Additional tables
PR24 data tables commentary

PR24 Draft Determination Representations – August 2024

Additional Tables PR24 Data Table Commentary

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Additional Tables Summary

Tables ADD1 (CW2), ADD2 (CW3), ADD3 (CW11), ADD6 (CWW2), ADD7 (CWW3), ADD8 (CWW11), ADD11 (DS2e) and ADD13 (DS3) have been completed as requested on post frontier shift / RPE basis in accordance to the guidance published by Ofwat.

ADD4 (CW12) & ADD9 (CWW12) Transitional expenditure, ADD5 (CW17) & ADD10 (CWW17) Accelerated programme expenditure

We have not applied Frontier Shift (RPE or productivity) to financial years 23/24 or 24/25 as costs reported in 23/24 and the first quarter of 24/25 are now actual costs and therefore have these factors included by default. This follows APR precedent. Therefore these ADD tables are identical to the corresponding CW(W) tables for transition and AID.

ADD14 (BIO7) Bioresources - Industrial Emissions Directive scheme costs and cost drivers

We currently have 10 STC's (Sludge Treatment Centres) which fall under the criteria for IED Permitting. The business currently has Permits at two of its STC's and is expected to receive the remainder in Year 5 of the AMP7 Regulatory Period.

We have been an active member of the IED TaF (Task and Finish) group which includes the other WaSC's (Water and Sewerage Companies) where IED permitting is a requirement, alongside stakeholders from the Environment Agency, Defra and Ofwat. The purpose of this group is to guide and develop industry standard guidelines to allow WaSC's to meet the requirements of IED. To support with decision making from this group, a UKWIR (UK Water Industry Research) group has been established and has added the required further guidance and support to allow WaSC's to move forward with the implementation of IED into their respective businesses.

Core members of the TaF group have also recently met to discuss key principles of design and interpretation of the CIRIA (Construction Industry Research and Information Association) 736 Guidance (or accepted approach provided by the EA for a specific site) which Regulators have asked WaSC's to use as a basis for risk assessment and design. The cross WaSC communication has supported with design development and added confidence in the robustness of our proposed containment solutions.

Secondary containment

Detail designs have been progressed for 9 of the 10 sites in line with the principals of CIRIA C736 - Containment Systems for the Prevention of Pollution. Containment bund wall lengths, heights and areas of impermeable surface to be upgraded have been taken from the design drawings produced for submission. Whitlingham has been issued to our partners for an updated assessment and detailed design but this assessment has not progressed to the level of the other nine sites. The AMP7 combined sludge treatment capacity and digester maintenance scheme has been uplifted by £0.6m (£0.558m when corrected to AMP8 cost base) to provide the required bunding for the two new digesters currently under construction. This uplift has been applied as our current commercial cost models do not account for the extra containment necessitated by the IED permit for the site.

AMP7 spend has been evenly distributed between the 9 sites currently in design, the costs to the end of the AMP have been estimated using the delivery partners' financial forecasts and is listed under Base capital expenditure

CIRIA C736 - Containment Systems for the Prevention of Pollution includes reference to the ADBA (Anaerobic Digestion & Bioresources Association) risk assessment tool for identifying the suitable level of containment required. All Anglian Water sites have been assessed as high hazard with a low likelihood of failure, giving a medium site rating. This equates to a requirement to implement Class two containment measures.

The table below is filled in based on inputs in the "Site Hazard Rating" worksheet and "Likelihood" worksheet. The tool then combines these to calculate the overall site hazard rating and the consequent class of secondary containment required.

Table 1 Output from site hazard rating and likelihood assessment

Site Hazard Rating	Likelihood	Overall Site Risk Rating	Indicated Class of Secondary Containment Required
High	Low	Medium	Class2

In October 2023 Plan we had made an assumption that the bund could be of lined earthen embankment construction and that a scrape and line technique could be used for the provision of the impermeable surface. In light of the updated risk assessment, and with notable concerns over the ability to maintain the integrity of these liners in an operational setting, we have produced our designs for approval on the basis of providing concrete surface, although alternative lower carbon materials will be considered for lightly trafficked areas. Earthen bunds may still be used in limited areas (site boundaries and areas with limited foot traffic) however, they will be capped with concrete canvas to facilitate washing down in the event of any loss of primary containment.

Rainfall modelling was undertaken as part of the design process, this highlighted a requirement for significant drainage capacity to be installed into the bunded areas, and for existing drainage to be isolated and re-routed to control the risk of uncontrolled discharge of sludge in the event of a loss of primary containment. Allowance has been made for drainage channels, collecting drains and stormwater pump stations (sized to match a 1 in 30 rainfall event).

Table 2 Location, area and rainfall

						Return period flow rates (l/s)		
Location	Permeable area to be made impermeable	Existing impermeable area (Excl. buildings, tanks etc. - assumed 15% area)	Containment boundary area (m2)	8 day rainfall for 1:100 year storm (mm)	8 day rainfall for 1:100 year storm volume (m3)	10 year	30 year	100 year
Basildon	9,109	15,259	28,768	132	3,797	173	227	290
Cambridge	14,955	11,237	30,683	132	4,050	217	296	398
Chelmsford	6,029	4,131	12,346	132	1,630	84	112	147
Cliff Quay (Area 1,2,3,5)	4,661	9,398	16,569	132	2,187	100	131	167
Cliff Quay (Area 4)	3,305	4,397	8,850	132	1,168	53	70	89
Colchester	5,160	11,744	19,887	132	2,625	119	156	145
Cotton Valley	7,949	13,808	25,596	132	3,379	171	228	303
Great Billing (Area 1)	7,062	11,113	21,382	132	2,822	155	214	284
Great Billing (Area 2)	777	3,291	4,786	132	632	34	48	64
Great Billing (Area 3)	552	1,063	1,900	132	251	14	19	34
Kings Lynn (Area 1)	478	519	1,173	132	224	9	12	16
Kings Lynn (Area 2)	1,736	3,091	5,679	132	750	42	58	78
Kings Lynn (Area 3)	383	1,398	2,095	132	277	15	21	29
Kings Lynn (Area 4)	6,137	8,152	16,810	132	2,144	123	172	230
Pyewipe	5,494	18,382	23,876	132	3,152	181	247	327
Whitlingham	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC

An allowance has been made for attenuation of rainwater in the event that it cannot be discharged to the head of works under storm conditions. This has been sized for 8 days of containment as it is anticipated that these tanks will not be returned in preference to the site stormwater storage tanks.

Additional allowance has been made for the sealing of existing roadways within the bund, this also includes the formation of access ramps into the bunded area. Ramps have been specified wherever practicable in lieu of the previously selected flood gates, this is to minimise the likelihood of bund integrity being compromised through human error.

Tank covering for abatement of fugitive emissions

For our previous costs submissions (August 2023 and December 2023) we had been working to the principal of cover and abatement in line with the Improvement condition in our issued permit (See excerpt below). We undertook PAS110 Residual Biomethane Potential testing at each of the ten STC sites (costs of this are shown in 2023-24 Base opex, corrected to AMP8 costs base) and the samples taken demonstrated consistently low level of residual methane production. For our permitted site at Chelmsford we submitted a response to this improvement condition to the EA, stating that we considered our digestate to be stable and that we would seek to implement a cover and abatement solution, although no response has been received as yet.

Improvement condition submission

The operator shall submit a written report, with supporting evidence, on the stability of digestate stored within the de gas tank and post digestion storage tank and obtain the Environment Agency's written approval to it. The report shall assess whether an effective digestion process has taken place within the anaerobic digestion tanks and whether biogas emissions from post digestion storage or treatment are minimised. The report shall assess digester stability and that the digestate has minimal potential for biogas production. The report shall include but not be limited to:

- An assessment of residual biogas potential in line with the OFW004-005 [N6] methodology specified by BSI PAS 110: Producing Quality Anaerobic Digestate or an equivalent methodology for assessing residual biogas potential.
- An assessment of the stability of the digestion process in the de gas tank and post digestion storage tank. The assessment for stable digester operations shall be undertaken in line with BAT 38 of the Waste Treatment BREF. The assessment shall be supported by process monitoring data recorded using an automatic monitoring system (and sampling of the digester feed) for the following parameters over a period of one month:

  pH and alkalinity of the digester feed
  digester operating temperature
  hydraulic loading rate
  organic loading rate
  volatile fatty acids concentration
  ammonia
  liquid and foam levels in the digester

Updated guidance around improvement conditions for new permits, issued to the IED Task and Finish group on the 24th of July 2024, indicates that the EA expect any tanks post primary digestion to be connected to the gas header system (see excerpt of drafting note below).

Excerpt from draft permit guidance

Improvement conditions for enclosure of tanks storing (or treating) digestate			
ICX	**Drafting note:** Where there are open tanks post primary digestion (often called post-digestion storage tanks or secondary digesters) the digestate contained in these tanks will be producing biogas and emitting to atmosphere. The digestate will also be a source of ammonia emissions. The short retention time seen at the majority of sludge AD facilities means that the digestate produced and stored in the open tanks will still be capable of producing large quantities of biogas so the assumption is gas collected from these tanks will be methane rich. The tank needs to be enclosed and connected to the gas management infrastructure, or in rare cases to a suitable abatement system which treats all potentially polluting elements of the off gas. Include this IC for any post-digestion open tanks which do not already have an acceptable enclosure plan.	DD/MM/YYYY [6 months of permit issue] or such other date as agreed in writing with the Environment Agency	

Our revised costs are now built up in line with providing this connection.

We had previously excluded our sites at Whitlingham, Cliff Quay and Kings Lynn from this line as the tanks at these sites are already covered and connected to odour control systems. In light of the revised guidance we will now be required to replace the existing tank covers with new covers suitable for the containment of gas above atmospheric pressure. On all tanks which now require covering the existing air mixing systems will need to be removed and replaced with gas mixing. We also propose to implement a mechanical degassing process prior to the post digestion storage tanks to minimise the levels of residual gas. The digestate will then be passed through a flash aeration stage to inhibit methanogenesis prior to dewatering. The flash aeration process will be connected to an odour abatement unit which will be required to be compliant with the stack emissions limit of 20mg/m3 TVOC (Total Volatile Organic Compounds) as per the permit.

We did not request funding for this work previously as we had ambitions to deliver a similar scope of work for eight of the ten sites under our Net Zero funding. We acknowledge that these costs are associated with the implementation of the IED permits and as such now request the funding under Enhancement.

Liquor sampling

The previous submission made assumptions around the number of determinants to be tested per sample and the frequency of sampling, these estimates have been revised on the basis of work undertaken by the IED TAF group to meet BAT7. There remains a degree of uncertainty over these costs as the determinants to be sampled and sample frequency are both subject to review after the first 12 months of data has been reported. We have made some assumptions that not all 150 determinants will continue to be sampled beyond this time. An independent laboratory has been engaged through the IED TAF group to undertake test samples. Costs are estimated to be approximately £5,000 per sample submitted for testing, with monthly samples required for three points per STC per month. There still remains a degree of uncertainty over these costs as the continuing requirement will not be agreed until the initial 12 month sampling period has been completed. We consider the costs incurred in this sampling to be Enhancement and show it as such under the Liquor Sampling sub-section.

Additional sample points will be required to take the individual process samples required. Continuous flow monitoring of the individual discharges is required to establish the proportionality of the samples. The costs of establishing these sampling points and flow monitoring are show as Base capital expenditure under the Control and Monitoring sub-section.

Other sampling requirements

The IED permit specifies sampling frequencies for CHP, Boiler and waste gas burner stack emissions and Odour Control Unit stack emissions. Quotations have been sought from the supply chain to procure this as a service as we consider this to be Enhancement operating expenditure.

ADD17 (CWW23) Wastewater network+ - WINEP / NEP Sanitary parameters scheme costs and cost drivers

Scheme name

Information is accessible directly from the WINEP spreadsheet. A copy of the published versions of the WINEP (November 23 and July 24) is incorporated into the Business Plan QA and Summary Stats spreadsheet, which has been used to verify the information previously provided within query 096. This confirms the 27 named schemes to be included in ADD17, covering U_IMP1, WFD_ND, WFD_IMPg, and WFD_IMP_MOD WINEP drivers.

A lookup verification process has been undertaken to confirm that all obligation IDs identified for inclusion in ADD17 relate to WINEP schemes from the July release, with matching scheme names and obligation dates.

Capital expenditure 2024 to after 29-30

Following draft determination, an increased allowance has been made available for sanitary parameter enhancements. Anglian Water has decided to include previously de-scoped enhancement investments in response to this, with a manual adjustment being made to the recorded IDs for eight of the obligations included in this data table:

Table 3 WINEP schemes reinstated

WINEP ID	Scheme Name	Comment
08AW101876a	CLIPSTON STW	I039518 reinstated - treatment upgrade (ammonia)
08AW101878a	CORRINGHAM STW	I039508 reinstated - treatment upgrade (ammonia)
08AW101880a	CRANWELL STW	I039521 reinstated - treatment upgrade (ammonia)
08AW101898a	HAYNES STW	I039642 reinstated - treatment upgrade (ammonia)
08AW101918a	SOUTH WITHAM STW	I039630 reinstated - treatment upgrade (ammonia)
08AW101921a	STOKE ALBANY STW	I039669 reinstated - treatment upgrade (ammonia)
08AW101927a	TUGBY STW	I039579 reinstated - treatment upgrade (ammonia)
08AW101932a	WITTERING STW	I039503 reinstated - treatment upgrade (ammonia)

Operating expenditure 2024 to after 2029-30

Operating expenditure is looked-up from the OFWAT report using the C55 ID associated with the WINEP obligations identified for inclusion in ADD17, then adjusted to account for removal of business rates and sludge.

Population equivalent served

Population equivalent forecasts for all WINEP reporting have consistently utilised the e local authorities and unitary authorities (LAUA) model predictions to 2050, as captured within the LAUA Annual sheet of the "All lines tracker", used to support the completion of data table CWW20. This forecasting is attributed to each sewage catchment and water recycling centre.

Cost Drivers 1-7: Scheme design population equivalent and permit levels for BOD, ammonia and suspended solids

Schemes are designed to end at AMP time horizons, therefore values are looked-up from 2030 p.e. forecasts. Records of historical permit information (i.e. current permit limits) are held by the Anglian Water Permitting team. A look-up has been undertaken using asset shortcodes to return the historic permit values, with further independent checks using the actual permits on Anglian Water's intranet where any discrepancies are found with query 096 information.

Enhancement limits for the three parameters (ammonia, BOD and solids) is looked-up from the WINEP, using data stored in the Add17 Audit sheet (which identified substance of interest and permit limit for each scheme as recorded in the July version of the WINEP). Although not recorded in the WINEP, Urban Waste

Water Treatment Directive requirements dictate that any site requiring a U_IMP1 driver achieve a BOD limit of 25mg/l - this is reflected in the data provided in ADD17.

Cost drivers 8-15: Supplementary information that is solution specific for each individual scheme

Cost drivers 8 to 15 require supplementary information that is solution specific for each individual scheme. Seven schemes have been identified as permit change only, which have been reverted to full treatment solutions following OFWAT's draft determination. These schemes have been manually overwritten as "N" in cost driver 8 and updated to "Additional biological capacity only (secondary or tertiary)" in cost driver 13.

Cost driver 9 - Catchment-based solution (Y/N)

With the update at draft determination, all schemes are expected to include enhanced treatment investment to enable a permit change. Cost driver 9 values are recorded as "N" for all ADD17 obligations.

Cost driver 10 - Length of transfer pipeline (km) andCost driver 11 - Annual Average Daily Transferred flow (cu.m/d);

Nil values are returned for cost drivers 10 and 11, as preferred solutions do not include pump-away options.

Cost driver 14 - Corresponding CWW3 line (drop down selection) and Cost driver 15 - Commentary associated with cost drivers 13 & 14

Cost drivers 14 and 15 were not requested in query 096 but are expected for ADD17. All schemes are categorised into CWW3.73-75 lines, as they are all traditional solutions, with commentary provided to reflect this.

ADD18 (RR30) RORE Analysis

ADD18 table has been populated in line with Ofwat's guidance for additional tables and Ofwat's instructions*not to overwrite any calculation cells* have been followed (apart from as instructed in the Errata Log). However, fundamental differences in our approach to risk analysis and the approach that ADD18 table follows to calculate risk ranges result in a mismatch between RoRE ranges estimated by us and RoRE ranges calculated in the ADD18 table.

Key differences in the approach and corresponding implications to ADD18 RoRE ranges are:

- Ofwat's assumes zero P50 per each risk area and combined risk exposure in ADD18. Our estimates of P50 per risk area and for combined RoRE are informed by historical sector wide performance. Ofwat's approach in ADD18 results in mispresenting the RoRE risk ranges and the risk asymmetry (e.g., the distance from P50 to P10 and P90) where P50 is non-zero.
- Ofwat assumes that RoRE risk ranges are additive. Our estimation of RoRE risk ranges are based on the random simulation of probabilities to account for the interdependency between them when aggregating combined risk exposure. As a results ADD18 does not appropriately aggregate the RoRE risk exposure per risk area and per total RoRE.
- Ofwat's risk categories in ADD18 table are different from risk categories considered in our risk analysis, which contributes to a mismatch between ranges calculated by ADD18 and by us. The approach we have taken to complete ADD18 is described in detail below for each risk component.

Due to differences in the approach, we note that the ADD18 table should be considered carefully when interpreting RoRE risk ranges within the table. Instead, the table below summarising results of RoRE risk analysis should be employed to assess Anglian's view of RoRE risk exposure at PR24 per Ofwat's DD and per Anglian's DD representation.

The table below summarises RoRE risk ranges estimated by us per Ofwat's DD and per our DD representation (assuming our DD representation was accepted in full). The table also provides a summary of the impact on RoRE from our DD representation (assuming our DD representation was accepted in full).

Table 4 RoRE risk ranges for a notional company with Anglian's characteristics per Ofwat's DD (unmitigated) and per company DD representation (mitigated), and corresponding impact from accepting company's DD representation in full.

	Ofwat DD (unmitigated)			DD reps (mitigated)			Impact from DD reps		
	P10	P50	P90	P10	P50	P90	P10	P50	P90
Totex	-2.2%	-0.6%	0.7%	-2.2%	-0.6%	0.7%	-	-	-
Retail	-1.6%	-0.0%	1.6%	-1.6%	-0.0%	1.6%	-	-	-
DPC	-0.1%	-	-	-0.1%	-	-	-	-	-
Mex	-0.5%	-0.3%	0.0%	-0.5%	-0.3%	0.0%	-	-	-
ODI	-3.2%	-2.2%	-0.7%	-1.4%	-0.5%	0.3%	1.8%	1.7%	1.0%
Financing	-1.5%	0.0%	1.5%	-1.5%	0.0%	1.5%	-	-	-
Rev.	-0.1%	-0.0%	-0.0%	-0.1%	-0.0%	-0.0%	-	-	-
Total (additive)	**-9.2%**	**-3.1%**	**3.1%**	**-7.4%**	**-1.4%**	**4.1%**	**1.8%**	**1.7%**	**1.0%**
Total (simulated)	**-6.0%**	**-3.1%**	**-0.1%**	**-3.8%**	**-1.1%**	**1.5%**	**2.2%**	**2.0%**	**1.6%**

The approach taken to complete ADD18 for each risk component is described below.

Totex - RR30.1-7 RR30.23-29

Our Totex RoRE risk analysis is performed on a more granular level than populating the ADD18 totex lines requires. In addition, our analysis separates base and enhancement cost categories as well as the impact of the Aggregate Sharing Mechanism (ASM). This granular assessment of risk is important to ensure that the risk exposure per each risk category is appropriately captured.

To populate ADD18, base and enhancement risk ranges were aggregated for water and wastewater controls through a Monte-Carlo simulation approach to derive the total Wholesale totex risk range in each control. Water base and water enhancement cost risks are aggregated into Wholesale water costs (RR30.1 & RR30.23). Similarly, this was done for Wholesale wastewater (RR30.2 & RR30.24) and Bioresources (RR30.4 & RR30.26).

Retails costs lines (RR30.3 & RR30.25) in ADD18 are populated based on performance risk related to retail profit.

Our approach assesses the risk arising from Time incentive PCDs and Non-delivery PCDs within the enhancement risk component. These are aggregated into a PCD line (RR30.6 & RR30.28).

Additional control costs (RR30.5 and RR30.7) are left blank as additional controls were not included within the risk assessment.

The ASM is simulated separately at the aggregate totex level and apportioned to the Wholesale Water (RR30.1 & RR30.23), Wholesale Wastewater (RR30.2 & RR30.24) and Bioresources (RR30.4 & RR30.26) cost lines, given a dedicated row is not provide within the ADD18 tables. The ASM is apportioned based on the relative sizes of each area in terms of cost.

The ADD18 template provided by Ofwat aggregates these totex sub-components to produce totex scenario totals. It should be noted that the underlying probabilities which underpin the risk ranges for totex risk components (water, wastewater, bioresources, retail, PCDs and totex ASM) input into the ADD18 tables are not in practice fully additive. Consequently, the rows in the ADD18 tables (RR30.7 & RR30.29) which sum totex components will inherently differ from the total totex risk exposure estimates yielded from the Monte-Carlo simulations.

Through accounting for the interactions between different components of totex performance, we provide a more robust estimate of the underlying risk range. This risk range is also narrower than the additive range as result.

Despite this difference between simulated and additive figures, in line with guidance from Ofwat, we have not edited the formulas provided in the ADD18 template which sum risk components.

ODI - RR30.8- 12 RR30.30-34

Our analysis has simulated risk exposure separately on each common PC using data on past performance. The combined exposure for all ODIs for PR24 is based on the aggregated risk ranges of individual PCs using the Monte-Carlo simulation approach.

Our risk assessment takes into account the impact of ASM attributed to expected ODI performance which is estimated based on overall expected ODI performance. Given that a dedicated ASM row is not provided within the ADD18 template, the ASM impact is apportioned to the Water (RR30.8 & RR30.30) and Wastewater (RR30.9 & RR30.31) ODI categories based on the size of the relative risk exposure of each component.

It is assumed that there are no specific ODI categories allocated to 'retail ODIs' (RR30.10 & RR30.32) or to 'additional control' (RR30.11 & RR30.33) and therefore these rows are left empty.

The total exposure on ODIs is not equal to the sum of the estimated risk ranges of its sub-components (e.g., Water ODI and Wastewater ODI RoRE risk ranges). As a result, the rows presenting ODI totals by aggregating the ODI sub-components do not provide the actual overall estimate for ODI risk exposure which is consistent with Monte-Carlo based results.

Mex - RR30.16-19 RR30.38-41

We have assessed risk arising from C-MeX and D-MeX using historical sector performance and the Monte-Carlo simulation.

C-MeX (RR30.16 & RR30.38) and D-MeX (RR30.17 & RR30.39) lines are populated based on the results from the risk simulation. Furthermore, like ODIs, the expected ASM impact attributable to MeX-es is apportioned based on the relative size of the risk estimated for each component.

BR-MeX (RR30.18 and RR30.40) is not included within our assessment of risk and therefore this line is left blank.

The aggregated Measures of Experience risk totals (RR30.19 & RR30.41) estimated by the formulas within the ADD18 template are not equal to the simulated MeXes risk total estimated using the Monte-Carlo approach.

Financing - RR30.13-15 RR30.35-37

In our risk analysis, the risk exposure arising from financing includes the following risk categories:

- Inflation,
- Cost of new debt risk,
- Cost of embedded debt.

Within ADD18, the financing risk categories are:

- New debt issuance,
- Inflation.

Embedded debt risk is not included as a separate line item in ADD18. Only inflation risk (RR30.14 & RR30.36) and new debt risk (RR30.13 & RR30.35) are included in the tables with these reporting lines aligning with the risk components estimated within our own assessment. Consequently, the risk ranges in ADD18 for financing (RR30.15 & RR30.37) are narrower than the actual range estimated in our assessment.

To ensure the risk exposure arising from embedded debt is captured within ADD18, we have included the expected risk within the 'Other' (RR30.21 & RR30.43) category under the 'Revenue & other' risk component. Consequently, as we have not edited the formulas provided in the ADD18 template (apart from as instructed in the Errata Log in line with guidance from Ofwat), the total financing risk ranges are underestimated within ADD18.

Revenue & other - RR30.20-22 RR30.42-44

We have retained Ofwat's proposed approach to revenue risk in its PR24 DDs.

In the 'Other' category (RR30.21 & RR30.43), risk components which have not been accounted for with dedicated lines in ADD18 have been attributed to these lines. This includes embedded debt (as covered above) and risk attributed to DPC. Due to the inclusion of these risk components within the Revenue & Other category, the additive total (RR30.22 & RR30.44) presented within the ADD18 table is inflated above the actual risk ranges estimated in our assessment of risk for this component.

Reg. equity - RR30.45 to RR30.47

The Average RCV value is taken from the financial model (RR30.45). 55% gearing has been used as a notional gearing assumption (RR30.46).

Company view of DD rep impact - RR30.64 to RR30.79

We have amended an error in RR30.71 which double counted the impact of Wholesale totex RoRE in the total RoRE risk impact estimation.

To populate the risk mitigation impact for the high and low cases we have used additive estimates for each risk component as opposed to simulated ranges. We have taken this approach to align the reporting of the impact of our proposed package of mitigations with the additive approach to estimating the unmitigated DD view of risk built into the ADD18 risk tables by Ofwat.

Other considerations

- Financial estimates are presented in the 2022-23 price base.
- The ADD18 table has been populated by estimates for an average year in the overall price control period.
- This risk analysis estimates exposure for the entire AMP, and do not reflect the range of potential outcomes for a single year. As a result, average year estimates do not require any scaling adjustment and already capture intra-year correlations.

ADD19 Wastewater network+ - Growth at STWs scheme costs and cost drivers

To complete this data table, we have followed the guidance within Ofwat's PR24 business plan table guidance part 13; New tables for Draft Determination representations (July 2024).The cost reconcile to CWW3.153, CWW3.154, CWW3.155,

Where data was previously submitted in query OFW-OBQ-ANH-052 and OFW-OBQ-ANH-143 and there has been no need to update it e.g. for Cost drivers 1 to 17, this information was pulled across from our previous submission to maintain consistency.

Schemes removed and added between query responses and table ADD19

As invited by Ofwat in the Draft Determination we have taken the opportunity to review the schemes submitted in our plan following Draft Determination. Through engagement with developers and local authorities we have an updated understanding of the location of new development and build out rates over the next AMP. Using this improved knowledge increases the confidence of our submission since draft.

We have removed the following 10 schemes as growth is now considered to be occurring more slowly in these regions

Table 5 Schemes removed from our plan

Scheme name	PR24 BP reference
Foulden	I034444
Lt Totham	I034434
Sandy	I034493
Bozeat	I034425
Bottisham	I034327
Barton le Clay	I034554
Great Easton	IO34486
Brant Broughton	IO34531
South Witham	IO34512
Narborough	IO34553

Other schemes removed by Ofwat post Business Plan submission include Felstead and Ditchingham.

Schemes added to our plan

We have added 9 schemes to our plan, including two of our larger works, Peterborough and Bedford WRCs. Both of these catchments have considerable domestic growth that will require investment in AMP8. Bedford is also the focus for major strategic projects that are likely to result in sustained levels of investment over multiple AMPs.

The below tables sets out the schemes we have added as a result of latest data showing growth is occurring more quickly in these regions than expected in our previous submission. These schemes are included in the Dry Weather Flow (DWF) portfolio, apart from Peterborough which is in the process capacity enhancement portfolio.

Table 6 Schemes added to our plan

Scheme name	PR24 BP reference
South Woodham Ferrers	I044103
Soham	I044118
Whitlingham	I044136
Newport	I044121
Copford	I044111
Dunwich-Bridge-Farm	I044114

Scheme name	PR24 BP reference
Barley	I034541
Bedford	I044120
Peterborough	I042872

Scheme removed by Ofwat but included in our Plan

Investment I034511- Wickford

This scheme was removed by Ofwat during the Draft determination due to the negative PE (Population Equivalent) served by the WRC post 2030. This scheme should be in the process capacity enhancement portfolio rather than the DWF compliance portfolio, which is why we have brought it back in here. The negative movement in PE post 2030 is due to the water use efficiency we forecast in the majority of catchments.

Negative PE forecasts Post-2030

The PE forecasts we have used in Population equivalent served after 2029-30 are our 2050 forecasts (as per query OFW-OBQ-ANH-052). It was highlighted by Ofwat in the Draft Determination as a reason for Wickford (above) being excluded. We find that many of the areas have a negative PE forecast in the long term due to lower occupancy rates and increased water efficiency. There is a level of uncertainty around this and as such we still include sites where the PE forecast for the AMP provides a requirement for upgrades.

Of the 9 new schemes, 5 have a reduced PE at 2050. These are listed below with the associated decrease. The majority are a small percentage of the overall PE totals. For instance South Woodham Ferrers has a forecasted reduction of 1,165pe by 2050 (5.7% reduction). The local plan covering the South Woodham Ferrers catchment is not yet finalised so not all anticipated growth has been factored into our forecast. Outline planning permission has been granted for 1,220 homes which are allocated in adopted Local Plan and intended to be carried forward in emerging Local Plan.

Table 7 Schemes with reduced PE

Scheme name	PR24 BP Reference	Population equivalent served		Decreased in PE by 2050
		2029-30	After 2029-30	
South Woodham Ferrers	I044103	20,327	19,163	1,165
Newport	I044121	3316	3014	302
Dunwich-Bridge Farm	I044114	414	386	28
Barley	I034541	1,432	1,335	96
Peterborough	I042872	292,930	292,444	485

Amended Data- Schemes

A review of our WINEP programme has identified two errors in our original submission which have now been corrected.

- Investment I034451- Doddington. WINEP Scheme (Cost Driver 14) here should be a No, as per query OFW-OBQ-ANH-052. Great Doddington has a WINEP scheme, not Doddington.
- Investment I034492- Reepham. Reeham Lincs should not have a WINEP scheme (Cost Driver 14) listed against it- in query Ref - OFW-OBQ-ANH-143, the Phosphorus scheme listed is actually for Reepham Suffolk.

ADD20 - Wastewater network+ - WINEP storm overflow scheme costs and cost drivers

Summary

To complete this data table, we have followed the guidance within Ofwat's *PR24 business plan table guidance part 13; New tables for Draft Determination representations (July 2024)*

Cost reconciled to CWW3.24, CWW3.33, CWW3.36, CWW3.39, CWW3.45, CWW3.48, CWW3.21, CWW3.18

Where data was previously submitted in query OFW-OBQ-ANH-107 (Q107), and there has been no need to update it e.g. for EDM spill data, this information was pulled across from our previous submission to maintain consistency.

Where possible we have provided commentary within the data tables as listed below:

Cost Driver 16 - Justification

We have acknowledged that we have provided permitted PF and permitted storage in units different to those requested. The units given are as those stated in the permit. This information was previously provided in Q107.

Cost Driver 30 - Company specific

This column includes existing company specific permit refences (including variation number) and was previously provided in Q107.

Cost Driver 31 - Company specific

This column provides information on investment drivers and was previously provided in Q107.

Cost Driver 32 - Company specific

We have listed the Total Storm Overflow Spill avoided(m^3) (CWW20.47) across 87 investments in investment I034515. The figure used is the total company figure of 2,487,760m^3,divided equally across the 87 interventions.

Cost Driver 33 - Additional Commentary

We have included the following:

- Indications where SuDS are the preferred alternative.
- Indications where asset surveys where we have worked to assess screen size and/or storm tank volume since submission of Q107. We have also highlighted the need to undertake further investigations and potential upgrade through base maintenance.
- Indications where investment has been driven by AMP7 SOAF investigations.
- We've identified one site - Great Billing - which is likely to be swapped out of the WINEP programme.

Investment IO34515

Investment I034515 was created to enable smart solutions to be installed at 87 storm overflows that either discharge within 1 km of a shellfish site or are a probable or confirmed cause of the river not achieving good (RNAG) WFD (Water Framework Directive) status.

We have assumed that not all the schemes will benefit from place based thinking, so the investment allows for solutions for half of the schemes to be implemented.

Investigations carried out through investment I034199 - Complete Storm Overflows Impact assessment - will identify which storm overflows are causing an adverse ecological impact on the receiving waterbody.

The cost to enable the smart solutions to be implemented across the chosen catchment have been distributed equally across the 87 overflows in ADD20. Once investigations are complete we can apply place based thinking and maximise efficiency across the investments.

Bathing Water Investment- Sudbury

There are two investments for Sudbury;

- I043897 DD Sudbury CSOs Stour Bathing Water
- I040840, DD Sudbury WRC SUDBST Disinfection

Investment I043897, DD Sudbury CSOs Stour Bathing Water solely looks at resolving high nutrient load and E. coli impact on the bathing waters due to excess overflows from the CSOs in the network.

AsSudbury is now a designated bathing water this has triggered an investigation Driver in AMP8. If this investigation indicates UV is required at Sudbury, it will then trigger the release of investmentI040840, DD Sudbury WRC SUDBST Disinfection.

InvestmentI040840, DD Sudbury WRC SUDBST Disinfection includes both the installation of a UV disinfection plant plus all associated work at Sudbury WRC and the resolution of the excess flows from the network.

Both investments must remain in the plan because if the bathing water investigation shows that UV disinfection is not required, then there will be funding to resolve the excess flows from CSO's.

There will not be 'double counting' for resolving the excess flows from the CSOs because investment I040840, DD Sudbury WRC SUDBST Disinfectionwill not be released until the investigation confirms the need.

Use of Modelled Data

Where available, we have presented data from our current network models - i.e. some PFF values (Cost Driver 11), Model predicted spills (Cost Driver 38) and Company forecast spill position (Cost Driver 40 and 41).

Confidence in these models - and therefore the data provided - varies. Confidence depends on model build age and the validity of asset data incorporated, as models are not continuously upgraded in-line with asset upgrade.

Scheme development throughout our high spilling overflow programme will start with (intrusive) asset surveys and in-sewer flow monitoring followed by model build/upgrade. Our ambition is that modelled annual spill frequency from our models will match EDM data. The upgraded models will then allow us to more accurately determine the volume of storage required to meet spill targets.

Ofwat's proposed true-up measure within the draft PCDs will manage the financial risk that updated models will identify that different equivalent volumes of storage will be required to meet target spill frequency.

Missing Data

Where we have been unable to provide data from corporate records - i.e. asset or model information including Formula A - we will continue to develop the information as part of scheme progression.

Since Q107 we have undertaken asset surveys for 77 sites improving information on screen and storm storage. Further work, including more detailed surveys, is ongoing to determine current permit compliance.

We can confirm that our enhancement plans (including storm overflow investments) have all been built upon the assumption that permits are being met and therefore, by definition, we have included no enhancement allowance within our plan to achieve permit compliance. Any expenditure required to ensure storage and screen levels match existing permits, for example if an old screen for an existing tank needed to be replaced due to deterioration, would be funded through our base allowance.

When analysing this data it should be borne in mind that there are some sites that have more than one investment/WINEP obligation, as shown in the data.

Cost Driver Assumptions

Cost driver 1 Total Equivalent Storage (m3)

The volumes in this column have come from the values in the description of the Alternative in the C55 investment, based on a 10 spills per annum or 2 spills per bathing water season respectively.

An extra 20% has been added for any schemes where the alternatives were for offline storage to allow for depth of spill weir below ground level. All volumes were increased by 32% to allow for climate change (this was an average percentage provided by the Modelling Team). Where modelling results and EDM returns were found to be significantly different, further modelling of these overflows was carried out so the values in this spreadsheet may differ from those in the C55 investment.

Cost driver 2 Equivalent Storage delivered through Grey solutions (CWW20.14) (m3)

The volumes in this column have come from the values in the description of the Alternative in the C55 investment based on a 10 spills per annum or 2 spills per bathing water season respectively.

An extra 20% has been added for any schemes where the alternatives were for offline storage to allow for depth of spill weir below ground level. All volumes were increased by 32% to allow for climate change (this was an average percentage provided by the Modelling Team). Where modelling results and EDM returns were found to be significantly different, further modelling of these overflows was carried out and the values in this spreadsheet may differ from those in the C55 investment.

Cost driver 3 Equivalent Storage delivered through green solutions (CWW20.15) (m3)

The volumes in this column have come from the values in the description of the Alternative in the C55 investment, based on a 10 spills per annum or 2 spills per bathing water season respectively.

The areas and volumes for the SuDS solutions were modelled using SuDS Studio by the Modelling Team. All volumes were increased by 32% to allow for climate change (this was an average percentage provided by Modelling Team). Where modelling results and EDM returns were found to be significantly different, further modelling of these overflows was carried out so the values in this spreadsheet may differ from those in the C55 investment.

Cost driver 4 Equivalent Storage delivered through other solutions (m3)

The volumes in this column have come from the values in the description of the Alternative in the C55 investment, based on a 10 spills per annum or 2 spills per bathing water season respectively.

Other solutions include real time control (smart catchments).

Cost driver 5 BP Spill reduction (annual spills)

This figure was achieved by subtracting by the obligated spill count (10 for a standard overflow and 2 for an overflow which impacted bathing waters). Where modelling results and EDM returns were found to be significantly different, further modelling of these overflows was carried out so the values in this spreadsheet may differ from those in the C55 investment.

Cost driver 6 Priority site (yes/no)

Sites were identified as being in or adjacent to a high priority location by Modelling.

Cost driver 7 New screen required as part of scheme (yes/no)

Screen investments were selected by the Environment Agency and other Stakeholders. The Stakeholders flagged their priorities to us and these included where there were known issues or where the discharge was in or adjacent to a high priority site. These EnvAct_IMP5 investments are mostly on sites which have other WINEP drivers.

Cost driver 10 Permitted PFF (l/s)

The Permitted PFF flows were taken from the current Discharge Consents and Permits where available.

Cost driver 11 PFF (modelled/calculated) (l/s)

The modelled PFF flows have been provided by modelling.

Cost driver 12 Formula A (l/s)

EA guidance was used to calculate these valuesFormula A (l/d) = DWF + 1360P + 2E

(https://www.gov.uk/government/publications/water-companies-environmental-permits-for-storm-overflows-and-emergency-overflows/water-companies-environmental-permits-for-storm-overflows-and-emergency-overflows)

We have calculated the nominal Formula 'A' figure for each site in accordance with the guidance provided on the EA's website and used the version of the calculation which is applicable to partially combined sewerage systems. Specific information is not readily available on the percentage of the system which is combined in each catchment, therefore we have based our calculations on an average assumption of 34.9% combined. This aligns with the ratio of foul versus combined, which was reported in our latest APR return earlier this year. The actual infiltration rate can vary significantly in catchments from year to year and so we have assumed a standard infiltration rate ('I') of 25% of 'PG' in our calculations.

The Environment Agency applies water quality design standards when it issues permits for all new, improved or altered storm overflows. A minimum retained flow in the sewer of formula A is the normal minimum requirement for storm overflows on the sewer network and for unsettled storm overflows at the inlet to the WRC.

However, Formula A is not expected to reflect pass forward flow (flow to full treatment, FFT) for WRCs and does not take into account the existing storm storage volume.

The Pass Forward Flow (PFF) specified in the permits for the settled storm overflows at many of our WRCs is based upon a nominal '3 times DWF' figure. This was historically calculated using the formula 3PG+I+3E but was subsequently changed to PR24 outbound queries 3PG+IMAX+3E when the EA Guidance was updated in 2018. It is also worth noting that when carrying out improvements at our WRCs to meet our AMP7 U_IMP5 (FFT) obligations we agreed solutions with the EA based upon a PFF set at 3 times the permitted DWF and not formula A.

For any new proposed (unsettled) storm overflows we would agree the design standards that apply to the overflow via the Urban Pollution Management (UPM) process. This is explained in more detail in the EA Guidance.

Cost driver 13Permitted storage requirement (m3)

The permitted storage requirement was taken from the current Discharge Consents and Permits.

Cost driver 14Actual storage (m3)

Whilst we expect the installed capacity to match storage reflected in our hydraulic models and match or exceed the existing permit requirement and the storage reflected in our hydraulicmodels, we have interpreted the column heading 'actual volume' as requiring positive verification of the installed capacity.

We compared the Permit data with Company Asset data (SAP). Where there was a discrepancy, a high level, non-intrusive site survey has been completed to provide indicative figures. Because of operational restrictions and access constraints within the time available, there are still a number of these surveys to complete.

Cost driver 15 Permitted annual spill frequency (where stated)

The permitted annual spill frequency has been taken from the water industry national environment programme (WINEP) drivers EnvAct_IMP3 and EnvAct_IMP4.

Cost driver 17 Permitted screening provision (6mm, 10mm, none)

The permitted screening provision has been taken from the current Discharge Consents and Permits.

Cost driver 18 Actual screening provision (6mm, 10mm, none)

We compared the Permit data with Company Asset data (SAP). Where there was a discrepancy, a high level, non-intrusive site survey has been completed to provide indicative figures. Because of operational restrictions and access constraints within the time available, there are still a small number of these surveys to complete.

Cost driver 19 Screen Totex (£m)

Sum of costs (Capital and Operational) AMP8 for those investments with driver EnvAct_IMP5, when the investment is combined with other scope the cost reflected in this driver is only for the screening assets.

Costs have been reconciled to CWW3.48

Cost driver 20SOAF Investigation current stage

Forty SOAF investigations were carried out in AMP7. Of the forty locations investigated, 27 are included in AMP8 under various WINEP drivers (EnvAct_IMP 2, 3, 4, 5). For these 18 locations the SOAF investigation has been completed.

For all remaining schemes UPM studies will be carried out during AMP8.

Cost driver 21 Related FFT increase to reduce SO spills or allow storage discharge (l/s)

The programme includes only 7 schemes with increased Pass Forward Flows as the preferred alternative.

Cost driver 22 FFT increase location

We have stated "on-site" as all of the FFT schemes are proposed at the named asset of the investment.

Cost driver 23 FFT increase totex (£m)

Sum of AMP8 capital and operational costs for Investment are provided.

Cost driver 24 Surface water separation (ha removed)

We have used the following ratios for assessing hectare removal for surface water removal by intervention type.

- Disconnection downpipes- 1m3=96m2 for anything less than 3000 m2
- Wet Swales 1m3=1m2
- Properties Disconnection of downpipes only = No of properties x 0.5 m3/prop x 96m2/m3
- Raingardens is in m2 to convert to m3 multiplied to 0.35m depth
- Water butts - 75m2 roof area assume 60% of water is removed - 45m2 of SW removal per property for water butts. Water butts volume = 100lt

Cost driver 25 Surface water separation totex (£m)

Sum of costs (Capital and Operational) for those investments that contribute to CWW3.39 and CWW3.36

Cost driver 26 Wetland area (ha)

There are no wetlands proposed as a preferred alternative.

Cost driver 27 Wetland totex (£m)

There are no wetlands proposed as a preferred alternative.

Cost driver 28 Forecast scheme completion date

We have listed the dates based on the last month forecast of CAPEX expenditure and cross checked with the Obligation date.

8 Investments (AMP8 TOTEX £44.283m) have got a revised obligation date that was not possible to incorporate in CWW3 in time for submission. We have therefore left the spend profile and forecast completion date as stated in CWW3 for the effect of reconciliation. Please see below the propose spend profile, which will be subject to further conversation with the Environment Agency.

Table 8 Completion dates and expenditure profiles

				Capital expenditure (£m) - reprofile					Operational expenditure (£m) - reprofile				
Invest. Line	Line Description / Storm Overflow Name	Obligation Date	Current Completion Date	Capex FY26	Capex FY27	Capex FY28	Capex FY29	Capex FY30	Opex FY26	Opex FY27	Opex FY28	Opex FY29	Opex FY30
I039474	BRIGHTLINGSEA-LWR PARK RD TPS	31/3/2028	1/3/2030	3.342	6.615	10.270	0.000	0.000	0.000	0.000	0.067	0.134	0.134
I041245	COLCHESTER-HAVEN RD OV	30/6/2027	1/3/2028	0.038	0.057	0.000	0.000	0.000	0.000	0.001	0.002	0.002	0.002
I033676	GIMINGHAM-NR MILL TPS	31/3/2027	1/3/2030	1.479	2.172	0.000	0.000	0.000	0.000	0.004	0.008	0.008	0.008
I034137	HUNTINGDON-HARTFORD ROAD SP	31/3/2028	1/3/2029	0.364	0.722	0.659	0.000	0.000	0.000	0.000	0.005	0.011	0.012
I041166	KINGS LYNN-GAYWOOD OUTFALL OV	30/6/2027	1/3/2029	0.277	0.596	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.003
I040828	COLCHESTER STW	30/6/2027	1/3/2030	6.810	9.097	0.000	0.000	0.000	0.000	0.009	0.106	0.195	0.195
I041109	SUTTON BRIDGE STW	30/6/2027	1/3/2028	0.157	0.541	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001
I034094	WHITLINGHAM TROWSE STW	31/3/2028	1/3/2030	0.027	0.435	0.626	0.000	0.000	0.000	0.000	0.000	0.020	0.020

Bundle CSO/UV schemes:

Despite early obligation dates being set for these schemes (2027), costs associated with the delivery of UV disinfection are profiled across all 5 years of AMP8 due to the technical requirements that have been communicated by the Environment Agency. These requirements dictate that certain activities must be undertaken sequentially, requiring a 5 year delivery profile to achieve. We are in active engagement with the Environment Agency with respect to the unachievable obligation dates and have requested an extension to 2030.

Table 9 Scheme completion and obligation dates

Investments line	Line Description	Forecast scheme completion date	Obligation date
I033959	Blackwater CSOs - Shellfish Beds Storage	1/3/2028	30/6/2027

Investments line	Line Description	Forecast scheme completion date	Obligation date
I033697	Maldon WRC MALDST Disinfection	1/3/2029	30/6/2027
I033936	South Woodham Ferrers WRC Shellfish Beds	1/3/2030	30/6/2027
I031837	Tollesbury WRC TOLLST Disinfection	1/3/2030	30/6/2027
I031886	Boston WRC Disinfection	1/3/2030	30/6/2027
I040840	Sudbury WRC SUDBST Disinfection	1/3/2030	30/4/2028
I040818	Manningtree WRC MANNST Disinfection	1/3/2030	30/4/2028
I040852	Haslingfield WRC HASLST Disinfection	1/3/2030	30/4/2028
I033944	Tollesbury WRC TOLLST Shellfish Beds	1/3/2030	30/6/2027

Cost driver 29 Combined scheme (provide name of combined scheme)

We have no plans for "combined schemes". All of our investments are standalone investments as we have combined drivers into one investment and they are therefore not linked to other investments in the table.

Cost driver 34 to 37 Current Spills

This information is provided from our EDM returns. Where a storm overflow has more than one EDM monitor the data from these monitors is combined and used in the spill counting methodology, per unique identifier for EDM return.

Cost driver 38 Model predicted spills (annual, 2025)

This data shows modelled outputs for annual spills, some of which have been reviewed since Q107.

Cost driver 39 Target spills (annual spills)

This data was taken from Q107 and determined by location. Bathing Water schemes will be limited to 2 spills per bathing season and it should be noted that this is not an annual spill target.

Cost driver 40 2024-25 (2024) Company forecast spill position

Cost driver 41 2025-26 (2025) Company forecast spill position

The majority of 2024 and 2025 figures are reported as per the modelled predicted spills for 2025 - Cost Driver 38. However there are 3 AMP7 schemes which will reduce spills and these have been reflected in the table:

- **2 x Capital Maintenance schemes delivered in 2023/2024**

  HUNSTANTON SOUTH END ROAD TPS (I033732)

  HUNSTANTON-SMUGGLERS LANE SP (I034181)

- **1 x SOAF AMO scheme delivering in 2024/25**

  GORLESTON-BAKER ST SP (I034184)

Cost drivers 42 to 51 Spill reduction benefits

We have followed Ofwat's July guidance and used the BP Spills reduction figures (Cost Driver 5) to forecast benefits.

We have reported annual benefits in line with EA reporting which runs in calendar years (January to December)

Benefits are deemed to commence based on the month of obligation date.

Previous Commentary Provided in Response to Q107

Within the commentary provided as part of ANH21 PCDWW5, we explained that we have only included data in that appendix for schemes with specified spill reduction targets (i.e. under ENVAct_IMP3 & ENVAct_IMP4). This means the data presented was only a subset of the total programme and we would not expect it to match thedata in CWW3 and CWW20, which is for the whole programme. For example, this means that we have not included WINEP schemes for drivers such

as storm tank, FFT, or bathing water schemes which will deliver storm spill reduction benefit by the nature of the investment, but did not have specific spill targets associated with them.

This approach was taken because cost driver 5 in the template calls for target spills. We have also not included investment for EnvAct_IMP2 (no adverse environmental impact) because, until investigations under ENVAct_INV4 are completed (by 2027), we cannot confirm which sites will require further spill reduction schemes or what level of spill reduction will be required.

We have updated the table to ensure totex and storage volumes align with those in CWW3 and CWW20 respectively. Note that in doing this we have also included bathing waters investments which provide additional capacity, but the costs for these are reported in CWW3.90.

ADD21 Resilience Interconnector Schemes

We only have one scheme that meets the criteria for resilience interconnectors, this is the East Suffolk IPZ scheme. This scheme has been moved from table CW08 to table ADD21 at Draft Determination representations following Ofwat's responses to our queries OFW-IBQ-ANH-047 and OFW-IBQ-ANH-033.

The need for this scheme is detailed in our published WRMP24 -Supply Side Options Development Report page 145, section 6.22.5.

The scheme does not include any pumping or storage assets, is a single pipe diameter and has been populated in a single row in table ADD21.

The benefits columns have not been populated as this scheme does not have a WAFU benefit because it is an internal transfer within a water resource zone. The scheme capacity has been populated in the transfer capacity column.

Opex costs are annual average and not cumulative. The opex in year 2028-29 reflects a partial year based on the estimated completion date of the scheme, from 2029-30 onwards the total annual opex in included.

Capital costs are annual and not cumulative. The spend profile for the scheme has been based on a cost curve using models developed from previous schemes of a similar scope.

All costs are in 2022-23 prices and align with CW3. However it should be noted that in table CW3, due to a timing issue with the queries on table ADD21, this scheme is still reporting against the 'Interconnectors delivering benefits in 2025-2030' line rather than in the Resilience line.

ADD22A-E Bespoke performance commitments

We discuss our bespoke performance commitment Lower Carbon Concrete Assets in ANH_DD_017 Outcomes detailed commentary. Only table ADD22E contains new information not included in table OUT1, OUT2, OUT7 and OUT10 in our business plan.

ADD24 Large enhancement schemes expenditure

Having reviewed our data we have identified 4 schemes that meet the criteria for ADD24b. We have provided details for the 4 schemes for the period 2025 - 2030 only and have not included phasing into AMP9 or transition spend in 2023 - 2025. More details about these 4 schemes can be found in our enhancement strategy ANH_DD_018 Resilient to flood.

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