup>1</sup> solution should continue to receive development funding<sup>2</sup>. The solution owners Anglian Water and Affinity Water submitted their standard gate two reports on 14 November 2022 for assessment. Further information concerning the background and context of the Anglian Water and Affinity Water's South Lincolnshire Reservoir can be found in the South Lincolnshire Reservoir publication document on the Affinity Water website<sup>3</sup>.

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

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, have reviewed the environmental sections of the submissions, and provided feedback to RAPID. The Consumer Council for Water provided input to the assessment on customer engagement.

The solution owners and other interested parties can now respond to the draft decision. Representations are invited by email to [rapid@ofwat.gov.uk](mailto:rapid@ofwat.gov.uk) and the representation period will close at 6pm on 11 May 2023. All representations will be considered before our final decision is published at 10am on 28 June 2023.

We will publish representations on our website at [www.ofwat.gov.uk/regulated-companies/rapid](http://www.ofwat.gov.uk/regulated-companies/rapid), unless you indicate that you would like your representation to remain unpublished. We will also share representations with our partner regulators, Ofwat, the Environment Agency and the Drinking Water Inspectorate and with Natural England. Subject to the following exceptions, by providing a representation to this consultation you are deemed to consent to its publication.

If you think that any of the information in your response should not be disclosed (for example, because you consider it to be commercially sensitive), an automatic or generalised confidentiality disclaimer will not, of itself, be regarded as sufficient. You should identify specific information and explain in each case why it should not be disclosed (and provide a redacted version of your response), which we will consider when deciding what information to publish. As minimum, we would expect to publish the name of all organisations that provide a written response, even where there are legitimate reasons why the contents of those written responses remain confidential.

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

<sup>2</sup> [PR19 final determinations: Strategic regional water resource solutions appendix](#)

<sup>3</sup> [South Lincolnshire Reservoir](#)

In relation to personal data, you have the right to object to our publication of the personal information that you disclose to us in submitting your response (for example, your name or contact details). If you do not want us to publish specific personal information that would enable you to be identified, our [privacy policy](#) explains the basis on which you can object to its processing and provides further information on how we process personal data.

In addition to our ability to disclose information pursuant to the Water Industry Act 1991, information provided in response to this consultation document, including personal data, may be published or disclosed in accordance with legislation on access to information – primarily the Freedom of Information Act 2000 (FoIA), the Environmental Information Regulations 2004 (EIR) and applicable data protection laws.

Please be aware that, under the FoIA and the EIR, there are statutory Codes of Practice which deal, among other things, with obligations of confidence. If we receive a request for disclosure of information which you have asked us not to disclose, we will take full account of your explanation, but we cannot give an assurance that we can maintain confidentiality in all circumstances.

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.

## 2. Solution Summary

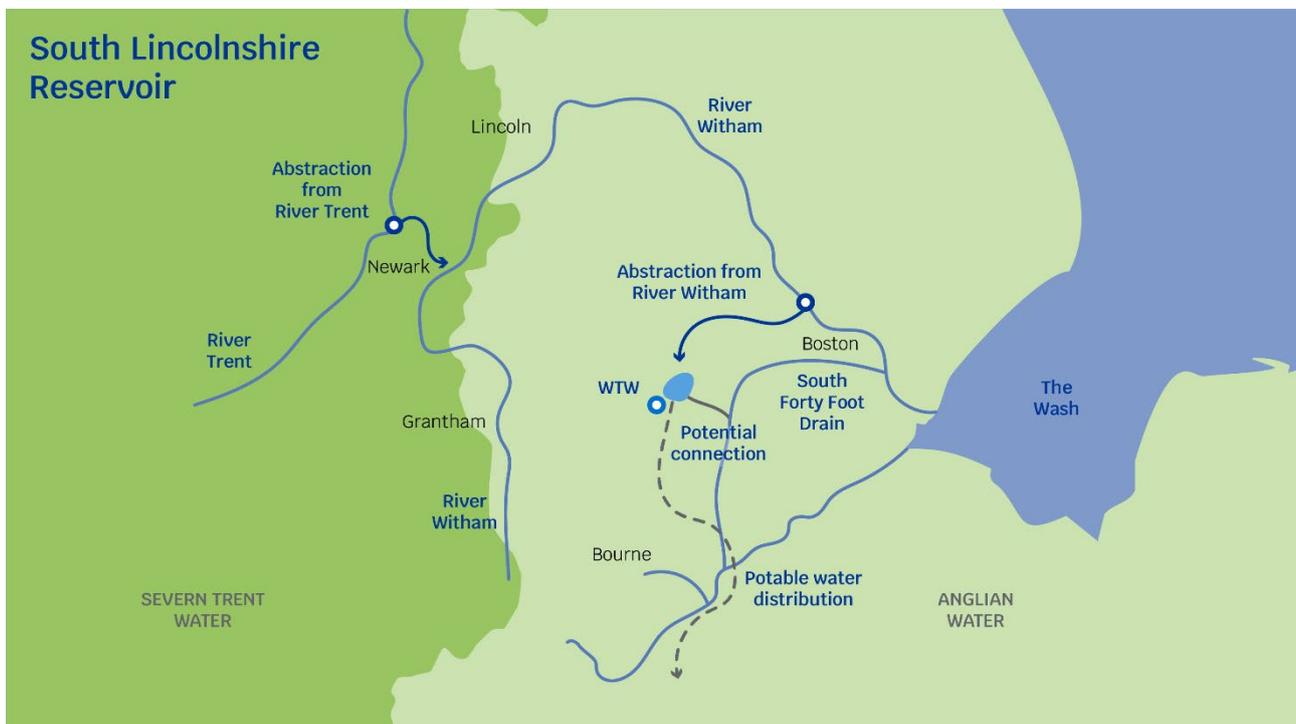
### 2.1 Solution summary

The South Lincolnshire Reservoir (SLR) solution consists of a 55 million cubic metre (MCM) reservoir, with 50MCM useable volume in Lincolnshire, south of Sleaford. The reservoir plans show a maximum embankment height of 20m covering an area of about 5km. The deployable output is modelled to be 166 megalitres per day (Ml/d). Water will be abstracted from the River Witham (when flows allow) with a 400Ml/d capacity, with a backup transfer to the River Witham from the River Trent sized at 300 Ml/d.

It is anticipated that SLR will also deliver wider social, environmental, and economic benefits beyond water supply. SLR could become a leisure destination for activities such as walking, cycling, sailing, and angling and provide a support system to conserve wildlife and enhance biodiversity, protecting valuable species and creating new habitats.

The project capital expenditure is £2.33 billion (in 2020/21 prices), with an Average Incremental Cost (AIC) of 181p/m<sup>3</sup>.

**Figure 1. South Lincolnshire Reservoir Solution Schematic**



### 3. Solution assessment summary

Table 1. Draft decision summary

Recommendation item	South Lincolnshire Reservoir
Solution owners	Anglian Water and Affinity Water
Should further funding be allowed for the solution to progress to gate three?	Yes
Is there evidence all expenditure is efficient and should be allowed?	Yes
Delivery incentive penalty?	No
Is there any change to partner arrangements?	Yes, refer to section 6
Are there priority actions for urgent completion?	Yes, refer to section 4.1
Are all priority actions and actions from previous gates addressed?	Yes
Suitable timing for gate three has been proposed	No, RAPID have decided a gate three of September 2024 to align with other solutions.

#### 3.1 Solution progression to standard gate three

The evidence suggests that the solution is a potentially valuable way of supplying water to customers. Based on our assessment of a wide range of areas that could concern the progression of the solution, we have concluded that the solution should progress through the gated process to gate three. Figure 2 below summarises the area of any progression concerns, including indication of the significance. The reasons for this assessment conclusion are set out in table 2 below.

Decisions on funding as a result of this progression decision, are set out in section 3.2.

Figure 2. Assessment of solution's progression concerns

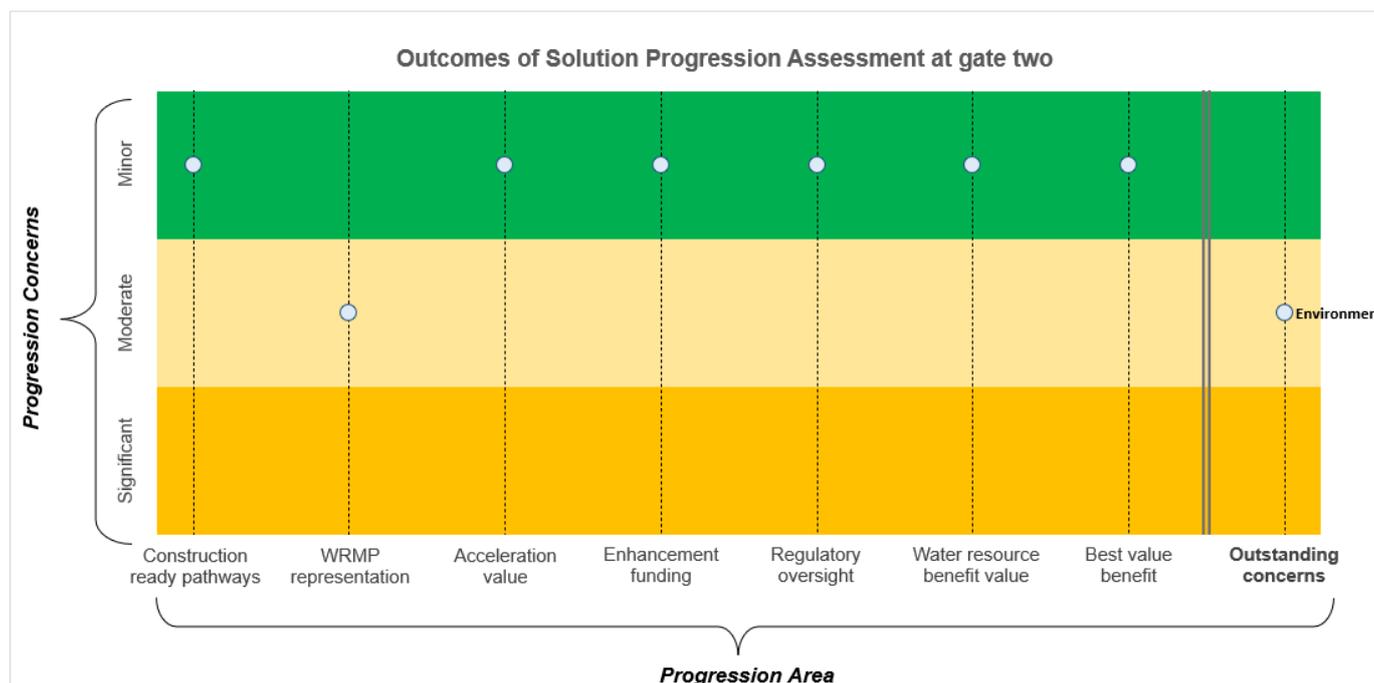


Table 2. Draft decision progression criteria

Progression criteria	South Lincolnshire Reservoir
Solution owners	Anglian Water and Affinity Water
Is the solution in a preferred or alternative pathway in relevant regional plan or WRMP (where applicable) to be construction ready by 2030?	<p>Yes, the solution is chosen in Anglian Water's draft 2024 Water Resource Management Plan (WRMP24), as a solution on its preferred pathway, which is the relevant plan for the standard track. The solution is also in the Water Resources East (WRE) draft regional plan. The solution will be construction ready by 2029.</p> <p>No further action is required on this progression criteria.</p>
Do regulators have any significant concerns with the solution's inclusion or non-inclusion in a WRMP or regional plan or with any aspects that may impact its selection, to a level that they have (or intend to) represent on it when consulted?	<p>Yes, the technical evidence that has informed the inclusion of the solution in the WRE draft regional plan has not been made available for review by regulators. The review of that technical evidence is considered necessary for confidence in the draft regional plan process. Sufficient evidence is needed to demonstrate to regulators' satisfaction that SLR is a 'low regret' and 'must do' option and to give regulators confidence that SLR is a better value option than others.</p> <p>This progression concern is addressed in section 3.4.3 and priority action 1 of this document.</p>
Is there value in accelerating the solution's development to meet a company's or region's forecast supply deficit?	<p>Yes. A solution is required to address Anglian Water's forecast deficit.</p> <p>No further action is required on this progression criteria.</p>

<b>Does the solution need continued enhancement funding for investigations and development to progress?</b>	Yes. Continued funding is required to develop a solution to be delivered in time for the planned construction ready date.
	No further action is required on this progression criteria.
<b>Does the solution need the continued regulatory support and oversight provided by the Ofwat gated process and RAPID?</b>	Yes. The solution will continue to benefit from the regulatory support and oversight provided by being included in the RAPID programme.
	No further action is required on this progression criteria.
<b>Does the solution provide a similar or better cost / water resource benefit ratio compared to other solutions?</b>	Yes. This solution does provide a similar or better cost / water resource benefit ratio compared to other solutions, subject to the regulators being satisfied with the technical evidence supporting the solution's inclusion in the WRE draft regional plan, as noted above.
	No further action is required on this progression criteria, other than under section 3.4.3 and priority action 1 of this document.
<b>Does the solution have the potential to provide similar or better value (environmental, social and economic value – aligned with the Water Resources Planning Guideline) compared to other solutions?</b>	Yes. This solution has the potential to provide similar or better value (environmental, social and economic value – aligned with the Water Resources Planning Guideline) compared to other solutions.
	No further action is required on this progression criteria.
<b>Does a regulator or regulators have outstanding concerns that have not been addressed through the strategic planning processes taking into account proposed mitigation?</b>	Yes. There remains a significant programme of environmental monitoring, assessment and modelling required to determine potential environmental impacts with confidence. Work is also required to develop the design in detail and on mitigation measures. Flood risk assessments will be complex and the timescales within which all of the necessary environmental work will need to be completed are ambitious.
	This progression concern is addressed in section 3.4.5 and actions 7 to 19 of this document.

## 3.2 Solution funding to standard gate three

We are changing the funding of this solution. This solution's total allowance and gate allowances remain the same as the final determination. The details of this funding decision are set out in Table 3 below, and details on forward programme in section 7.1.

**Table 3. South Lincolnshire Reservoir funding allowances**

	Gate one	Gate two	Gate three	Gate four	Total
<b>South Lincolnshire Reservoir gated allowance</b>	£3.86m	£5.79m	£22.38m	£15.44m	£47.47m
<b>Comment</b>	10% of development allowance calculated as 6% of total solution costs	15% of development allowance calculated as 6% of total solution costs	65% of the forecast overspend has been added on top of the previous allowance determined at PR19	40% of development allowance calculated as 6% of total solution costs	Total development allowance calculated as 6% of total solution costs
<b>Previous Allowance</b>	£3.86m	£5.79m	£13.51m	£15.44m	£38.6m
<b>Change from Previous Allowance</b>	£0.00m	£0.00m	£8.87m	£0.00m	£8.87m

We note that Anglian Water set out that to continue to develop the solution to the standard required to achieve a successful Development Consent Order (DCO) and to enable water to be brought into supply between 2039 and 2041 is subject to confirmation of adequate funding of the development costs being made available by Ofwat. The solution sponsors have identified a shortfall of around £36.3m

This funding has been revised to account for forecast costs at gate three. We have determined that across all solutions gate three costs have risen due to factors such as increases in solution design costs, changes in scope and additional funding required to develop the environmental impact assessment (EIA), water quality assessments, ground investigations and other environmental field studies and assessments. We determine that providing the original gate three allowance combined with 65% of their projected overspend at gate three is appropriate. We do not feel that it would be appropriate to provide solutions with their complete projected overspend at gate three as these projections are not fully mature, and we want to ensure that solutions are still incentivised to keep costs as low as possible.

In addition, we are changing the cost sharing rate that is applied to the solution. At gate three, the solution owners will be responsible for 80% of any overspend. Furthermore, solution owners will be able to retain 25% of any total underspend at gate three, while the remaining 75% will be returned to customers. This diverges from the 50% cost sharing that was outlined in the [PR19 final determinations: Strategic regional water resources solution appendix](#).

### 3.3 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.

SLR has carried forward £1.48m underspend from gate one, increasing the allowance available to them at gate two to £7.27m.

Our assessment of the efficient costs as spent on standard gate two activities results in an allowance for this solution of £5.18m (of £5.18m claimed). SLR has therefore underspent its combined gates one and two allowance by £2.09m and may take this underspend forward to gate three, increasing the allowance available to them at gate three to £24.47m.

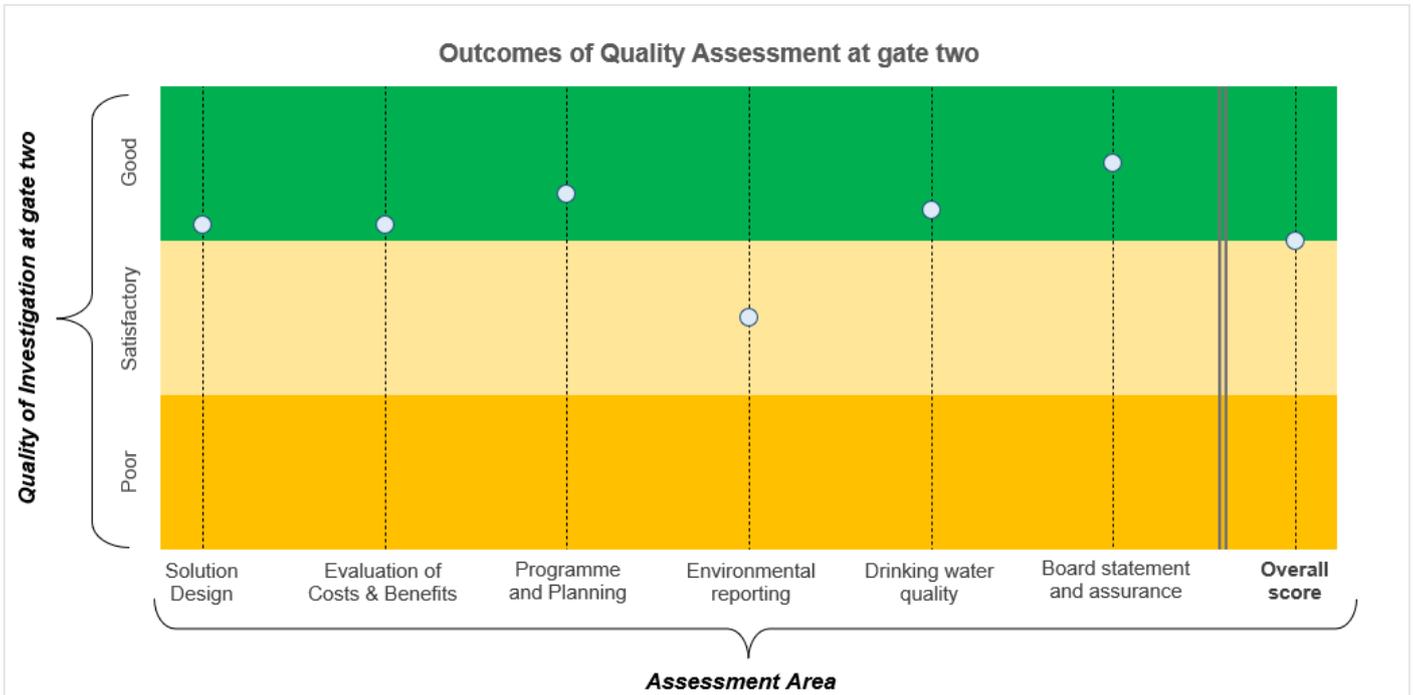
From gate two, we will move to look at the cumulative gate spend against the cumulative total allowance, across all gates consistent with the activities being undertaken. For example, any gate four allowance that is brought forward towards gate three should be for the purpose of early gate four activities. Overspends and underspends are then to be managed through cost sharing between the water company and customers. As SLR is progressing to gate three, this will apply here.

### 3.4 Quality of solution development and investigation

The aim of the assessment was to determine whether gate two activities have been progressed to the completion and quality expected, for the continued development of the solution.

Figure 3 shows our assessment of the work completed on the solution, which was presented in the gate two 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 the [standard gate two guidance](#), (updated version published on 12 April 2022). We also assessed the Board assurance provided.

**Figure 3. Assessment of quality of investigation**



Our overall assessment for the solution submission is that it is a good submission that meets expectations of gate two.

In addition to the overall assessment score, there is some variance in expectations being met across the submission, with the environmental reporting falling short of expectations and not as developed as would be expected at gate two.

We explain our assessment of each individual area, including any shortfalls in expectations, in the sections below. We have not applied any delivery incentive penalties as a result of this assessment of quality, as further detailed in section 4.

### 3.4.1 Solution Design

Our assessment of the Solution Design considered the quality of the evidence provided on the initial solution and sub-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 to have provided sufficient evidence of progress in developing the solution design for gate two.

The solution falls short in some areas as there are uncertainties with the design relating to the abstraction and transfers linked to the proposed reservoir. The findings from non-

statutory consultations also need to be considered in future work on the reservoir design. The actions and recommendations identified in the solution design assessment are expected to ensure that these issues are addressed in the gate three submission.

### **3.4.2 Solution costs**

Our assessment of the unit costs of delivering SLR is that they are reasonable at this stage and cost changes from gate one to gate two have been sufficiently explained and are as a result of detailed development of the solution or changing market conditions. For instance, there has been a significant increase in the price of steel, and new unit cost data is available on large diameter installations. The assessment also considered the use of the solution as a drought resilience asset, and therefore cost per capacity is often a more appropriate metric than cost per projected utilisation. We will continue to scrutinise cost estimate changes from gate two to gate three.

### **3.4.3 Evaluation of Costs and Benefits**

Our assessment of the evaluation of costs and benefits considered the quality of the information provided on initial solution costs; the social, 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 sufficient evidence of evaluating the costs and benefits of the solution to an appropriate standard for gate two.

A priority action has been set for Anglian Water and Affinity Water to provide regulators with evidence to support the selection of SLR as a 'low regret' and 'must do' option in the Water Resources East draft regional plan. This is due for completion by 30 October 2023.

Uncertainties with the Natural Capital Assessment and the best value assessment should be addressed in the gate three submission to provide evidence that the solution represents the best value option for customers, society and the environment.

### **3.4.4 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 sufficient detail and quality for gate two.

The solution falls short in some areas as there are risks which do not have the appropriate level of mitigation developed to address them. A priority action has been set for Anglian Water and Affinity Water to engage with the Environment Agency on abstraction licencing and for a consenting strategy to be shared with Environment Agency and Natural England for review. This is due for completion by October 2023.

### **3.4.5 Environment**

Our assessment of Environment considered the initial option-level 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 satisfactory evidence of progress in the environmental assessment, potential mitigations, future work programmes and embodied and operational carbon commitments for gate two. Areas of shortfall identified relate to environmental assessments and investigation, and the monitoring of environmental risks.

The solution falls short in some areas of the environment assessment as there are environmental risks identified in the submission which do not have the appropriate level of mitigation developed to address them. A number of actions and recommendations have been identified to establish a programme of work to address environmental issues in the gate three submission.

### **3.4.6 Drinking water quality**

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

We consider Anglian Water and Affinity Water to have provided sufficient evidence of progress in the drinking water quality and risk assessment, and future work around Drinking Water Safety Plans for gate two.

We expect to see comprehensive water quality monitoring, including for emerging contaminants of concern, from gate two onwards, with plans to include computational fluid

dynamics (CFD) or similar to ascertain water quality risks associated with thermal stratification and algal blooms.

### **3.4.7 Board Statement and assurance**

The evidence provided relating to assurance is good for this stage of the gated process.

We consider that the Boards of Anglian Water and Affinity Water have provided a comprehensive assurance statement and have clearly explained the evidence, information and external/internal assurance that they have relied on in giving the statement.

## 4. Actions and recommendations

Where the submission has not been assessed as ‘meeting expectations’ in the quality assessment, or progression concerns have been raised, 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 standard gate three.

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

Priority actions are those that should have been completed at gate two 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.

Actions are those that should be addressed in full in the standard gate three submission. The response to these actions will influence the assessment of the gate three submission.

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

We have also assessed progress on actions and recommendations from gate one.

### 4.1 Actions and recommendations from gate two assessment

Three priority actions have been identified for SLR which should be delivered no later than the dates specified against each priority action. If solution owners cannot meet this deadline, please explain this in the representation.

27 actions and recommendations have been identified for SLR, which should be fully addressed at the gate three submission. Progress against actions will be tracked as part of regular checkpoints the solution holds with us whilst undertaking gate three activities.

The full list of priority actions, actions and recommendation for the South Lincolnshire Reservoir can be found in Appendix A.

### 4.2 Actions and recommendations from gate one assessment

We have assessed whether SLR has met actions that were set out as a result of our gate one assessment.

No priority actions were identified for SLR.

Seven actions and recommendations were identified for SLR, which were expected to be fully addressed at the gate two submission.

Further detail of our conclusion against each individual action is shown in Appendix B.

## 5. Delivery Incentive Penalty

We have not applied delivery incentive penalties to this solution, as a result of the assessment carried out on the gate two submission.

## 6. Proposed changes to partner arrangements

There are the following changes proposed to partner arrangements from gate two.

Anglian Water and Affinity Water propose that Affinity Water formally cease to be a partner on SLR and that responsibility for the delivery of SLR lies solely with Anglian Water from gate two onwards. This is due to the associated Anglian to Affinity Transfer (A2AT) not being progressed in full beyond gate two.

Anglian Water propose to take full responsibility for the development costs of SLR and propose that the allocation of funding from gate three reflects this.

We accept the reasoning behind the proposal to change accountability and funding arrangements and agree that Affinity Water will cease to be a partner on SLR from gate two onwards. This will be given effect through the revenue reconciliation that will take place at the 2024 price review (PR24).

## 7. Gate three activities and timing

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

For its gate three submission, we expect Anglian Water to complete the activities listed in [PR19 final determinations: strategic regional water resources solutions appendix](#), as expanded on in section 7 of the solutions gate two submission. Activities are expected to be completed in line with delivery incentives and expectations set out in [RAPID's gate three guidance](#). We also expect the actions listed in appendix A to be addressed.

### 7.1 Gate three timing

Anglian Water and Affinity Water have proposed a date for gate three of March 2024. This is proposed alongside a forward programme of gate four in November 2025, proposed planning application submitted in 2025, solution construction ready in 2029, and solution operational between 2039 and 2041.

We have decided that the SLR gate three should be September 2024. This is to align gate three with solutions on a similar programme, and for RAPID to efficiently assess progress of activities, ahead of the solutions proposed planning application.

We agree with the forward programme for gate four.

The forward programme proposed by the solution is in line with the principles of RAPID's standard programme. Funding arrangements are set out in section 3.2 of this document.

## 8. Next steps

Following publication of this standard gate two draft decision, solution owners and other interested parties are invited to respond to the draft decision. Representations, including evidence from solution owners that priority actions (identified in the Appendix) have been addressed, can be made by email to [rapid@ofwat.gov.uk](mailto:rapid@ofwat.gov.uk) and will close at 6pm on 11 May 2023.

All representations will be considered before our final decision is published at 10am on 28 June 2023.

## Appendix A: Gate two actions and recommendations

Priority Actions – to be addressed by the date specified against each priority action		
Number	Area	Detail
1	Evaluation of Costs and Benefits	Engage with the WRE regional group to provide regulators with the technical evidence that has informed the inclusion of the solution in the draft WRE regional plan and the selection of the South Lincolnshire Reservoir and Fens Reservoir as low regret and must do. This must include evidence that the timing and sizing of the reservoirs represent best value for the region. The scope and content of the information required should be worked up with RAPID and its partner regulators, and information to the regulators' satisfaction presented to RAPID and its partner regulators by 30 October 2023.
2	Programme and Planning	Engage with the Environment Agency on abstraction licensing as soon as possible. By 01 October 2023, share a consenting strategy (including but not limited to abstraction licensing) with RAPID and its partner regulators for review.
3	Drinking Water Quality	Emerging contaminants must be included in the water quality monitoring programme from gate two onwards. Provide a monitoring programme to RAPID and its partner regulators by 30 June 2023.
Actions – to be addressed in standard gate three submission		
Number	Area	Detail
1	Solution Design	Confirm to RAPID that the solution aligns with Anglian Water's Water Resource Management Plan (WRMP) and relevant Regional Plans at the next available regular checkpoint meeting after the publication of the WRMPs and Regional Plans.
2	Evaluation of Costs and Benefits	Update the Natural Capital Assessment so that valuation of ecosystem services are comparable and demonstrate benefit to the environment and society. The scoping out of recreation requires additional justification and explanation and amenity enhancements should be assessed fully.
3	Evaluation of Costs and Benefits	Update the Biodiversity Net Gain assessment to include figures for three unit types, with a conservative approach applied to calculating benefits.
4	Evaluation of Costs and Benefits	Continue to explore opportunities for open channel transfers within the system design. Encourage innovation in this area and appropriate mitigation measures in particular for invasive non-native species. We support the commitment to a detailed study in gate three of potential open channel transfers between the Witham and South Forty Foot Drain (SFFD) and the SFFD to the reservoir site and the potential synergies with the Boston to Peterborough Wetland Corridor (B2PWC) concept. The specific reference to additional navigation benefits is noted however the work of the South Lincolnshire Water Partnership (SLWP) which has identified a wider range of potential additional benefits from open channel transfers is important to consider. There is also potential opportunity to align approaches with the current Environment Agency Lower Witham Flood Resilience project.

5	Programme and Planning	Provide information and assurance about how uncertainty with developing environmental advice will be managed by the project. This should also include uncertainty with updates to abstraction licensing strategies.
6	Programme and Planning	Reference to a formal Flood Risk Assessment should also be included in the list of gate three activities and a panel engineer appointed into the project team to support development of the Flood Risk Assessment. Consultation with the Environment Agency on risks and their categorisation relating to the Flood Risk Assessment is necessary.
7	Environment	Work is needed to better understand not just average water quality and salinity effects on The Wash, but any significant deviations within the tidal cycle.
8	Environment	The potential impacts of the reservoir footprint, the abstractions and transfers should come together and be considered 'in-combination'.
9	Environment	The approach to assessing the impact of changes in ecology from abstractions and transfers associated with the proposed reservoir needs to focus on water level changes and the associated pressures of reduced water volume, not just flow changes. Incorporate consideration of climate change and temperature in hydroecology investigations.
10	Environment	Bring together transfer, abstraction and site impacts to determine the potential effect of the solution. This should include clearer presentation of risks and potential impacts associated with transfer (Anglian to Affinity transfer legacy) infrastructure.
11	Environment	The impact of the reservoir on the complex system of existing water management assets in the area needs appropriate consideration.
12	Environment	More work is needed on the Flood Risk Assessment to properly explore the dynamic flood defence system this project will be reliant upon and how it will support its maintenance. Emergency drawdown options need to be developed in consultation with the Environment Agency and Natural England.
13	Environment	Sediment and flushing flows should be appropriately investigated. Changes in flows and siltation in affected watercourses need to be investigated at gate three.
14	Environment	Reliance on the application of Regulation 19 for Water Framework Directive (WFD) compliance should be noted as a risk.
15	Environment	More detail on further environmental investigations is necessary. A clear plan to continue investigating the potential "in-combination" impacts with Minworth and the Upper Derwent Valley Reservoir Expansion should be set out. The "in-combination" assessment should be expanded to include other plans, permissions and projects within the sector and within other sectors (notably the energy sector). Detailed investigation of the potential impact on fish passage and fish passes on the Tame and Trent is necessary, and any identified impact should have feasible mitigation proposed in detail. Update and bring together modelling work and monitoring on the Trent to better understand potential hydroecological impacts on the Trent from the Lincolnshire Reservoir and Strategic Resource Options with other plans, permissions and projects.

16	Environment	A robust “in-combination” assessment investigating the potential impact of the South Lincolnshire Reservoir and Fens Reservoir on The Wash designated site is necessary.
17	Environment	Invasive Non-Native Species (INNS) treatment must be factored into the development of the reservoir and in particular any open channel transfers proposed as part of the wider systems project.
18	Environment	Baseline monitoring should be prioritised to better understand potential impacts and development of mitigation measures.
19	Environment	Recommendations made by the Environment Agency and Natural England through gate engagement should be used to inform gate three environmental work. Recommendations set out in the environmental assessments are also expected to be actioned.
<b>Recommendations</b>		
<b>Number</b>	<b>Area</b>	<b>Detail</b>
1	Solution Design	Provide clear evidence in the gate three submission of the results from your non-statutory consultations and show the actions you have taken as a result of the consultation findings.
2	Evaluation of Costs and Benefits	Reference Ofwat's Public Value principles in the gated submissions and provide narrative on how the principles have been followed during solution development.
3	Evaluation of Costs and Benefits	The gate three programme is expected to complete investigative work on the potential losses of the proposed Trent - Witham transfer. This should be presented in the gate three submission.
4	Programme and Planning	In future gated submissions explain where the project risks presented in the submission vary from the quarterly risk reporting to RAPID.
5	Programme and Planning	Gate three activities – We recommend including a reference in this list to the systems work and further exploration (and funding) of the system report recommendations. The companies should still have a key role in this. The inclusion (advanced in Annex D) of developing the wider reservoir system benefits including conjunctive use for agriculture with improvement to water quality, water retention and flood risk is welcomed. Catchment-based approaches that recognise the unique nature of the fenland setting for this strategic option, including synergies with the Future Fens Integrated Adaptation project, are supported.
6	Environment	Protected species surveys to be included as a necessary component of the environmental assessment. Many ditches within the Fens are of significant biodiversity value. It is recommended that ditches are included within ‘standing open water and canals’ within the Priority Habitats assessments.
7	Environment	Measures will be required to mitigate landscape and visual impacts to sensitive receptors, such that the site is assimilated successfully into the wider landscape both visually and in terms of landscape functionality. Detailed site-specific identification of landscape and mitigation measures will need to be informed by a

		<p>detailed Landscape and Visual Impact Assessment carried out in accordance with the latest Landscape Institute GLVIA guidelines, (3rd edition) and should be accompanied by visual representations, locations, number and type agreed with the LPA and produced in accordance with the Landscape Institute technical guidance note LI_TGN-06-19_Visual_Representation.</p>
8	Drinking Water Quality	<p>We recommend that further monitoring will inform any additional treatment required for Invasive Non-Native Species (INNS) and nitrates. Decide if the treated water will be chloraminated. Computational fluid dynamics (CFD) modelling of reservoir to be undertaken by gate three.</p>

## Appendix B: Gate one actions and recommendations

Actions – addressed in standard gate two submission			
Number	Area	Detail	RAPID assessment outcome
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.	Complete
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.	Complete
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.	Complete
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.	Complete
Recommendations			
Number	Area	Detail	RAPID assessment outcome
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.	Complete
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.	Complete
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	Complete

		considered in combination with the Fens reservoir, the Anglian to Affinity transfer and existing water resources assets.	
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