

# Assurance report - NWL PR19 Enhancement performance commitments – Water and Wastewater resilience

Revision no: V1.1

Northumbrian Water Limited  
B245770B

AMP 7 Enhancement programme Independent assurance



## Assurance report - NWL PR19 Enhancement performance commitments – Water and Wastewater resilience

**Client name:** Northumbrian Water Limited

**Project name:** AMP 7 Enhancement programme Independent assurance

**Client reference:** B245770B

**Project manager:** Wenna Shimmield

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**Prepared by:** Matt Armitage

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### Document history and status

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V1.0	15/9/2023		MA	IR	GH	AM
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## Executive summary

Through the PR19 business planning process, Northumbrian Water Limited (NWL) was awarded funding for enhancement schemes requiring delivery in line with the scope described in the PR19 PC document by March 31st, 2025. NWL has commissioned Jacobs to supply third-party assurance to fulfil Ofwat requirements of independently assessing progress of the enhancement programmes for Water (P19NES\_BES24) and Wastewater (PR19NES\_BES27) resilience prior to PR24 business plan (BP) submission. This stipulation is set out in the PR19 Final Determination (FD) document section 1.2.26 and 1.2.29.

The purpose of the assurance was to review the alignment in scope, benefit, and completion date regarding NWL's submitted AMP7 enhancement cases. Each constituent scheme that make up P19NES\_BES24 and PR19NES\_BES27 were subject to review and challenge to assess the likelihood of an on time delivery of a benefit equal to or greater to that given in PR19 PC annex 1 document. All audits took place remotely via Microsoft Teams and were completed by 1st September 2023.

Based upon the presented method, each scheme's risk was individually assessed. We conclude that;

1. 99% of the water resilience programme and 100% of the wastewater resilience programme has been released for delivery.
2. 90% of the water resilience programme is due for delivery by 31<sup>st</sup> March 2025, with a further 9.67% due to be delivered by 7<sup>th</sup> April 2025. 99% of the wastewater resilience programme is due for delivery by 31<sup>st</sup> March 2025.
3. In terms of schedule risk, 77% of water schemes have no material issues, 22% (1 scheme) has an area of material risk around the potential schedule impact in event of archaeological finds. This is being mitigated through early start exploration which is 40% complete. Should no issues materialise, we would consider this in line with the rest of the water programme leading to 99% showing no material issues.
4. 94% of the water resilience programme is assessed to deliver on scope. There are areas of the wastewater resilience programme (along with the remaining c5% of the water programme) where additional clarification needs to be undertaken to demonstrate benefits of the selected resilience method.

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# 1. Introduction

This report holds the third-party assurance required by Ofwat which assesses the progress of the enhancement Programmes according to the requirements defined in the PR19 Final Determination (FD) document section 1.2.26 and 1.2.29 shown below, for Water (PR19NES\_BES24) and Wastewater (PR19NES\_BES27).

<p><b>1.2.26 Delivery of water resilience enhanced programme</b></p>	<p><b>Performance commitment definition and parameters</b></p>																						
<p><b>Purpose:</b> This performance commitment is designed to incentivise the company to reduce the risk of critical service failure affecting a large number of customers.</p>	<p><b>Unique Reference</b> PR19NES_BES24</p> <p><b>Detailed definition of performance measure</b> This performance commitment measures the delivery of the company's water resilience enhanced programme. The relevant milestones are:</p>																						
<p><b>Benefits:</b> This performance commitment protects customers from non-delivery of schemes in the company's water resilience enhanced programme. These schemes will deliver benefits to customers by reducing the number of events that results in customers not having water supplied over a sustained period of time.</p>	<table border="1"> <thead> <tr> <th>Estimated completion date</th> <th>Milestone</th> <th>Weight (%)</th> </tr> </thead> <tbody> <tr> <td>31 March 2025</td> <td>Teeside</td> <td>38.4</td> </tr> <tr> <td>31 March 2025</td> <td>Central</td> <td>52.5</td> </tr> <tr> <td>31 March 2025</td> <td>Essex</td> <td>0.4</td> </tr> <tr> <td>31 March 2025</td> <td>Tyne</td> <td>0.7</td> </tr> <tr> <td>31 March 2025</td> <td>Too critical to fail</td> <td>8.0</td> </tr> </tbody> </table>			Estimated completion date	Milestone	Weight (%)	31 March 2025	Teeside	38.4	31 March 2025	Central	52.5	31 March 2025	Essex	0.4	31 March 2025	Tyne	0.7	31 March 2025	Too critical to fail	8.0		
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<b>Unique Reference</b>	PR19NES_BES24																						
<b>Measurement unit and decimal places</b>	Percentage completion to one decimal place																						
<b>Measurement timing</b>	Reporting year																						
<b>Incentive form</b>	Revenue																						
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<b>Any other relevant information</b>	NA																						
<b>Links to relevant external documents</b>	NA																						
	<p><b>Additional detail on measurement units</b> None</p>																						
	<p><b>Specific exclusions</b> None</p>																						
	<p><b>Reporting and assurance</b> The company will provide an assurance report at the next price review from an appropriately qualified third party to:</p> <ul style="list-style-type: none"> <li>confirm that the scope expected to be delivered for each milestone is equivalent or greater to the required scope</li> <li>confirm expected completion of each scheme and to assess any likely delay in any individual milestone beyond 31 March 2025.</li> </ul>																						

**1.2.29 Delivery wastewater resilience enhancement programme**

**Purpose:** This performance commitment is designed to incentivise the company to deliver investment to increase its wastewater network resilience by reducing the flooding risk of 41 sewage treatment works (STW) and sewage pumping stations (SPS).

**Benefits:** This performance commitment protects customers from non-delivery of schemes in the company’s wastewater resilience programme. Reduced flooding risk will mitigate the level of disruption to customers when receiving wastewater services

<b>Unique Reference</b>	PR19NES_BES27
<b>outperformance payments</b>	
<b>Price control allocation</b>	100% wastewater network plus
<b>Frequency of reporting</b>	Annual
<b>Any other relevant information</b>	NA
<b>Links to relevant external documents</b>	NA

**Performance commitment definition and parameters**

<b>Unique Reference</b>	PR19NES_BES27
<b>Detailed definition of performance measure</b>	The cumulative number of sites in the company’s wastewater resilience enhancement programme where the required scope of flood mitigation work has been delivered. The programme measure covers 141 sewage treatment sites and provides the following benefits: <ul style="list-style-type: none"> <li>• response and recovery (at ‘too critical to fail’ and ‘smart network’ sites);</li> <li>• proactive flood risk reduction.</li> </ul>
<b>Additional detail on measurement units</b>	NA
<b>Specific exclusions</b>	None
<b>Reporting and assurance</b>	The company will publish an assurance report in advance of the next price review from an appropriately qualified external third party that confirms <ul style="list-style-type: none"> <li>• that the scope expected to be delivered for each milestone is equivalent or greater to the required scope</li> <li>• the expected completion of each scheme and to assess any likely delay in any individual milestone beyond 31 March 2025.</li> </ul>
<b>Measurement unit and decimal places</b>	Number of sites to zero decimal places
<b>Measurement timing</b>	Reporting year
<b>Incentive form</b>	Revenue
<b>Incentive type</b>	Underperformance payments
<b>Timing of underperformance and</b>	End of period

In particular, the assurance will focus on the following areas:

- confirming the scope expected to be delivered for each milestone is equivalent or greater to the required scope,
- confirming expected completion of each scheme and to assess any likely delay in any individual milestone beyond 31 March 2025.

## 1.1 Scope amendments post CMA

Following Ofwat’s final determination of the NWL PR19 business plan<sup>1</sup>, NWL referred the outcome to the Competition and Markets Authority (CMA) for challenge. Post this review<sup>2</sup>, changes were made to the scope and funding of some of the initial PR19 BP programmes. As such, clarification of the new Performance Commitment (PC) outcomes was sought by NWL from Ofwat via correspondence in July 2022, with NWL issuing the PR19 PC annex 1 document. No official response to this has been received to date. This was followed up in June 2023, again, with no official response to date. In the absence of any substantive feedback from Ofwat, NWL has adopted revised PCs, as defined in the PR19 PC annex 1.

Scheme	% of Water Programme	Proposed Success Criteria
Cross Connection into Darlington (C60/60a)	0.24%	27,758 customers to benefit from a second source of supply
Whorley to Shildon Main and Connection into Central Area at Shildon	25.90%	70,404 customers to benefit from a second source of supply
Springwell Service Reservoir and Associated Mains	36%	Protect 52,147 customers currently dependant on Mosswood WTW and the Derwent North Main from a loss of supply event, by providing an alternative source of supply sufficient to last 24 hours.
Duplicate Main at Chirton Service Reservoir Outlet	0.46%	Protect 43,000 customers, against loss of a single point of failure (a service reservoir outlet main) at Chirton
Connecting Main at Herongate Service Reservoir	0.27%	Protect 110,000 customers, against loss of a single point of failure (a single strategic main) at Herongate Service Reservoir
Abberton to Hanningfield Raw Water Transfer Main	22.33%	Provide increased resilience against supply restrictions triggered by constraints on the availability of raw water in the Essex area - increasing our ability to treat existing raw water supplies by an amount equivalent to supply requirements for 370,000 customers (at current PCC)
Barsham SR/WPS Scheme	9.67%	36,614 customers to benefit from increased resilience equivalent to 24 hours of storage.
Resilience Improvements at 'Too Critical To Fail' Sites	5.43%	Resilience improvements implemented at 14 sites, as set out on Tab 2 of Annex 1
Waste water resilience improvements at Too Critical To Fail sites	N/A	<ul style="list-style-type: none"> <li>Proactive flood risk reduction</li> <li>Response and recovery</li> </ul>

Table 1 – Annex 1 Performance commitments

<sup>1</sup> December 2019

<sup>2</sup> April 2021



## **1.2 Audit assessment benchmark**

As highlighted in section 1.1 of this report, there has been significant change from the NWL PR19 BP submitted prior to draft determination and the PC outcomes post the CMA process. As such, this audit will use the PR19 PC annex 1 document as its benchmark for BES24 and BES27 (Annex 1 document supplied to Jacobs by NWL).

## 2. Methodology

Our approach taken to investigate scope alignment, delivery and projected delays has included interviews with Programme and Project Managers and a review of the following information:

1. The specification of the schemes as set out in the company's V1.1 of the CMA final determination PC document (amended to include the changes in PR19 PC annex 1 document – see table 1 in Section 1.1 above).
2. Timeline of activities linking from the annex 1 document through to current forecast position.
3. Evidence of benefit from the scheme delivery (customers).
4. Information on project programmes.
5. Details of scope changes – data collected, analysis carried out and conclusions reached.
6. Current status for each project.
7. Risk registers and current status of outstanding risk for each project

For each scheme, we have considered the evidence and risk-assessed the information supplied to determine the risk of achieving the outcomes currently being reported and the delivery date currently being forecast.

**NOTE - These may differ from the original PR19 customers protected figures and delivery dates.**

We have used the risk scale below for this assessment.

A	B	C	D
<p><b>No issues identified (low risk)</b></p> <ul style="list-style-type: none"> <li>• The benefit/delivery date is fully supported by all the evidence provided, which is robust and compelling.</li> <li>• Evidence appears clear, relevant and of good quality</li> <li>• Low level risks with appropriate plan to remedy</li> <li>• Appropriate assumptions</li> <li>• Solution offers described resilience enhancement</li> </ul>	<p><b>Non-material issues identified (low to medium risk)</b></p> <ul style="list-style-type: none"> <li>• Like A, but with some uncertainties.</li> <li>• Evidence is not as conclusive, but work is ongoing to mitigate the risk.</li> <li>• Medium risk areas but with appropriate plans to remedy</li> <li>• Solution offers some resilience enhancement</li> </ul>	<p><b>Material issues identified (medium to high risk)</b></p> <ul style="list-style-type: none"> <li>• Material areas of deficiency in the evidence provided</li> <li>• Many areas are incomplete and no clear or realistic plans to remedy</li> <li>• High-risk areas but with appropriate plans to remedy</li> <li>• Evidence does not support the figures presented</li> <li>• Solution offers little resilience enhancement</li> </ul>	<p><b>Significant material issues identified (high risk)</b></p> <ul style="list-style-type: none"> <li>• Significant gaps, incoherent, no plans to remedy deficiencies etc.</li> <li>• No evidence to justify the figures</li> <li>• High risk areas with no appropriate plan to remedy</li> <li>• Solution offers no resilience enhancement</li> </ul>

### 3. Findings

The risk assessment against the PR19 PC annex 1 document outcomes is shown below in Table 2. Detailed commentary is featured further in this section.

BP reference	Scheme	% of Water Resilience Programme	Required Customer Benefit	Expected Customer Benefit	Benefit	Forecast Asset in Use Date	Schedule Risk
					RAG		RAG
Central 1,2,4	Springwell Service Reservoir and Associated Mains	36%	52,147	52,147	A	28/03/2025	B
Central 3 + Tees 7	Whorley to Shildon (Tees) Main and connection into Central Area at Shildon	25.90%	70,404	72,000	A	25/03/2025	B
Essex 5	Abberton to Hanningfield Raw Water Transfer Main	22.33%	370,000	421,000	A	31/03/2025	C
Essex 6	Connecting Main at Herongate Service Reservoir	0.27%	110,000	222,183	N/A scheme not released	N/A scheme not released	
Tees 8	Cross Connection into Darlington (C60/60a)	0.24%	27,758	30,000	N/A scheme not released	01/11/2027	N/A scheme not released
Suffolk 9	Barsham (Suffolk) SR/WPS Scheme	9.67%	36,614	36,617	A	07/04/2025	B
Tyne 10	Duplicate Main at Chirton Service Reservoir Outlet	0.46%	43,000	43,000	N/A scheme not released	N/A scheme not released	
TCTF	Resilience Improvements at 'Too Critical To Fail' Sites	5.43%	14 sites	14 sites	B	13/02/2025	A
WW TCTF	Wastewater resilience	N/A	141 sites	141 sites	C	01/03/2025	B

**Table 2 – RAG assessment of enhancement resilience schemes**

R/A/G status is defined in detail in the methodology section above.

### **3.1 Central 1,2,4**

#### **3.1.1 Scope**

The outcome of Central 1,2,4 is to provide 52,147 customers with an added 2 to 3 days strategic storage of water. The NWL team reported that the scope of projects Central 1,2,4 have been aligned as the outcomes have some reliance on each other to be delivered. Central 1 consists of pipework linking Springwell and Pike Holes. Central 2 is the construction of a new reservoir at Springwell. Central 4 is the construction of pipework to link to Carr Hill. The customer outcome has been calculated by existing users of the District Metered Areas (DMA) We Consider this is in line with the required scope and have assigned an A rating.

#### **3.1.2 Programme Status**

The programme has been let in two contracts, both to the same contractor, contract 1 focusing on work related to the Springwell location, contract 2 focusing on work remote to the Springwell location. It was highlighted that the team reported to Ofwat (May 2023) that the Contract 2 work would be challenging to deliver in the timescales, due to the significant levels of 'rock breaking' needed. However, at the time of this audit, the NWL team reported that the forecast issue was not as significant as expected, with the programme currently on track for functional completion within the 31<sup>st</sup> of March 2025 deadline.

#### **3.1.3 Contract 1**

Contract 1 is currently at the groundworks phase of the programme plan, in line with expectations. The service reservoir and inlet main construction are programmed to start in Q4 2023, and are due to be completed in December 2024, with commissioning and functional service planned for January 2025.

##### **3.1.3.1 Contract 2**

Contract 2 has been awarded and is currently at the detailed design phase, which is in line with the programme plan. Construction work is due to start on site in February 2024, with functional service planned for delivery by January 2025.

#### **3.1.4 Risks**

The programme is considered to have a suitable risk register, no risk affected programme plan was shared, however the risk register highlighted a threat to C1 of 31 days and C2 of 20 days. We believe central 2 and 4 have sufficient float in the functional completion date to allow for risk and have assigned an A rating. As Central 1 does not have sufficient float in the functional completion date to allow for risk, we have assigned a B rating.

## **3.2 Central 3**

### **3.2.1 Scope**

Central 3 outcome is to provide 70,404 customers with a second source of supply. The original proposed solution for Central 3 was to construct a new 55ML Water Pumping Station (WPS) at Shildon Service Reservoir (SR). However, following the PR19 submission and more detailed investigation/solutions development, it was understood that the resilience of supply could be enhanced through an alternate solution of installing automated valves and reversing flows on existing systems in a loss of supply event. The WPS was considered redundant as there was enough existing system pressure to service customers in the same areas, without the need for additional boosting. It was also considered to have a lower carbon impact and offer a more sustainable solution. Challenge was given around the operability of this solution, however reversing flows is a common maintenance practice. We note that more turbidity monitoring is also planned to be installed as a safeguard. The solution slightly exceeds the 70,404-population benefit stated in the PR19 PC Annex 1 document, with the scheme expected to deliver benefit to 72,000. The population benefit was based on the number of customers within the existing DMA that the solution would serve. On the basis of the above, we have given an A rating for the benefit derived from this outcome.

### **3.2.2 Programme status**

The NWL team reported that the Central 3 project is currently in definition stage (due to end on 24<sup>th</sup> November 2023), with contracts forecast to be awarded in May 2024, and construction on site to begin in October 2024. Functional completion of the programme is forecast from 25<sup>th</sup> March 2025. This is recognised as a tight programme of work given the start on site date of October 2024 and offers little float in the programme. We noted however, that the Central 3 programme is combined with Tees 7, and is subject to a completion bonus to the principal contractor for functional completion before the Ofwat due date of 31<sup>st</sup> March 2025.

### **3.2.3 Risks**

The programme is considered to have a suitable risk register, no risk impacted programme plan was shared at interview, however the risk register highlighted a threat of 13 days to the programme. We believe central 3 does not have sufficient float in the functional completion date to allow for risk and as a result have assigned a B rating.

### **3.3 Essex 5**

#### **3.3.1 Scope**

The successful outcome of Essex 5 will supply a second source of raw water to Langford WTW. It is forecast that the delivered outcome will benefit 421,000, which exceeds the PR19 PC annex 1 documented benefit of 370,000. The NWL team reported that the solution is to lay a pipeline (~18.5km) from Abberton to Langford with a capacity of 50Ml/d. This project was originally referred to as Abberton to Hanningfield but is now called Layer to Langford, primarily due to the perceived difficulties this might bring in the planning stage, as Abberton has a high public amenity value, even though the work to be carried out would not directly affect this area. We believe the scope being delivered is greater than the PC with the evidence supplied and have assigned an A rating.

#### **3.3.2 Programme status**

The NWL team reported that the programme of works is due to deliver functional completion on 31<sup>st</sup> March 2025, which is in line with the target set by Ofwat, however this date offers some float in the programme. The main construction programme is due to start in February 2024, and we note that the team are making an early start to hedge clearance and road crossings over Autumn/Winter 2023 to enable progress through protected biodiversity seasons. The location is also in an area of the country that had significant Roman and Viking settlements and is subject to early start archaeological work to highlight potential programme impacts, which has been accounted for in the risk register. This is currently 40% complete with no significant finds. As the pipelaying work will be carried out by in-house teams, challenge was given around the use of in-house resources as opposed to dedicated contractors, and whether the resource has been adequately 'ringfenced' to ensure focus on the project. Assurances were given about the ringfencing of personnel.

#### **3.3.3 Risk**

Our review found the programme has a suitable risk register that has highlighted necessary risks to both delivery times and budget. P50 and P80 assessments have been made on project delivery, forecasting P50 at 7<sup>th</sup> May and P80 at 4<sup>th</sup> June. Given the severity of the archaeological risk, we believe the P50 forecast to be a more realistic assumption of delivery date, as such, we have assigned a C rating. It is noted that once archaeological surveys are completed, should they show now impact, the rating would decrease to B.

### **3.4 Essex 6**

Unable to assess - Scheme not released

### 3.5 Teesside 7

#### 3.5.1 Scope

The outcome to be achieved by Teesside 7 is the provision of an alternate source of supply to 70,404. The NWL team reported that the solution for Teesside 7 is to deliver a new main between Whorley SR and Shildon SR, supplying additional capacity. Teesside 7 (1b) is linked with the outcomes of Central 3 (1c), as such this is being delivered in parallel as a programme of work. There is also a base funded project to install a new service main between Lartington WTW and Whorley SR, which will be an enabler for further improvements to Tees valley water resilience, which is projected to be completed during AMP8 (Phase2), which is shown in figure 1 below. The projected customer benefit from this solution is matched at 70,404. We believe the scope is likely to be achieved with this solution and have given an A rating.

#### PROPOSED SYSTEM & ABANDONMENT OF EXISTING MAINS SYSTEM OVERVIEW

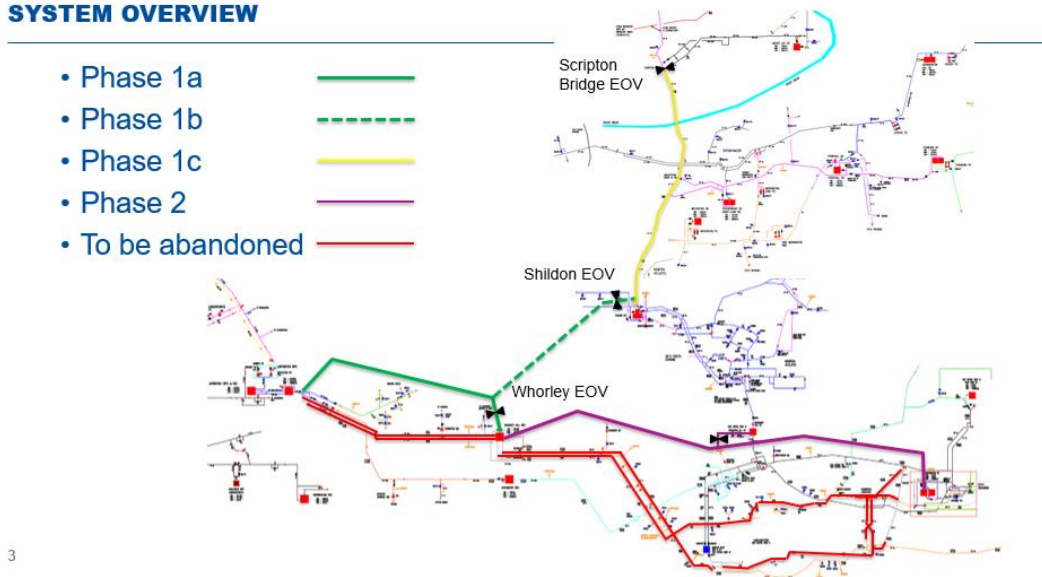


Fig 1 – Overview of phase 1 and 2 of central resilience initiative

#### 3.5.2 Programme status

The NWL team reported that the programme of work is due to deliver functional completion in early January 2025, which is in line with the target set by Ofwat of 31<sup>st</sup> March 2025. Pipeline construction started on the 31<sup>st</sup> of January 2023 and is projected to be completed on 25<sup>th</sup> November 2024, allowing for some float in the programme. Complex tunnelling work at the river Tees crossing is currently underway and is due to be completed on 14<sup>th</sup> January 2024, again, allowing for float.

#### 3.5.3 Risk

Our review found the programme has a suitable risk register that has highlighted necessary risks to both delivery times and budget. No threats greater than 14 days were registered against the programme. We believe this programme is likely to deliver for 31<sup>st</sup> of March 2025 and have given an A rating.

### 3.6 Teesside 8

Unable to assess - Scheme not released

## **3.7 Suffolk 9**

### **3.7.1 Scope**

The successful outcome of Suffolk 9 will provide 36,614 customers with an alternative source of supply. The NWL team reported that the solution for the project is to construct a new service reservoir and associated Water Pumping Station (WPS). This enhancement work will be carried out in conjunction with a base funded project to build a new treatment works close to the existing NWL site at Barsham WTW. The projects have been merged into a single programme of works to benefit from increased control and efficiencies. The projected customer benefit from this solution is in line with requirements at 36,617, we have rated this as A.

### **3.7.2 Programme status**

The NWL team reported that the programme of works was due to deliver functional completion on 7<sup>th</sup> April 2025, which is past the expected completion date of 31<sup>st</sup> March 2025 agreed with Ofwat. The project team believe there is little float in the programme, and it will be challenging to achieve the 31<sup>st</sup> of March 2025 target, however they are working through options to try to claw back some of the plan. The SR and WPS are planned to be completed by February 2025. As these are the elements of the delivery programme that have a time target, the team are looking at alternate ways to bring these assets into functional service that will not initially rely on the rest of the programme to deliver functional service. There is a significant risk to the programme meeting its planned dates and is discussed further in the next section.

### **3.7.3 Risk**

Our review found the programme has a suitable risk register that has highlighted necessary risks to both delivery times and budget. There is a risk that the new access road to the site could be refused by the planning authorities and the existing site entrance will need to be used. This is viewed as a significant risk, projected to equate to a 54-day delay if the risk is realised. Despite the plans to bring forward commissioning of the SR prior to 31<sup>st</sup> March 2025, we still consider there are risks to achieving the regulatory delivery date and have rated this element of the outcome as B.

## **3.8 Tyne 10**

Unable to assess - Scheme not released



### **3.9 Too Critical To Fail (TCTF) 11 – Water**

#### **3.9.1 Scope**

The scope of TCTF water is to reduce site risk through increased resilience against flooding and/or power failure for 14 locations. The NWL team reported that the solution for the project was to deliver resilience on site specific risks of flooding and power loss across 14 locations, as highlighted in the PR19 PC annex 1 document. Solutions differ on a site-by-site basis, with 3 requiring both flooding and power resilience, 9 requiring flooding resilience only and 2 requiring power resilience only. For one of the power resilience sites, a decision was taken to discount fixed generation in favour of supplying site-specific generator cables and enabling generator connection MCC access and/or sockets. Whilst this approach may appear to make logical sense, we have seen no clear methodology that proves the resilience enhancement output from this activity compared to a “do nothing” option. For this reason, we have rated this as B.

#### **3.9.2 Programme status**

Functional completion of the 14 locations is programmed to be in February 2025. The contract for work is to be awarded on 29<sup>th</sup> November 2023, with work on site beginning June 2024. Given the relative alignment with the Wastewater TCTF (3.10) project and the achieved outputs of the work, the programme appears to be realistic in its output dates and we have assigned this an A.

#### **3.9.3 Risk**

We were shown an extract from the risk register, this included the possibility of budget not matching the required output and possibility the NWL solution will not be accepted by Ofwat. This feeds into our assessment of scope described above.

### 3.10 Too Critical To Fail (TCTF) – Wastewater

#### 3.10.1 Scope

From our interpretation of the PC we consider the scope of this PC is to deliver enhancements to protect 141 sites against flooding risk. The NWL team’s view differed and reported that the scope of the programme was to deliver resilience on site specific risks of flooding and power loss across 141 locations. The delivery has been phased and annual targets can be seen in table 3 below. The area of power loss is ambiguous and is not clearly highlighted in any variation of PC documentation we have seen.

	2020-21	2021-22	2022-23	2023-24	2024-25
Target	0	35	70	105	141

**Table 3 – Delivery commitment profile of Wastewater TCTF**

Solutions differ on a site-by-site basis, an extract from the Y3 business case, detailed in Table 4 below, shows a breakdown of the solutions proposed.

Option	Number of sites
Suitable for flood doors, flood gates, minor site works or modifications to building fabric	67
Elevation of Kiosk	14
Vulnerable Due to Power Disruption	32
Already Mitigated or N/A	5
Complex interventions	11
Uncertain Solution / Further survey’s ongoing	12
<b>TOTAL</b>	<b>141</b>

**Table 4 – Solution breakdown**

Solutions were identified by consultants, Wood, who produced detailed recommendations on both flood and power parameters for each site, discounting each parameter where deemed irrelevant. We note that the proposed solutions were based on data from the Environment Agency’s (EA) flood risk tool and anecdotal evidence of historic power outages. From the sample of 10 sites we reviewed, we noted that flood resilience has been followed as per recommendations from the Wood report, however power resilience has been subject to challenge. The power resilience challenge has focused on; the practicality of the location to install fixed emergency generators; maintenance; and ability to supply fixed emergency generators in line with project budget. A decision was taken to discount fixed generation across all sites requiring power resilience, in favour of supplying site-specific generator cables and enabling generator connection MCC access and/or sockets. Whilst this approach may appear to make logical sense, we have seen no clear methodology that proves the resilience enhancement output from this activity compared to a “do nothing” option. As a result, we have rated this as C.

#### 3.10.2 Programme status

The NWL team reported that progress was ahead of target for Yr. 3 of AMP7, with 104 sites completed to date. There are several sites with more complex solutions still to be delivered, however the forecast is for completion prior to 31<sup>st</sup> March 2025 for 140 sites, which we believe to be achievable. There is a single site, Walkworth Stanners SPS, that is unlikely to be completed due to stakeholder and planning difficulties, and has been referred to the tactical planning team for further consideration.

#### 3.10.3 Risk

The key risk highlighted by the NWL team was the possibility of non-delivery of Walkworth Stanners SPS due to difficulty in gaining planning and stakeholder traction. Walkworth Stanners SPS is in a local beauty spot close to the river Coquet, it is rated as a flood risk on the EA flooding tool. The solution requires substantial elevation of the MCC and kiosk, which is objected to by local stakeholders. The mitigation for this risk has been exhausted with

## Assurance report - NWL PR19 Enhancement performance commitments – Water and Wastewater resilience

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the project team and the risk has been escalated. The delivery cadence would indicate the programme is likely to deliver on time, should this issue be resolved, hence the B rating.

## **4. Conclusion**

### **4.1 Water resilience**

The water resilience programme is made up of 11 constituent projects, 10 of which have an outcome measured by the number of customers that will receive benefit from the enhancements and one measured by number of sites with enhanced flooding or power resilience. All 11 projects have a 31<sup>st</sup> March 2025 completion date set by Ofwat. Details of our findings at the scheme level are provided within this report.

#### **4.1.1 Scope**

This study has sought to confirm that the scope of the water resilience enhancement programme is equivalent or greater to the required scope set out in the PR19 PC annex 1 document.

94% of the water resilience programme is assessed to deliver on scope. Additional clarification needs to be undertaken for the remaining c5% to demonstrate benefits of the selected resilience method. This is specifically in relation to the substitution of onsite fixed generators with onsite generator connection points.

#### **4.1.2 Programme delivery**

This study has sought to confirm that the water resilience enhancement programme is expected to be completed as set out in the PR19 PC annex 1 document.

Our assessment of the evidence supplied leads us to conclude that 90% of the water resilience programme is due for delivery by 31<sup>st</sup> March 2025, with a further 9.67% due to be delivered by 7<sup>th</sup> April 2025.

99% of schemes are in delivery, with 1% awaiting release.

In terms of schedule risk, 77% of water schemes have no material issues, 22% (1 scheme) has an area of material risk around the potential schedule impact in event of archaeological finds. This is being mitigated through early start exploration which is 40% complete. Should no issues materialise, we would consider this in line with the rest of the water programme leading to 99% showing no material issues.

### **4.2 Wastewater resilience**

The Wastewater resilience program has completed 104 of the committed 141 sites against the completion of flood mitigation work by the end of March 2025. The outcome is measured by the number of sites with enhanced flood resilience at sewage treatment works and sewage pumping sites. Mitigation must include response and recovery at "too critical to fail" sites and proactive flood risk reduction. Details of our finding are provided within this report.

#### **4.2.1 Scope**

This study has looked to confirm the scope of the enhancement programme is equivalent or greater to the requires scope set out in the PR19 document.

Our assessment is that additional clarification needs to be undertaken to demonstrate benefits of the selected resilience method. This is specifically in relation to the substitution of onsite fixed generators with onsite generator connection points.

#### **4.2.2 Programme delivery**

This study has looked to confirm that the enhancement programme is expected to be completed as set out in the PR19 PC document.

Our assessment of the evidence supplied leads us to conclude that of the 141 projects, 74% of the wastewater resilience projects have been delivered, 25% of scheme are in delivery and <1% is unlikely to deliver in its current format, specifically relating to Walkworth Stanners SPS.

