PR24 Draft Determination Representation

Data Table Commentary

August 2024

YKY-PR24-DDR-61

Contents

Introduction

Within the PR24 Draft Determination, Ofwat requested further data and information in the form of additional data tables to be submitted as part of Yorkshire Water's Draft Determination Representation.

Yorkshire Water has also updated data tables since the business plan submission in October 2023 to respond to queries from Ofwat, to include actual performance for the financial year 2023-2024, and to include any additional data table changes that support our overall representation.

This document provides supporting commentary to accompany the data tables that have changed and are submitted as part of Yorkshire Water's Draft Determination Representation.

Please see document (YKY_DDR_63) for the data tables submitted as part of the Draft Determination Representation.

All changes in the data tables that have been made in the version shared as part of our Draft Determination Representation are shown in bold blue text.

Additional Data Tables

ADD1-13 - Post-frontier shift efficiency and real price effects basis

For all tables ADD1 to ADD13 which are applicable to Yorkshire Water (so not ADD4, 5, 9, 10 and 12), we have applied a frontier shift assumption of 0.7% to the corresponding expenditure table (for example in ADD1 we apply frontier shift to the data in CW2). The 0.7% compounds each year so that in year 1 (2025-26) it is 0.7%, in year 2 it is 0.7% squared, and so on up to year 5 (2029-30) where it is 0.7% to the power 5.

We have not applied frontier shift to local authority and cumulo rates, service charges, and location specific costs and obligations.

We note that Frontier shift as a concept is a more general increase to productivity and cannot therefore be so specifically applied to every line item in our cost tables at such a granular level. We have followed Ofwat's guidance by applying a frontier shift efficiency assumption to each line of the tables where appropriate, but we consider that specifying the exact area where productivity improvement will be found implies a level of certainty that does not exist in reality.

ADD14 - Industrial Emissions Directive (BIO7)

Location of costs within the data table & APR submission

Costs are included under line CWW3.189, as CWW3.196-198 are not present in v7 of the data tables. AMP7 costs have also been reported under Table 4M line 81 in the most recent APR submission.

Cost driver information provided

With the exception of Cost driver 1 and Cost driver 13 this data is unchanged from the table previously submitted under OFW-OBQ-YKY-091 IED information request, which was submitted in December 2023.

Cost driver 1 data has been updated following an error identified in the information, this came to light whilst responding to Ofwat query OFW-OBQ-YKY-160. All figures under Cost driver 1 have now been updated in the ADD14 table to match those provided to Ofwat in our response to that query.

Cost driver 13 data has been removed altogether as this relates solely to the surface area of covered storage, Ofwat has removed all funding in relation to this activity in the Draft Determination so we have removed the outputs in addition to the expenditure as this work will no longer go ahead.

Split between base and enhancement expenditure

All costs reported in the ADD14 table and in the corresponding data table lines are enhancement.

In previous APR reporting and to mirror that submitting within our PR24 submission we had included our IED costs within Base allowances, with the exception of our Appropriate Measures Enhancement case, as no Enhancement funding had been allocated to Yorkshire Water in AMP7 for IED compliance.

Following Ofwat's correspondence and information requests on the subject of IED it became clear that our expenditure should be recorded as Enhancement even where not funded in AMP7. As a result, a correction was made in our APR submission in 2024 to adjust the reporting of prior years' spend and forecasts to Enhancement.

Ofwat has indicated all PR24 IED expenditure for which we are requesting funding should be recorded under Enhancement table CWW3, which we have now done.

Resultingly, all IED spend will now be shown in CWW3 line 189 for AMP7 and PR24.

Forecast variance since previous submission

Yorkshire Water's overall IED cost forecast, after netting off the Ofwat removed appropriate measures fully enclosed cake barn costs, has increased since previous submission in December 2023.

Our December 2023 submission included for £59.4m of IED costs plus £131.3m of appropriate measures.

Ofwat removed all costs associated with fully enclosed cake barns within the appropriate measures enhancement case, £117.6m.

If all other forecasts had remained the same this would have left Yorkshire Water forecasting £73.1m for IED overall, however, owing to unexpected cost increases Yorkshire Water's overall forecast is now £113.5m (pre deflation).

Forecast costs are now more accurate as a result of a greater proportion being based on contractor quotations, but prior estimates for the secondary containment works in particular have been shown to be too low with contractor quotes significantly higher in this area.

ADD15 - PR24 Water Industry National Environment Programme (WINEP) – England, Costs and number of actions

This table was initially prepared as part of the response to query OFW-OBQ-YKY-083 in November 2023.

The table has now been formally designated as part of the post draft determination Business Plan Tables. The data submitted in Query 083 has been reassessed against the final WINEP release of 4th July 2024 and 31st July 2024 and the post draft determination business plan and amended as necessary.

We have recently submitted a change request to the Environment Agency (EA)to add Wheldon Road storm overflow to our U_IMP4 obligation. However as of 19th August this had not yet been accepted by the EA. If accepted, it will increase the count of U_IMP4 actions from 14 to 15 and add £8.765m to the current totex £64.73m.

We have followed a convention of only mapping investment to the EA Schedule as of 31 July 2024 and have not included anticipated changes. As such the Wheldon Road CSO is not included in Table ADD15.

Column Name (No RAG line refs)	Commentary
Line description	For each WINEP Driver Code there are two rows of data – The TOTEX investment sum allocated to delivery of the Driver group and the number of WINEP actions within that driver group. We confirm that this Table is aligned to the Environment Agency WINEP Schedule for PR24 published on 5th July 2024. Yorkshire Water align each of their PR24 investment schemes with a percentage allocation to the relevant WINEP driver. This is a retro activity after the allocation of partial costs to the relevant OFWAT Enhancement Category. This facilitates the preparation of the TOTEX investment data for both categories – WINEP for Table Add15 and OFWAT Enhancement for Tables CW/3CWW3 and CW13/CWW13. Example – Driver ENVAct_MON2 funds investigations of sites for potential river water quality monitoring. However there is only one action in the WINEP schedule as the investigation locations are not specified. We have added lines for the new driver U_IMP4 at rows 196 and 197 as instructed by OFWAT . We were unable to identify the relevant OFWATBON numbers for these rows as the provided appear to be for Welsh Water.
Unit	No Change
DPs	No change
Total Value (£ or Nr of Actions) to deliver PR24 WINEP 2025-30)	We confirm that we have included transitional expenditure.
Driver Definition	Already Completed in by OFWAT in ADD15
Comments	We have added comments to explain each allocation if there are any nuances or exactly which scheme is aligned to the driver. The most significant of these are for the Drivers BW_IMP2 and ENvAct_INV4 and are reproduced below.

Key explanatory comments in the table are reproduced below:

Line description	Unit	DPs	PR24 WINEP 2025-30 (also include transitional or accelerated expenditure on PR24 actions) 2025-30	Driver Definition	Comments
BW_IMP2 - Totex	£m	3	13.780	Actions to improve waters at risk of deterioration to a planning class of Poor (>20% risk of failing Sufficient).	These drivers are generic holding codes for additonal disinfection work for Wetherby and Knaresborough bathing waters . We have proposed a scheme for Disinfection at Harrogate North STW but this is not formally yet accepted by the Environment agency. Further schemes are subject to completion of BW_INV2 but completion date is 30 april 2028. The cost cited is for disinfection at Harrogate North STW.
BW_IMP2 - Number WINEP actions	Nr.	0	2	Actions to improve waters at risk of deterioration to a planning class of Poor (>20% risk of failing Sufficient).	2 WINEP actions designated as holding lines but only 1 with a costed scheme proposed at Harrogate North STW- Under discussion with EA
EnvAct_INV4 - Number of WINEP actions	Nr.	0	692	Investigations to reduce storm overflow spills to protect the environment so that they have no local adverse ecological impact	EA have reduced no to 631 on 2/7/2024 BUT YW expect to work with EA to restore to 692 investigations .So Count and budget retained for 692 investigations.

ADD16 – PR24 National Environment Programme (NEP) – Wales, Costs and number of NEP actions

These tables are not required to be submitted alongside Yorkshire Water's draft determination representation. These tables are not applicable for Yorkshire Water.

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

There are 17 schemes with a sanitary driver in the latest WINEP and as such 17 line entries in Table ADD19. The spreadsheet identifies £40.953m totex expenditure need including £7.197m of transitional expenditure need. There are six schemes which also have a new phosphorus limit on the same site. There are four schemes that just require permit updates and do not need investment specific to meet the new sanitary limits; as such only 13 schemes appear in the subsequent cost modelling.

Scheme 10 at Keyingham appears high for the population served but this is because the proposed ammonia limit of 1mg/l cannot be met by the existing mineral filters. Furthermore it is an all flow site requiring a high design flow compared to the population it serves. As such it is possible the Keyingham ammonia scheme may be an outlier in any cost modelling.

The table below summarises key points with regard to our table preparation ; as a new table there are no RAG line references.

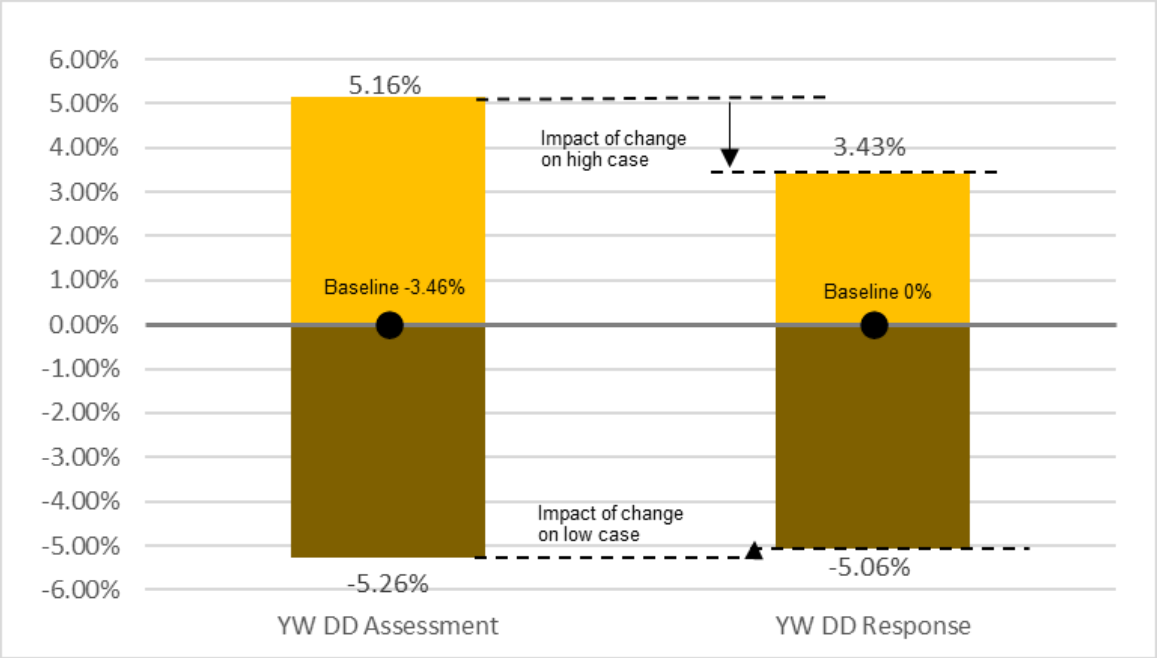
Column Name (No RAG line refs)	Commentary
Scheme name	Scheme name is composed of scheme number , site, scheme substances and compliance year. Phosphorus is included if relevant but the phosphorus expenditure is not included and is reported in Table CWW19. 6 schemes have a phosphorus (P) limit as well as a sanitary limit. The individual capex elements of each scheme e.g. mineral filter, primary tank were assigned by a process engineer as belonging to either the delivery of the P or the sanitary parameter. This enabled a % split of the total CAPEX cost to be assigned to delivery of either the P (Table CWW19) or to the sanitary (able ADD17) permit. 3 of the schemes have £0 assigned to sanitary as the site already or will meet the sanitary limit on completion of the Phosphorus scheme.
WINEP/NEP ID reference	As per WINEP Schedule 10th Oct 2023
WINEP/NEP scheme delivery date	As per WINEP Schedule 10th Oct 2023
Primary WINEP/NEP driver code	As per WINEP Schedule 10th Oct 2023
Capital expenditure (years 2024/25 to 2029/30	4 schemes , with only sanitary drivers, have early start money
Capital expenditure After 2029-30	This is left blank as there is no further scheme capex (future and of asset life replacement CAPEX is not included)
Operating expenditure (years 2024/25 to 2029/30)	We confirm that cumulo rates and bioresources costs have been excluded from this expenditure.
Operating expenditure After 2029-30	This is the annual OPEX expenditure expected after completion of the scheme
Population equivalent served e (years 2024/25 to 2029/30	We confirm that this data is derived from our Population equivalent loads data set and projections used for population of Tables CWW5 and CWW7a-b-c
Population equivalent served -After 2029-30	This is left blank as believed to be anomalous. The populations are still projected to changes annually
Cost driver 1#Scheme design population equivalent	The design horizon for the scheme .We use 2040 load projections as the design horizon
Cost driver 2#Historical permit level for BOD (mg/l)	Extracted from our Yorkshire Water Permitting database
Cost driver 3#Enhanced permit level for BOD (mg/l)	Extracted from the WINEP Schedule for PR24
Cost driver 4#Historical permit level for ammonia (mg/l)	Extracted from our Yorkshire Water Permitting database
Cost driver 5#Enhanced permit level for ammonia (mg/l)	Extracted from the WINEP Schedule for PR24
Cost driver 6#Historical permit level for suspended solids (mg/l)	Extracted from our Yorkshire Water Permitting database
Cost driver 7#Enhanced permit level for suspended solids (mg/l)	Extracted from the WINEP Schedule for PR24
Cost driver 8#Permit change only (Y/N)	We have 4 schemes which we consider are already meeting the required permit levels or we believe the concurrent phosphorus scheme will deliver the new BOD limit required due to the enhanced settlement/solids capture processes.

Cost driver 9#Catchment-based solution (Y/N)	There are no catchment based solutions
Cost driver 10#Length of transfer pipeline (km)	There are no transfer schemes
Cost driver 11#Annual Average Daily Transferred flow (cu.m/d)	There are no transfer schemes
Cost driver 12#Is there a PR24 WINEP/NEP P or Total N enhancement at same site (Y/N)	6 Schemes also have a Phosphorus enhancement limit at the same site
Cost driver 13#Solution type (drop down selection) providing a choice as follows: • **No additional treatment capacity** • **Chemical dosing only** • **Additional primary settlement only** • **Additional biological capacity only (secondary or tertiary)** • **Additional final or humus settlement only** • **Additional tertiary (physical separation) only** • **Complete works replacment** • **Transfer of flows** • **Nature based solution only** • **Catchment based solution only** • **Other or combination solution - provide additional commentary**	The entry has been reassigned using the new drop down . Explanatory commentary is added to Column Cost Driver 15.
Cost driver 14#Corresponding CWW3 line (drop down selection)	All the schemes are allocated to the CWW3.73 -75 Cost group
Cost driver 15#Commentary associated with cost drivers 13 & 14	Scheme 10 Keyingham is a very high cost scheme as the ammonia limit of 1mg/l cannot be met by the existing mineral filters. Furthermore it is an all flow site requiring a high design flow compared to the population it serves. As such it is likely to appear to be an outlier in any cost modelling. 4 sites have no investment , other than permitting, associated with delivering the enhancement sanitary limit- Easington, East Cowton, Skipsea and Myddleton Tyas.

ADD18 - RORE Analysis RR30

We note that we have populated ADD18 in line with Ofwat's guidance - with P10 and P90 shown as variations from a base case. As described in the Finance and Financeability chapter of our PR24 Draft Determination Response, we do not believe that the Draft Determination provides a central estimate that allows a company to earn the cost of equity, so the ranges shown in the chapter showing our view of risk, do not align with ADD18. Instead, ADD18 shows the variation from the baseline as shown in the first column below (YW DD Assessment).

Visualising the data in ADD18



We show the change to the assessment around the baseline although note that this data in table ADD18 is relatively meaningless if the baselines are not comparable. We also maintain the RCV associated with the DD assessment in ADD18 which is not reflective of our DD representation position.

The guidance document asks for the tables to be adjusted for the headline rate of corporation tax for PR24 where appropriate. However, we do not believe that adjusting the tables for tax is appropriate as our assessment is that the tax paid is unlikely to vary with totex over- or underspend or differences in financing.

We set out below how we have reassessed the RoRE risk range of Ofwat's DD (and our subsequent DD response. These build on the approaches we took in assessing the risk of our October plan which were documented in the below.

- https://www.yorkshirewater.com/media/epvblmik/yky55_uncertainty-mechanisms-and-rore-risk.pdf
- https://www.yorkshirewater.com/media/xchcd1au/yky69_commentary_data-table-commentary-section-2-risk-return.pdf

Totex RoRE

Wholesale water costs – high and low cases

We have analysed the average wholesale totex over- and under-performance (percentages) between 2020-21 and 2023-24 to produce P10 and P90 figures. We have multiplied the P10 and P90 percentages by our assumed cost sharing rate

(weighted to account for the higher enhancement cost sharing) and multiplied that by our base allowance totex. We have finally included an adjustment to reflect Ofwat's proposed uncertainty mechanisms and indexation.

Wholesale wastewater costs – high and low cases
We have analysed the average wholesale totex over- and under-performance (percentages) between 2020-21 and 2023-24 to produce P10 and P90 figures. We have multiplied the P10 and P90 percentages by our assumed cost sharing rate (weighted to account for the higher enhancement cost sharing) and multiplied that by our base allowance totex. We have finally included an adjustment to reflect Ofwat's proposed uncertainty mechanisms and indexation.

Retail costs - high and low cases
We have analysed the average retail totex over- and under-performance (percentages) between 2020-21 and 2023-24 to produce P10 and P90 figures. We have multiplied the P10 and P90 percentages by our base allowance totex. We have finally included an adjustment to reflect Ofwat's proposed uncertainty mechanisms and indexation.

Bioresources costs – high and low cases
We have analysed the average bioresources over- and under-performance (percentages) between 2020-21 and 2023-24 to produce P10 and P90 figures. We have multiplied the P10 and P90 percentages by our assumed cost sharing rate and multiplied that by our base allowance totex. The potential investment for land bank loss is included in the low case and partially mitigated through enhanced cost sharing.

Additional control costs - high and low cases
No values entered.

Price control deliverables – high and low cases
We have completed an internal analysis of the PCD package proposed at the DD and created some reasonable scenarios related to late and non-delivery payments.

We have made assumptions on the probability of late or non-delivery for each material PCD across the period as set out at DD. Our high case is that all enhancement schemes will be delivered in line with the PCDs, however we assess a medium case of £90m downside (£39m delay and £58m non-delivery) and a low case of £140m downside (39m delay and £115m non-delivery). We have apportioned the delay penalties across each year of the period evenly and put the non-delivery penalty in 2029-30.

As with each of the areas, the high and low case of the ADD18 table is shown as a variation from the baseline (medium case) and is therefore shown as a positive despite PCDs effectively being downside only.

Aggregate Sharing Mechanism

Our final step for populating the Totex RoRE is to apply the aggregate sharing mechanism. This kicks in at +/- 2% of price control RoRE. We apply this at the final stage and alter the reduction in risk/reward proportionally to the values in the table.

ODI RoRE

Water ODIs - high and low cases

As set out in our October plan, we undertook the following steps to get to our assessed ODI RoRE range:

1. Review the framework and analytical tools used at PR19.
2. Update the approach and modelling tool ensuring consistency with Ofwat's PR24 methodology.
3. Evaluate the results to match business knowledge and ambition.
4. Estimate the high and low case (P10/P90) ODI-related financial impacts separately for price controls to be able to populate the relevant rows of the ADD18 data table.

We developed a robust method for evaluating the ODI-related financial risk based on a Monte Carlo simulation model that calculates a range of potential impacts based on a range of probability distributions. We used an analytical tool built entirely with R programming language. The range of probability distributions has been updated with the most recent historical performance data at industry-level. For each of the PR24 performance commitments, we have estimated a percentage difference between the actual and the committed performance level using four years of data from 2020 to 2024, as they have been reported in the Annual Performance Reports (APRs) of each company.

We decided to use only the most recent performance data 2020-24 in our analysis. The length of this dataset is limited so it does not give a long-term perspective on factors driving over/under performance. However, we believe this is the only period that appropriately reflects the PC incentive regime we see at PR24. In addition, prior to 2020 we have concerns over data accuracy, quality, and definitions PCs. These have improved in recent years following convergence activity. Using this dataset has allowed us to obtain an adequate number of data points for each performance commitment and capture the risk associated with each of them. We have also isolated extreme possibilities from the risk range (such as unrealistically high or low performance levels experienced by water only companies that are not likely to be seen at larger water and sewage companies such as YW). We grouped these

percentage differences by price control to be able to use for the new performance commitments where there is no available historic data.

With this approach the model creates a blend of ODI-related financial payments taking into account the likelihood that the company will simultaneously experience negative and/or positive outcomes. Finally, we created a series of scenarios which considered raw and adjusted probability distributions to reflect the PC package proposed in Ofwat's final determination. These scenarios were considered to describe the impact of individual ODIs on the RoRE range and the associated level of uncertainty.

Where relevant, the model considers factors such as thresholds for enhanced incentive rates, deadbands, caps and collars. Following Ofwat's proposal to encompass the Measures of Experience (MeXes) payments in the aggregate sharing mechanism, we have adjusted our model accordingly, with application of the mechanism as the last step in our approach to calculate the ODI-related financial impacts. Using the proportion of each service control (water and waste water) from the total RCV value, we apportioned the ODI-related financial payments associated with the MeXes in each service control and applied the aggregate sharing mechanism to eliminate excessive upside and downside payments. The calculations follow the approach set at PR24 methodology – a threshold at ±3% RoRE with 50:50 shared payments between companies and customers and a further threshold at ±5% RoRE with 10:90 between companies and customers.

The result is a total high case of £203m and a total low case of £-203m over the period.

Wastewater ODIs – high and low cases
(Please see 'Water ODIs - high and low cases' section for methodology.)

The result is a total high case of £160m and a total low case of £-389m over the period.

Retail ODIs - high and low cases
There are no retail specific ODIs.

Additional control ODIs – high and low cases
No values entered.

Financing RoRE

New debt issuance - high and low cases

We have assessed the risk in the same way as with our October plan but as the proportion of new debt has increased at DD, there is a slightly higher risk range.

As a recap our approach in October was as follows -

The allowed cost of new debt is subject to an end of period reconciliation, which protects us and customers against variations in the cost of debt across the 2025-30 period. Nonetheless, we will continue to face some risks in this area. Relevant risk factors we have considered include the following:

- Financing timing risk – Ofwat's end of period reconciliation relies upon average annual index figures; however the timing of our new debt issuance within each year is dependent upon our capital requirements; therefore we remain exposed to variations between the index at the time of our issuance and the annual average of the index.
- Financing cost risk – Whilst Ofwat's end of period reconciliation protects us and customers against movements in the index, we will continue to face financing risk where the cost of any new finance raised is above or below the index. There are two elements to this: (i) inflation risk, which has already been considered above and (ii) whether we are able to raise debt above or below the assumed level.
- Issuance requirements – Ofwat's end of period reconciliation applies a standard assumption for the proportion of new debt raised; however the timing of actual capital expenditure and hence issuance of new debt can vary significantly from that originally planned, as illustrated throughout the 2020-25 period.

As debt is not apportioned to individual price controls we have considered financing risk on a total company basis as illustrated above. To determine individual price control RORE ranges we have allocated the above total risk between the price controls based on the split of RCV, which is consistent with the approach adopted by Ofwat within their PR24 financial model.

The result is a total high case of £59m and a total low case of £-59m over the period.

Inflation - high and low cases

We are partially protected from inflation risk due to the indexation of allowed revenues and the RCV; however there remains an element of our performance against the allowed cost of debt that is still subject to some inflation risk.

Debt is priced based on long term inflation expectations, rather than current actual inflation rates, as illustrated by recent market pricing where total nominal yields have not increased in line with the significant increases in actual inflation rates. On this basis our allowed cost of debt is currently set based on a long term inflation assumption of 2%.

In order to assess the level of inflation risk we therefore need to consider the potential fluctuation across the 2025-30 period of this long term inflation assumption. To do this we have analysed daily government liability curve (inflation) data provided by the Bank of England over the last 10 years. Whilst this data is RPI based rather than being CPIH, we consider that it provides a reasonable indicator of the fluctuations in long term inflation expectations over the period.

The result is a total high case of £68m and a total low case of £-68m over the period.

MeXes RoRE

C-MeX - high and low cases

We have assumed a high case where we rank third in the industry. We have used the C-MeX and UKCSI data from 2023 and 2024 to calculate the adjusted UKCSI threshold in line with Ofwat's methodology. We have also calculated the upper quartile and bottom 5 UKCSI scores. When compared with the UKCSI threshold and upper quartile scores, our assumed score from ranking third would lead to us receiving an outperformance payment of around 0.1% RORE which equates to approximately £16m over the period.

We have assumed a low case where we rank fifteenth in the industry. When compared with the UKCSI threshold and bottom 5 scores, our assumed score from ranking fifteenth would lead to us incurring an underperformance payment of around -0.3% RORE which equates to approximately £-72m over the period.

D-MeX - high and low cases

We have assumed a high case where we are the best performing company in the sector and receive an outperformance payment of 0.25% RoRE each year. This equates to £61m over the period.

We have assumed a low case where we are the worst performing company in the sector and receive an underperformance payment of -0.25% RoRE each year. This equates to £-61m over the period.

BR-MeX – high and low cases

We have assumed a high case where we are the best performing company in the sector and receive an outperformance payment of 0.20% RoRE each year. This equates to £49m over the period.

We have assumed a low case where we are the worst performing company in the sector and receive an underperformance payment of -0.20% RoRE each year. This equates to £-49m over the period.

Other - high and low cases
No values entered.

Impact of changes proposed by company in representations on high case - high & low case

In populating the lines RR30.64-RR30.79 the first stage was to re-estimate the above risk using our DD Response.

- **Totex** – We have adjusted our view of the Totex Risk to reflect the original symmetrical allowance set out by Ofwat in its Final Methodology. We assume that allowance of our DDR will give us equal opportunity to over/under perform Totex spend. We adjust the ranges to reflect our proposed uncertainty mechanisms and indexation.
- We show a small downside skew due to PCDs, that whilst mitigated in our response.
- **ODIs** – We repeat our analysis but with our proposed PC targets, caps, collars and deadbands proposed in our DDR. Our assessment is that this leads to a neutral reward/ penalty position in the base case however there is a negative downside skew due to the nature of the PCs (penalty only, and exogenous factors naturally leading to downside skew)
- **MeX-** We have assumed that the MeX risk is symmetrical and for D-MeX and BR-MeX is narrower in range than in the DD,
- **Financing –** We have not updated our approach to financing risk between the two views, we assume that finance can be raised at the same price for both programmes of investment.

The second stage is then to populate the 'impact' of the representations on the high and low case. As we describe earlier this is fairly meaningless as the base case has moved from –3.43 to 0 and the P10 and P90 shifted accordingly. However to comply with the guidance for each line the difference in £m from the Company view of the base case and the view of the representation risk is calculated and populated into the table.

This results in lines 30.87 and 30.95 which reflect our view of the DDR risk range.

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

The table is the formalisation of the data collated in response to Ofwat query OFW-OBQ-YKY-050 received in November 2023. This requested further costs and explanatory variable data to support OFWAT's cost assessment modelling of growth schemes.

It should be noted that:

- Scheme 2 - Heronby is a feasibility scheme only; as such none of the data requested in the spreadsheet is relevant.
- The capex and opex is for the wastewater treatment element of the scheme only and does not include the wastewater network element of the scheme.

Key points from Ofwat table guidance

Population Equivalents (PE) are to be derived from dataset for APR CWW7a. The latest APR data set serves year 2023-24 but the year profiling for Table ADD19 commences 2024-25. We have used the PE projections prepared for our PR24 BP Tables CWW5 and CWW7aand c.

The totex for 2025-2030 in the table should match the totex reported in CWW3 and if transitional or accelerated expenditure, then the table should also match the relevant enhancement categories in Tables CWW12 or CWW17. We can confirm that none of the growth schemes are subject to transitional or accelerated spend.

Costs are annal actual rather than cumulative. The method used to estimate costs should be provided. Yorkshire Water use their in house Waste Treatment Design software to assess capex investment due to increases in load or quality permit changes. Process engineers then review the design output. For the assessment of growth we only model changes in loadings i.e. we do not include any AMP8 permit changes. Process Engineers then review the design outputs to ensure only investment triggered by growth is included in the costings.

Completion of table data fields

Below is a line by line commentary on source of data and any risks / caveats with the information provided:

Section 1 – capex and opex - this was sourced from the Scheme costing data within our investment software data and reports. The data for 2025 to 2030 aligns with the cost data used to populate Business Plan Tables CWW3 and CWW13.

Please note: we have included the cost of the Phase 2 of the Cattal -Kirk Hammerton Scheme in the "Capital Expenditure After 2029-30" CAPEX in Column K . We propose to fund this under PR29/AMP9 funding applications. Phase 1 extends Kirk Hammerton to serve an additional 2,500 properties by 2035 and Phase 2 a further 1,500 by 2040.

Section 2 – population equivalent – this is initially sourced from the data set used to populate Business Plan Tables CWW5 and CWW7a and includes both residential and non-residential population. Tables CWW5 and CWW7a underwent full assurance in mid 2023.

However if the scheme is to serve a significant building programme then the projections are adjusted according to the rate of build projections provided by the Local Authority e.g Scheme 1 Kirk Hammerton and Scheme 2 Heronby.

As with Table ADD17 the column for "Population Equivalent Served" in the column AA "After 2029-30" appears anomalous as annual PE cannot be projected over an unknown period. However, we have set the value of this field as the value for year 2029-30 where this is a DWF exceedance scheme and the local growth rate is low (schemes 4 to 8) . For the two schemes serving local area expansion plans (Scheme 1 Kirk Hammerton (6,100 PE by 2035)and Scheme 3 Howden(8,446 by 2035)) we have used the projected 2035 population when phase 1 of the development schemes are fully completed .

Section 3 – Cost driver 1-4 : 1 DWF and 4 FFT – these are sourced from the Yorkshire Water Site Discharge Permit Data Spreadsheet. FFT values from last in line storm overflow permitted minimum pass forward flow.

Section 4 – Cost driver 5-12: BOD, Solids, Phosphorous -these are sourced from the Yorkshire Water Site Discharge Permit Data Spreadsheet. However this data set is then moderated by any changes to site permits occurring from WINEP investment in AMP7 or projected for AMP8. These sit in the data set used to prepare tables CWW5 and CWW7a which predict current and future permits to the end of AMP8. Howden has an estuary outfall and as such has not been subject to sanitary or nutrient parameters. However if no future permit is set in AMP8 WINEP then a load standstill permit is projected using present DAF and permits and working on the premise that no sanitary daily load should be increased.

Section 5 – Cost driver 13: Storm Tank – none of the schemes will provide additional storm capacity

Section 6 – Cost driver 14-15: WINEP data – this is sourced from our WINEP scheme tracker which is regularly updated according to the WINEP PR24 schedule published on the Defra website. Where an AMP7 scheme is delivering a permit change by 31 March 2025 we have considered this to be "historical". For example Ingbirchworth STW has to meet a P limit of 1 mg/l by 31 March 2025 as an AMP7 scheme; we have added this phosphorus limit under "historical". Four of the sites have an AMP8 Phosphorus removal scheme.

Section 7 – Cost driver 16: Process capacity added to meet current quality permits. The additional process capacity is aligned to an appropriate design horizon rather than the current identified process shortfall.

Section 8 – Cost Driver 17: Process capacity added to meet future AMP8 quality permits. All the process capacity increases (PE) on all seven schemes are driven by

population growth and the need to meet existing quality permits. The costs to meet AMP8 obligations aligning with future capacity requirements are part of our WINEP enhancement costs for those obligations and not part of our growth investment. For this reason we have input cost driver 17 as 0.

Section 9 – Cost driver 18-19: STW Compliance with DWF Metrics 2022. We can confirm that all our proposed STW growth schemes were compliant with their DWF permit in 2022. The table below summarises the output from the DWF 2022 assessment from our compliance team .

STW	2022 Pass	3in5 Pass in 2022
Kirk Hammerton	Yes	Yes (0 in 5)
Howden	Yes	Yes (0 in 5)
Husthwaite	Yes	Yes (1 in 5)
Cherry Burton	Yes	Yes (2 in 5)
Silkstone	Yes	Yes (0 in 5)
Wombwell	Yes	Yes (0 in 5)
Ingbirchworth	Yes	Yes (0 in 5)

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

Requirements from guidance:

The total costs included in this table should match the costs represented in CWW3.13-CWW3.48 in the business plan tables. If there are any discrepancies, commentary should be provided.

Response: This ADD table will not reconcile with CWW3.13-CWW3.48 as there is £66m of costs within lines CWW3.22 & CWW3.46 for additional un-named and unknown SOAFS.

Companies should clearly be able to demonstrate how the data provided in ADD20 aligns to their OUT tables.

Response: The OUT table includes base maintenance and also the additional £370m plan benefits which are NOT within these ADD20 lines

Cost driver 38 – Model predicted spills (annual,2025) Model predicted spills (annual spills, 2025) - This is model predicted number of spills predicted for 2025. If the model predicted spills used to inform business plan deviates from current spills please provide commentary.

Response: This is documented in the narrative below.

Cost drivers 42-51 - We expect this benefit to align with OUT table enhancement and business plan narrative.

Response: The OUT table includes base maintenance and also the additional £370m plan benefits which are NOT within these ADD20 lines

We expect companies to complete the data table based on the guidance and line definitions provided in the table. We expect assurance processes to ensure that information is accurate and consistent and can be relied upon.

Response: We can confirm that we have completed the data table based on the guidance. We have followed our assurance plan, in line with the process described within our assurance appendix, published alongside our Business Plan in October 2023: YKY61_PR24 Assurance. Due to the tight time constraints for the Draft Determination Representation, our assurance has focussed on Level 1 and Level 2 assurance, with specific oversight provided at Level 2 due to this being a new data requirement.

We have provided data as requested including the name of the CSO and the WINEP ID. The sheet also contains the data for cost drivers 1-12 and the capital and operational costs. We have aligned all our data to the AMP8 programme i.e. there is no data for the AMP7 delivery programme or future storm overflow programmes in the spreadsheet. The Accelerated expenditure at Ilkley and Wheatcroft is included within the AMP8 programme numbers.

It should be noted that an allowance of £66m CAPEX has been made within the CWW3 submission that is not reflected within this table submission. This line item is to cover an additional Environment Agency requirement to be able to invest in any cost beneficial solutions that may arise from the remaining 45 SOAF investigations to be completed within AMP7 Year 5. Further details on this can be found within Draft Determination Representation: Expenditure Allowances – Wastewater enhancement allowances, Chapter 7: Storm Overflows. This money is assumed to be split 98% against CWW3.22 and the remaining 2% against CWW3.46, in the absence of further information an even distribution from years 1 to 5 has been assumed.

When the note above is considered, we can confirm that the total CAPEX of £1,008.633m and £5.948m of OPEX presented within this table aligns to relevant components of CWW3 for our planned AMP8 storm overflow programme as part of the enhancement programme costs. With regards to CAPEX this is considered to cover CWW3.13, CWW3.16, CWW3.19, CWW3.22, CWW3.34, CWW3.37 and CWW3.46. With regards to OPEX this is considered to cover CWW3.14, CWW3.17, CWW3.20, CWW3.23, CWW3.35, CWW3.38 and CWW3.47.

Column commentary

Line Description/Storm Overflow Name

There are 227 named storm overflows in our statutory programme documented in column B, all sites are covered by the WINEP programme.

Asset Type (STW storm overflow/ Network storm overflow)

We have populated this information in column C for our 227 storm overflows in our statutory plan.

Unique ID (from Storm Overflow Action Plan)

We have populated column D with the associated YW unique ID from the Storm Overflow Action Plan return for all out statutory storm overflows in our plan.

WINEP ID

We have populated column E with the associated WINEP ID for all our storm overflows sites in our statutory plan.

Driver

We have added the primary driver for our statutory storm overflow plan to column F.

Capital Expenditure

Columns I-O have been populated with total inflated CAPEX values for the storm overflow interventions which are all classed as enhancement costs. Screen costs and proportion of FFT upgrade costs are included in these costs. The costs are average financial year 22/23 CPIH.

All transitional funding and accelerated scheme costs are accounted for in column I, 2024-25. We have not extended any spend beyond the end of the end of AMP so there are no costs present in column O, after 2029-30.

Operating Expenditure

Columns Q-W have been populated with total inflated enhancement OPEX, and this includes a component of OPEX incurred for the screen and proportion of FFT upgrade. OPEX has generally been added for the years after scheme completion to the end of the AMP, some schemes include a 50% OPEX allowance in the year of completion. After the end of the AMP the OPEX costs are considered to move from enhancement to base, consequently there is no cost in column W, after 2029-30.

Cost Driver 1 - Total equivalent storage (m3)

Definition: *"This is the spill volume of the nth +1 spill, when n= the target spill frequency and model predicted spills are ranked by volume."*

This column Y returns the predicted spill volume associated with the target +1 spill when the predicted spills in the 2050 epoch model are ranked by volume, which correlates with the fDWMP24 data and has been utilised to cost our schemes.

It should be noted that the ranked spill volume has been based on RedUPv2 uplifted rainfall. Given the completion of the RedUPv3 project, and its proximity to the business plan submission dates, it was not possible to re-run all of our network models with uplifted RedUPv3 rainfall. We will uplift using the RedUPv3 tool during our designing phase.

Caution should be applied if comparing the total equivalent storage volume in this column to the scheme CAPEX in columns I-O and deriving a unit cost for the different sites. For each asset considered during our notional high level solution development, some consideration of the unique factors present at each location has been made. This may include proximity of overflow to potential storage locations, pipe routing and pumped returns etc. It should be noted that due to time constraints in undertaking the analysis, it was not possible to assess the drain down times and returning flows to wastewater treatment works. This risk will be assessed in the design phase.

Cost Driver 2 - Equivalent storage delivered through grey solutions (CWW20.14) m^3

Definition: "Equivalent Storage delivered through Grey solutions (CWW20.36 / 7E.13) (m3) - This is the proportion of the equivalent storage delivered through grey solutions. (cost lines CWW3.22-CWW3.24) "This is the proportion of the equivalent storage delivered through grey solutions. (cost lines CWW3.22)"

A single table is now requested for both assets in the network and assets at sewage treatment works, therefore this column Z has been assumed to align to the total of data in lines CWW20.14 and CWW20.36.

This is the total amount of storage being proposed as a grey solution component. It should be noted that in some instances the proposed solution is a hybrid blue-green solution with additional grey storage. In these instances, the blue-green aspect of the solution is noted within Company Specific Cost Driver 24.

All storm overflows are considered independently, and solutions were developed based on the predicted spill volume associated with the target +1 spill when the predicted spills in the 2050 epoch model are ranked by volume.

All accelerated scheme benefits have been included.

Cost Driver 3 - Equivalent storage delivered through green solutions (CWW20.15) (m^3)

Definition: "Equivalent Storage delivered through green solutions (CWW20.37 / 7E.14) (m^3) - This is the proportion of the equivalent storage delivered through green solutions. (cost lines CWW3.25-CWW3.27)"

A single table is now requested for both assets in the network and assets at sewage treatment works, therefore this column AA has been assumed to align to both CWW20.15 and CWW20.37.

All values are zero as per CWW20.15 and CWW20.37 with the exception of Danesmoor STW where a wetland solution is proposed.

Cost Driver 4 - Equivalent storage delivered through other solutions (m^3)

Definition: "Equivalent Storage delivered through other solutions (m^3) - This is the proportion of the equivalent storage delivered through other solutions. (cost lines CWW3.28–CWW3.45)"

This column AB has been populated as zero and matches the lines CWW3.28-3.45.

Cost Driver 5 - BP spill reduction (annual spills)

Definition: "BP Spill reduction (annual spills) - This is the number of spills reduced, calculated as the 2021 number of spills recorded via EDM, minus the target spill number"

This column AC has been populated as per the line definition. Where negative numbers are derived, this is as a result of the methodology. With the exception of Danesmoor STW which has been set at zero. The proposed scheme at Danesmoor STW delivers the water quality outcome but does not alter spill frequency. Discussions regarding spill frequency reduction are ongoing with the Environment Agency.

This methodology is noted to differ to the data being provided as a 2020 baseline in the SOAP (Storm Overflow Action Plan) and differs from the calculations used for the annual average spill PC throughout the PR24 plan.

In four instances there was no available EDM spill data in 2021, these are YWS00513, YWS01370, YWS01514 and YWS01763. For these sites, the spill reduction has been calculated using the model predicted spills in 2025 minus the target value.

The EDM 2021 data does not represent a full and complete data return due to monitor availability and date of installations, which will skew the calculated spill reduction provided in this column. The reported EDM data within this table (cost drivers 34, 35, 36 and 37) have not had the new PC measures applied for 100% availability.

It should be noted that the trigger for investment in the fDWMP24 was if the 2050 model predicted spill performance exceeded the target value, 2030 was used for bathing sites. This allows time for investment to be planned prior to the asset exceeding the trigger. The change in spills in 2050 was then used within the DWMP to determine the benefit offered in terms of spill reduction, with an allowance for the assets predicted deterioration in performance from 2020 to 2050 arising due to climate change and growth.

Cost Driver 6 - Priority site (yes/no)

Definition: "Is the asset classed as a high priority site under the description included within Annex 1 of the Storm Overflow Discharge Reduction Plan?"

This column AD is populated in line with the Storm Overflow Discharge Reduction Plan definitions and in line with the DWMP submission and as agreed with the Environment Agency in 2022.

Cost Driver 7- Screen required (yes/no)

Definition: *"Screen Required (yes/no) - does the asset require a new screen or screen upgrade to meet Storm Overflow Discharge Reduction Plan requirements. If more than one screen is required for an asset, provide the number of screens."*

This column AE is populated as 'yes' in all cases on the assumption that all storm overflows will require new screening installations as a result of the requirements arising from the SODRP. Each overflow will need a change to the existing screen installed to meet whatever new criteria and guidance is issued in relation to the SODRP or to fulfil the requirement for all storm overflows to have a screen by 2050.

Cost Driver 8- Existing Permit (yes/no)

Definition: *"Does the storm overflow have an active/existing permit (yes/no) – this should exclude any revised permit required as part of PR24."*

All overflows in our submission have permits and this is indicated in column AF.

Cost Driver 9- Existing permit ref

Definition: *"Please provide the existing permit reference"*

These values are taken directly from the permits (there may be discrepancies between these values and those in the Environment Agency's consents database) and entered into column AG. In addition to the permit number, the activity or schedule reference has been provided to allow identification of the specific discharge activity.

Cost Driver 10- Permitted PFF (l/s)

Definition: *"Pass Forward Flow (l/s) as stated in the existing permit."*

Where there is a value stated in the permit this has been provided in column AH. A number of our permitted discharges do not have numerical values within the permit. Where the overflow setting is stated as "sewer capacity" the overflow operates as a result of the downstream sewer backing up and there is no minimum flow passed forward during overflow events. The permit states for these a weir height and requirement not to alter the downstream sewer performance.

There are instances where our permits have been based on the hydraulic capacity of the continuation pipe and hand calculations of the designed control of the ancillary, such as the flow through an orifice. The results of these have been stated as a value in the permit. These were often used when there was no model available and do not take into account the potential for hydraulic interaction which may impact on the pipes ability to convey the pipe full flow capacity.

We are aware that the Environment Agency are preparing guidance for updating permitted pass forward flows (either increased or decreased). The guidance is expected to contain requirements for evidence required to justify a change and the methodology for setting the new value.

During AMP3 the permit setting was standardised on the pass forward flow at first spill, based on an M1-60s (1 year return period, 60-minute duration summer storm). These values were extracted from our models and input into the CSO1b form, which the Environment Agency then used to add into the permit.

This process of pass forward flow assessment at first spill started in AMP3 and continued into AMP6.

The permit definition for the overflow setting in the current permit templates is;

'the minimum flow passed forward to the continuation flow when the overflow operates.'

During AMP6 it was noted that the modelling assessment to calculate the pass forward flow at first spill, was not compatible with the wording of the permit. We amended our assessments to look at a suite of 84 design storms, to assess both pass forward flow at first spill and the pass forward flow during the duration of the predicted operation of the overflow in the model. We have this information for a limited number of overflows. It could also be argued that this approach of using this suite of design storms, up to and including 30-year return period events is too conservative in the assessment of pass forward flows. Given that the environmental harm from storm overflows is assessed via the Fundamental Intermittent Standards (FIS), which assesses compliance on an annual basis, the M1-60s approach may be more appropriate to align with the FIS approach.

It should be noted that rainfall used in the assessment of the performance of both urban drainage and wider hydrological systems has evolved over time. The design storms that we used originated in the Flood Studies Report, first issued in 1975. These rainfall datasets were subsequently replaced by the Flood Estimation Handbook rainfall, which has been revised over time. It should be noted that permits have not been reviewed and revised against these updated rainfall series each time one is developed. These changes to the rainfall series will produce different predictions in the model with regards to pass forward flow at storm overflows. It should be noted that the permit setting has therefore been inconsistent against the different rainfall series depending on when a permit was issued or when a change to the permit was made. It should be noted that the rainfall to be used in an assessment of storm overflow pass forward flow has not been defined, resulting in inconsistency throughout the industry in how this metric is assessed.

It should also be noted that the pass forward flow in a permit is a single stated value. Given that sewerage systems are dynamic in the way they operate, especially during storm conditions, it is difficult to state a single value to represent the operation of each storm overflow asset. This is particularly true of storm overflows in the network, as opposed to those located at pumping stations and WwTW which are clearly controlled by the pass forward flow controls, rather than having the potential for the hydraulic conditions to back up into the network storm overflow.

It can therefore be concluded that an assessment of pass forward flow using the latest model and using the latest rainfall will mean that there will be a different value to that created previously.

Cost Driver 11- PFF (modelled/calculated) (l/s)

Definition: *"Pass Forward Flow (l/s) as modelled/calculated."*

The assessment we have presented in this column AI has been extracted from the DWMP 2020 baseline models. This has been chosen to assess against a consistent baseline. We have routinely undertaken assessments through our Drainage Area Planning processes. These are an assessment, of a snapshot in time, of the current performance of the overflow at the time of the model build, or for the relevant future design horizons.

The DWMP models were developed from our Drainage Area Planning models. To bring these models up to the 2020 baseline, model maintenance activities were undertaken. Due to the strategic nature of the DWMP, a high-level process of adding new developments and growth was applied. In addition, it was necessary to include a proportion of urban creep in the models, to account for increases in impermeable area since the time of the original verification. These processes followed industry best practice, and for the addition of creep, for example, an estimation of likely increases of impermeable area is made, and therefore the approach has a degree of uncertainty in terms of what creep has actually occurred in the catchment and in turn contributes to the flows at the storm overflows.

Whilst we have presented a specific number extracted from the model in this column, there is a degree of uncertainty in the result. The model is made up of data from our asset records, mapping datasets, asset surveys and CCTV records which are then verified against recorded short term flow monitors and checked against telemetry records and historic events. All of which have varying levels of uncertainty associated with each dataset. The CIWEM Urban Drainage Group's Code of Practice for the Hydraulic Modelling of Urban Drainage Systems (2017), states that the accuracy of the verification of flow monitors in storm conditions that the peak flow at critical locations should be +/- 10% (Table 5-1). Given this level of tolerance and the uncertainty in the datasets described, it could be argued that there is at least a 20% uncertainty banding in the results of the model.

Further to the detail provided for Cost Driver 5, we have presented modelled data based on the pass forward flow at first spill based on an M1-60s. This is to align with the approach that has been taken for the majority of permits which have been set since AMP3.

The assessments have been based on the M1-60s rainfall generated from the FEH13 rainfall model using the specific catchment descriptors for each area. These may differ from the rainfall used at the time of setting the original permit.

From our previous analysis work in this area, it has been noted that which pipes are "gauged" in the model to extract the pass forward flow and spill statistics, along with

the timesteps that the model is simulated at, can have a significant bearing on value which is extracted for the pass forward flow. Across the industry we have been working on and would welcome a standardised approach to this analysis, so that there is consistency throughout the industry.

Cost Driver 12- Formula A (l/s)

Definition: "Formula A (l/s) calculation as per guidance provided: https://www.gov.uk/government/publications/water-companiesenvironmental-permits-for-storm-overflows-and-emergencyoverflows/water-companies-environmental-permits-for-stormoverflows-and-emergency-overflows"

We have not provided any Formula A data for this column AJ as this has not been routinely calculated for our permits. Overflow permit conditions in Yorkshire have generally been based on water quality requirements following UPM investigations since at least AMP3. This approach is based on ensuring environmental protection and was agreed with the Environment Agency. Formula A is only used in the absence of a water quality model.

There is a modification of the Formula A calculation that takes into account storage and gives an equivalent Formula A increase for the storage.

Cost Driver 13- Permitted storage requirement (m^3)

Definition: "Storage (m^3) as stated in existing permit (if applicable)."

These values are taken directly from our permits and have been entered into column AK.

Cost Driver 14 - Actual storage (m^3)

Definition: "Current storage (m^3) at storm overflow to meet existing permit (if applicable)."

Storage requirements were identified for the relevant storm overflow upgrades during previous investigations. Our records for storage volumes remain on our as-built drawings, as our systems do not record the actual constructed storage volumes in an easily accessible format from our Asset Inventory system. We could, if required, collate this data and support the available storage against our hydraulic models.

As part of the investigations for any proposed improvement to overflows we do undertake checks against available storage compared to the permit requirements.

We have not completed any data in column AL.

Cost Driver 15 - Permitted annual spill frequency (where stated)

Definition: "Permitted annual spill frequency as stated in existing permit (if applicable)."

None of our permitted storm discharges have any stated spill frequency conditions, so we have left this column AM blank.

Cost Driver 16 – Justification

Definition: *"Justification for any variance where applicable. e.g. if the EA have specifically agreed to a PFF below Formula A either because storage is provided at a CSO or it forms part of a very large sewerage systems where significant smoothing of flows occur please provide details."*

No data provided in column AN.

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

Definition: *"Screen requirements as stated in existing permit (if applicable)."*

This information is taken directly from our permits. In some cases, screens are not directly specified but a maximum size of solid matter is stated or an alternative screening technique (e.g. dip pipe). The data we have presented here in column AO is where there is an explicit requirement for a screen size.

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

Definition: *"Current screen installed at storm overflow (if applicable)."*

We have not provided this data as our systems do not hold this information in a manner that can be easily collated and linked to the storm discharges, we could, if required, collate this data. Column AP is blank.

Cost Driver 19 – Screen TOTEX (£m)

Definition: *"Totex for new screen (if applicable). Total screen cost should be included within capex and opex reported in columns G - U."*

The TOTEX associated with a new or upgraded screen is reported within this column AQ. The column includes the screen CAPEX and annual OPEX added for each year after screen installation to the end of the AMP. All costs are inflated. This is in line with the cost data in CWW3.48 and is £120.158 million. We have three screen only schemes related to our inland bathing schemes in AMP8 which are also included in this table, YWS00033, YWS00218 and YWS00179.

Cost Driver 20 – SOAF Investigation current stage

Definition: *"The current stage of SOAF investigation"*

We have input the current stage of our AMP7 SOAF investigations as of 1st August 2024.

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

Definition: *"Increase in FFT at asset or downstream asset to reduce Storm Overflow spills or allow storage discharge following increase in storage capacity."*

CWW20 contained populated lines for:

- ‘Cumulative shortfall in FFT addressed by WINEP / NEP schemes to increase STW capacity’ (CWW20.13), the provided unit for this was l/s

Where an increase in FFT has been proposed linked to storm overflow interventions and costed it has been identified that either:

- An increase in FFT provides a significant solution efficiency and meets the targets, or
- An increase in FFT is required to accommodate the return flow from grey storage.

The associated increase is provided within this column AS in l/s and is also within CWW20.13. It should be noted that the FFT increase has generally been apportioned across multiple storm overflows within the catchment based on CAPEX. Cost Driver 22 allows sites to be grouped.

It should be noted that this need may arise at other sites as we progress through solution development but due to the high-level nature of solution definition for the fDWMP24, in the majority of instances this risk has not yet been assessed.

Cost Driver 22 – FFT increase location

Definition: *“If FFT increase is at a separate asset in CWW25, please state name of the asset where the FFT increase will be implemented.”*

Where multiple storm overflows have been assessed as requiring an FFT upgrade at the associated treatment works the name of the works is returned in this column AT. This covers three sites Wetherby STW, Ilkley STW and Scarborough STW.

Cost Driver 23 – FFT increase TOTEX (£m)

Definition: *“Totex for FFT increase (if applicable). Total FFT cost should be included within capex and opex reported in columns G - U.”*

The TOTEX associated with an FFT increase is reported within column AU and aligns to CWW3.15. The column includes the apportioned FFT CAPEX and annual OPEX added for each year after scheme completion to the end of the AMP. It should be noted that the FFT upgrade is typically distributed across five years, although the storm overflow scheme may be delivered before the end of the AMP, consequently in a small number of instances the CAPEX profile for the storm overflow extends beyond the date specified in Cost Driver 28. All costs are inflated.

Cost Driver 24 – Surface water separation (ha removed)

Definition: *“Surface water separated (ha)”*

CWW20 contained populated lines for:

- ‘Surface water separation drainage area removed’ (CWW20.41). The provided unit for this was m2.

- 'Sustainable drainage / attenuation schemes (green) area removed / attenuated' (CWW20.43)/ The provided unit for this was m^2.

Rows 'Surface water separation drainage area removed' (CWW20.41) and 'Sustainable drainage / attenuation schemes (green) area removed / attenuated' (CWW20.43) have been amalgamated into a single column for ease of reporting within this table.

Where hybrid blue-green and grey solutions are being proposed, this column AV is used to highlight the area to be disconnected. The associated units for this column are hectares.

All storm overflows are considered independently, and solutions were developed based on the 2050 epoch model.

It should be noted that wider benefits associated with blue-green solution implementation are not reported within this table.

Cost Driver 25 – Surface water separation TOTEX (£m)

Definition: *"Totex for surface water separation (if applicable). Total surface water separation cost should be included within capex and opex reported in columns G - U."*

The TOTEX associated with surface water separation is reported within this column and aligns to the sum of CWW3.36 and CWW3.39. The column AW includes the CAPEX and annual OPEX added for each year after scheme completion to the end of the AMP. All costs are inflated.

Cost Driver 26 – Wetland area (ha)

Definition: *"Area of wetland created (ha)"*

A single wetland scheme is proposed at Danesmoor STW. The value in column AX is the proposed footprint of the wetland.

Cost Driver 27 – Wetland TOTEX (£m)

Definition: *"Totex for wetland creation (if applicable). Total wetland cost should be included within capex and opex reported in columns G - U."*

The TOTEX associated with proposed wetlands are reported within this column AY. The column includes the CAPEX and annual OPEX added for each year after scheme completion to the end of the AMP. All costs are inflated.

Cost Driver 28 – Forecast scheme completion date

Definition "Forecast date of scheme completion"

This column AZ has been populated with the forecast scheme completion date for the storm overflow.

Cost Driver 29 – Combined scheme (provide name of combined scheme)

Definition: "If scheme is related to other schemes included in CWW25 and costs and/or storage are proportioned between the schemes, please provide scheme name or all combined schemes."

We have not provided any grouped schemes in column BA. All our schemes can be delivered independently of each other, but we will be seeking to find efficiencies where we can to deliver grouped schemes where appropriate.

Cost Driver 30 – Company Specific

No data provided.

Cost Driver 31 – Company Specific

No data provided.

Cost Driver 32 – Company Specific

No data provided.

Cost Driver 33 – Additional Commentary

Additional comments have been provided where considered necessary for two schemes related to Ilkley 3X and Rivadale View CSO in column BE.

Cost Drivers 34 - 37 Current spills (annual spills – EDM) 2020, 2021, 2022, 2023

Definition: "This is the actual number of spills recorded via EDM for each of the requested years."

These columns BG to BJ have been populated based on our published EDM returns. It should be noted that these columns make no adjustment or correction for the percentage of data availability within the year or installation date.

Cost Driver 38 - Model predicted spills (annual, 2025)

Definition: "This is model predicted number of spills predicted for 2025. If the model predicted spills used to inform business plan deviates from current spills please provide commentary."

This column BK is populated based on the available fDWMP24 data for storm overflows. The 2025 values requested have been determined using a linear interpolation between the 2020 epoch model predicted average annual spill frequency and the 2030 epoch model predicted average annual spill frequency. It should be noted that hydraulic models vary in confidence.

It should be noted that the trigger for investment in the fDWMP24 for each storm overflow was the 2050 model predicted average annual spill frequency exceeding the target value. An exceedance check for 2030 was included for sites discharging to designated bathing waters. This allows time for investment to be planned prior to the asset exceeding the trigger and date for resolution.

The PR24 business plan is based on modelled spill data as described and can differ to the EDM data. EDM is reported actuals in response to actual rainfall and the model is predicting potential operation based stochastic rainfall patterns and includes population growth and climate change. Any single year of EDM data viewed in isolation may be different to the target spill frequency. The target is based on an average. Additionally, availability of the EDM monitor data should be considered when comparing EDM to model predictions.

Cost Driver 39 - Target spills (annual spills)

Definition: "The target annual number of spills (e.g. 10 for most assets)."

This is an annual average target spill performance as defined in the SODRP and presented in column BL. In most instances this is a target of 10 spills, however for coastal and inland bathing water sites an annual proxy has been developed. This is derived from the target value for in bathing season performance. This is defined as 1 spill per bathing season for assets discharging to an inland bathing water and 2 spills per bathing season on average for assets discharging to a coastal bathing water. Once the target bathing season spill was identified for each asset, the annual spill performance was reviewed to determine the annual ranking of the target spill. This annual value was used as the target annual spill performance.

It should be noted that in a limited number of instances for AMP8 the target value is less than 10 at non-bathing water sites. This is due to other WINEP drivers relating to no local ecological harm which require an annual average spill frequency lower than 10 to meet the defined targets. These instances have been assessed through our WINEP investigation work carried out to date.

The target spill frequency at Danesmoor STW has been populated as per the 2021 EDM baseline specified in the definition of Cost Driver 5.

Cost Driver 40 – 2024-25 (2024) company forecast spill position

Definition: "Proposed spill position per overflow at 2024-25. This should be absolute spill position and include any benefits from AMP7 enhancement."

No data provided in Column BM. We do not feel there is any guidance on a consistent approach across the WASCs to completing this column and we would welcome further guidance on how to approach completion of this value. This value is impacted by rainfall variations within the year and we are unable to forecast the amount of rainfall and hence spill position by each overflow asset. We would suggest reviewing and using an average of the 2020-2023 EDM data or using the forecast model prediction for 2025.

Cost Driver 41 – 2025-26 (2025) company forecast spill position

Definition: "Proposed spill position per overflow at 2025-26. This should be absolute spill position and include any benefits from AMP7 enhancement."

No data provided in Column BN. We do not feel there is any guidance on a consistent approach across the WASCs to completing this column and we would welcome

further guidance on how to approach completion of this value. This value is impacted by rainfall variations within the year and we are unable to forecast the amount of rainfall and hence spill position by each overflow asset. We would suggest reviewing and using an average of the 2020-2023 EDM data or using the forecast model prediction for 2025.

Cost Driver 42 – Spill reduction benefits – cumulative benefits – 2025-26 spill reduction through to Cost Driver 51 – Spill reduction benefits – cumulative benefits – 2034-35 spill reduction

Definition: "Please include the cumulative benefits (spill reduction) expected from AMP8 enhancement only. We expect this benefit to align with OUT table enhancement and business plan narrative."

The returned spill reduction has been calculated as the 2025 model predicted spills (cost driver 38) minus the target spills (cost driver 39). These appear in columns BP to BX.

Where a scheme is forecast to complete by the end of a given financial year (see Cost Driver 28) the forecast spill reduction has been returned for all subsequent years post completion. For instance, a scheme finishing 31/03/2030 will forecast benefit in financial year 2030-31 onwards.

Caution should be applied when considering benefit as the target is an annual average target consequently any single year of EDM data viewed in isolation may be different to the target spill frequency having a knock-on impact on spill reduction. Additionally, the target spill performance and EDM measurement work on calendar years, not financial years.

As all schemes are forecast to finish by the end of AMP8, the spill reduction benefits returned in Cost Drivers 47-51 are considered to be the same. As the solutions are designed based on a 2050 epoch it is possible the schemes may over deliver in the short term, however future climate change would likely erode this temporary over delivery.

ADD21 - Resilience Interconnector Schemes (CW8 equivalent)

These tables are not required to be submitted alongside Yorkshire Water's draft determination representation. These tables are not applicable for Yorkshire Water.

ADD22 - Bespoke performance commitments

These tables are not applicable for Yorkshire Water.

ADD23 - Proposed severe water supply interruptions performance commitment

We are no longer required to submit this table as part of our Draft determination representation.

We have provided a response to the Ofwat consultation within Outcomes for customers document (YKY-PR24-DDR-06).

Data Table Changes

As part of Yorkshire Waters Draft Determination response we are required by Ofwat to update the data tables to include actual performance for the financial year 2023-2024.

Any additional changes that we have made are detailed within this section.

Changes within the data tables have been made in different font colours for each resubmission to Ofwat. Please see table below.

Resubmission	Date of resubmission	Font Colour
1a	10th November 2023	**Red**
1b	24th November 2023	**Red**
2	21st December 2023	**Green**
3	25th January 2024	**Orange**
4	26th April 2024	**Purple**
5	28th August 2024	**Blue**

Outcomes (OUT)

OUT2 - Outcome performance from base expenditure - Performance commitments & OUT4 - Underlying calculations for common performance commitments - water and combined.

Our Annual Performance Report (APR) for 2023-24 was published in July 2024. Overall, we met 21 of our AMP7 performance commitments. We have seen continued success in leakage reduction on our clean water network. Our performance improved in other areas such as per capita consumption, unplanned outage and customer service. However, there continue to be areas of performance where we are not yet meeting our regulatory performance commitments in AMP7. We have ongoing dialogue with our regulators, and the Board is involved in oversight of the improvement plans that we have shared on our website. The severe weather experienced in 2023/24 contributed to an increased number of discharges from our Combined Sewer Overflows, as well as increased pollution incidents. This increase in numbers has contributed to a drop in our Environmental Performance Assessment (EPA) rating for 2023 calendar year. This is disappointing, however, we are confident that our previous

investment in our network, immediate operational response, and prior partnership working, reduced the overall impact of severe weather for our customers and the environment.

We have updated the data tables submitted as part of the Draft Determination Representation and have included the updated 2023/24 performance in our OUT tables, as reported in the 2023-24 APR. To read more about our performance in 2023-24, please see the 2023-24 APR.

The Board has reviewed 2023/24 performance, Quarter 1 performance available in 2024/25 and the plans in place for improvement throughout 2024/25 and, as a result, has revised some of the Year 5 forecasts now presented in the Draft Determination Representation.

For further information and justification of updates made to these tables please refer to the relevant sections within Outcomes for customers document (YKY-PR24-DDR-06).

Water Supply Interruptions

We did not achieve our target for water supply interruptions in 2023-24. It was a challenging year, with proportionally more bursts seen on trunk mains and an increase in the number of large-scale, long running events experienced. As a result of our performance in 2023-24, we revised our forecast performance to 00:09:00 in the last update of our Service Commitment Plan. Based on the latest performance reviewed and the plans in place for the year, we have revised this again and included a forecast of 00:08:00 in our Draft Determination Representation.

CRI

Information in the tables has been updated to present our actual performance in 2023 and the Draft Determination Representation data tables align with our APR. There have been no changes to our forecast. We continue to forecast a CRI score of 3.5 for Year 5.

Customer contacts about water quality

2024-25 has been updated to 0.93. This is to align to the most recent company view of performance. The future forecast is not impacted.

Internal Sewer Flooding

We have proposed no changes to our ISF PCL and maintain our position that the PLC based on PR19 was not adequately funded in AMP7. We therefore propose an adjusted PCL relevant to factors in our region and reflect that in OUT5 and OUT2.

External Sewer Flooding

We accept Ofwat's proposed PCL for ESF and have reflected that in OUT5 and OUT2.

Green House Gas Emissions

We have revised our GHG emission PCL for both clean and waste to reflect a data review we have conducted internally, expected outcomes from base as a result of the Draft Determination and the revised net zero enhancement programme submission. We have updated OUT2,4 and 5 to reflect this revision.

We have reprofiled our water operational GHG emissions to reflect the latest carbon emissions forecast associated with our AMP8 and 9, WRMP programme, and we have made a re-allocation of emissions to the water price control that were mistakenly attributed to wastewater in our October 2023 PR24 business plan submission.

Leakage

We have seen continued success in leakage reduction on our clean water network. For Year 4, we were forecasting performance of 11.7%, and we achieved 12.7%. We have updated the data tables to present our actual performance in 2023-24. We have also revised our forecast due to improved performance. This impacts the forecast for two subsequent years. The future performance forecast following that remains unchanged.

Per capita consumption

PCL adjustment in line with WRMP24 glidepath

Business demand

2024-25, AMP8 and beyond glidepath has been re-calculated based on the rebased baseline proposal and the reductions in-year from our AMP8 programme of activity for NHH demand reduction.

Total and Serious Pollution

Compared to our performance in 2022, in 2023, we saw a deterioration in both our overall pollution incident numbers and the number of pollution incidents categorised as a serious incident. The increase seen is due to multiple factors, a major one being the increased number of named storm events experienced during the year. Storm events result in the sewerage infrastructure being inundated with rainwater, resulting in discharges to the environment, which would not occur under 'normal' weather conditions. Other major factors affecting the pollution incident number, as identified by our root cause analysis, include power outages and mechanical and electrical issues with assets. The Draft Determination representation tables have been updated to present our reported performance for 2023.

Due to our performance in 2023, and noting a regulatory position change with a higher proportion of incidents categorised as Category 3 rather than Category 4, the forecast for 2024 has been revised from 18.56 to 31.00.

We accept Ofwat's 2029/30 PCL for pollution but propose a revised glide path reflective of industry AMP7 performance. This has been reflected in OUT5 and OUT2.

Storm Overflows

We have made significant amendments to our Storm Overflow PCL. We propose to meet Ofwat's challenge of achieving 20 monitored spills in 2029/30 and propose a 2025/26 PCL that is appropriate to our AMP7 performance. We have differentiated between outcomes from base (OUT2) and total outcomes (OUT5) and have reflected this in the tables.

OUT 2 & 5 data 2021-2024

To ensure that the data can be provided on the same basis for the OUT5 table the annual EDM returns have been used. The number of overflows listed in each year does not necessarily represent the number of live overflows that need to be reported in each year. It is only for the 2023 data that this distinction is made (of the 2195 overflows included, 5 are no longer operational and could not spill in 2023 but are still included in the return). With the number of overflows set as the number included in the return, the uptime needs to account for all overflows in the return, either where there was a blank in the returns due to no monitor installed or if the overflow was no longer live, a 0 value was used. Whilst this approach does not represent the monitoring or spill performance it has been used as the data is available and a consistent approach can be used. For future years it is anticipated that the annual return should only contain live overflows and the issue should not persist.

OUT2.17 is based on the 2021 baseline for a typical year with reductions each year due to base only improvements. It is not linked to actual EDM data due to the year on year variability which would prevent a true view of improvements made.

Mains repair

Our forecast for Year 4 was 211.9 and we achieved 211.6 mains repairs per 1,000km of mains. We have revised our forecast for 2024-25 from 211.6 to 202.8 repairs per 1,000km of main. Future performance has been re-considered based on Ofwat's challenge at draft determination. This is an Improved performance level forecast.

Sewer Collapses

We accept Ofwat's proposed PCL and have reflected that in OUT5 and OUT2.

Bathing Water Quality

OUT5 and LS1

We have updated the bathing water quality performance commitment reporting lines within OUT5 (OUT5.53-5.62) and LS1 (LS1.15) following on from Ofwat's draft determination.

We have updated performance year 2023/2024 to include actual performance. Within this, we have removed Tunstall from the reporting figures as it was de-designated ahead of the 2023 bathing water season and included the River Wharfe at Cromwheel, Ilkley into the reporting figure to support Ofwat in assessing a baseline performance level.

We have also updated performance year 2024/25 to include a revised forecast for this year's performance. We have utilised year to date performance (through to 2nd August 2024), as well as removing Tunstall (due to its de-designation), including the River Wharfe at Cromwheel, Ilkley as well as our two new bathing water designations which were designated at the beginning of the 2024 bathing water season. This data has been provided to support Ofwat in baselining AMP8 performance levels.

We have not amended the reporting years 2020/21, 2021/22 or 2022/23.

We have updated the AMP8 and AMP9 OUT5 forecast to reflect:

- Ofwat's expectation that Bridlington South should achieve a minimum forecast position of 'Sufficient' due to historic performance.
- The two new bathing water designations designated in May 2024, with a forecast position of 'Poor' for AMP8.
- The beach closure at Skipsea resulting in a position where we are unable to improve bathing water quality at this location and therefore continue to report it as 'Poor'

Full details of the breakdown behind OUT5.53-5.62 can be found within the Outcomes for customers document (YKY-PR24-DDR-06)under the Bathing Water Quality chapter.

The long term forecast under LS1.15 has been updated utilising our updated OUT5 position as the revised baseline position.

OUT2 and LS2

We have revised our OUT2.15 and LS2.15 reporting lines, in line with performance forecast changes made to OUT5 and LS1.

OUT7

We have updated the ODI rates in OUT7 to reflect what Ofwat supplied in its draft determination (key dataset 1). We have updated the ODI rates by inserting the

marginal benefits figures in column O which when multiplied by the benefit sharing factor of 70% (column P) give the correct ODI rates (columns Q and R).

Risk and Return (RR)

RR1 - Revenue cost recovery inputs

WACC has been aligned to the WACC published by Ofwat within the draft determination. As noted within the finance risk and return document (YKY-PR24-DDR-08) we have concerns with the level of WACC and expect Ofwat to review this at final determination.

PAYG rates have been amended to the "natural PAYG rate" in line with the updated costs in tables CW1, CWW1 and equity issuance costs.

RCV run off rates remain at our business plan submission values for reasons discussed the finance risk and return document (YKY-PR24-DDR-08) of our representation response.

Inflation figures have been aligned to PD01.

RR2 - Totex inputs to cross reference with CA

Equity issuance costs are in 2022/23 prices and assumed to be 2% of the ordinary share issuance, calculated in line with Ofwat's methodology.

RR3 - RCV opening balances

This has been updated to reflect the updated RCV opening balances to align with the output of the PR19 RCV adjustment model.

RR4 - Financing financial model inputs

Opening debt and cash balances have been aligned to our latest forecast.

Interest rates have been aligned with the WACC published by Ofwat in the draft determination. As noted within the finance risk and return document (YKY-PR24-DDR-08) we have concerns with the level of WACC and expect Ofwat to review this at final determination.

Equity dividends have been aligned with the output of the updated financial model.

Ordinary Shares issued have been updated in line with Ofwat's Policy of maintaining gearing at a maximum of 57.5%.

Dividend Yield has been updated to 2% in line with Ofwat's methodology in the DD.

RR5 - Tax opening balances

Updated RR5 table required to reflect final b/fwd tax attributes at 31 March 2025, latest capital allowance analysis and updated DS1e table

RR6 - Post financeability adjustments inputs

This has been updated to:

- include the values for the Innovation and water efficiency funds as proposed by Ofwat in the published DD.
- include the updated outputs from the PR19 revenue adjustment model, which has been updated to take into account the APR24 actuals and forecast updates to FY25.

RR7 - Residential retail

This table has been updated to:

- Refresh debt and cash opening balances to the YW FY25 business plan.
- Residential retail cost to serve values updated to align with changes in Ret1.
- Residential retail HH connection numbers updated to reflect forecast changes in SUP1A.
- Residential retail margin updated to 1.2% to match Ofwat DD.

RR8 - Business retail

No update from April 2024 submission

RR9 - Miscellaneous inputs

This table has been updated to reflect changes in opening forecast values.

RR10 – RR15

These tables have been updated to align to the output of our representation version of the Ofwat financial model.

RR16 - Financial ratios

Notional Company ratios have been updated to align to the output of our representation version of the Ofwat financial model.

Actual company ratios are not required, therefore have been intentionally left blank as per Ofwat guidance.

RR17 - RR29

These tables are not required to be submitted alongside Yorkshire Water's draft determination representation.

RR30 - RORE Analysis

This table is not required to be submitted alongside Yorkshire Water's draft determination representation. Please refer to table ADD18 for commentary.

Costs – Wholesale Water (CW)

You can find further information within our cost efficiency part 2 enhancement costs - water (YKY-PR24-DDR-03)

CW1 - Totex analysis - water resources and water network+ (post frontier shift and real price effects)

Updated to apply frontier shift to latest totex view from cost tables as set out below.

CW1a - Totex analysis - water resources and water network+

2023/24 data updated to match APR.

2024/25 data updated to show latest expenditure forecast.

CW1a.10 updated to match line DS2e.10.

CW1a.14 matched to updated line DS1e.15.

CW2 - Base expenditure analysis - water resources and water network+

2023/24 data updated to match APR.

2024/25 data updated to show latest expenditure forecast.

CW3 - Enhancement expenditure - water resources and water network+

2023/24 data updated to match APR.

2024/25 data updated to show latest expenditure forecast.

2025/26 onwards has been populated with latest costs and schemes main areas of change are:

- Supply WRMP increased due to scope and cost increases on 3 schemes. Please refer to see (YKY-PR24-DDR-03) for further information.
- Strategic resource options – increase due to 2 additional SRO schemes please see enhancement case (YKY-PR24-DDR-41) for more information.
- Metering – YW have now signed contracts and have the agreed unit rate which has led to increase in the costs. Please see enhancement case for more information.
- Net zero – YW have removed the request for Net Zero in CW3 after Ofwat challenge.

CW5 - Treated water distribution - assets and operations

2023/24 data updated to match APR. Adjustments to values supplying OUT tables. Please refer to the Outcomes for customers document (YKY-PR24-DDR-06)

CW6 - Water network+ - Mains, communication pipes and other data

2023/24 data updated to match APR. Adjustments to values supplying OUT tables. Please refer to the Outcomes for customers document (YKY-PR24-DDR-06)

CW7 - Demand management - Metering activities

Data table updated In line with metering enhancement case, change to number of meters and associated costs.

CW8 - WRMP schemes (excluding leakage and metering activities)

Cost adjustments made to CW8.6, CW8.7, CW8.8, CW8.9, CW8.22.

Costs have been aligned to WRMP24. Please note that SRO costs are not included within this table. Costs amendments to the Elvington schemes are due to new information emerging through the RAPID process.

Please reference cost efficiency part 2 enhancement costs -water (YKY-PR24-DDR-03) for further information.

CW9 - Enhancement expenditure (cumulative) - water resources and water network+

2022/23 correction to match APR.

2023/24 data updated to match APR.

2024/25 data updated to show latest expenditure forecast.

2025 onwards has been updated following updated CW3.

CW11 - Third party costs by business unit for the wholesale water service

2023/24 data updated to match APR.

2024/25 data updated to show latest expenditure forecast.

CW12 – Transitional expenditure

Changes have been made to the clean water transitional request below is a brief deprescription of the main changes:

Meters - Yorkshire Water are updating process, systems and supporting hardware to ready Yorkshire Water to effectively deliver the smart meter exchange programme from April 2025. This includes testing end to end systems integration testing for meter install, data flows, corporate records being updated, maintenance triggers, billing and

analytics to drive PCC, leakage & NHH demand. This work has led to an increased need for transitional funding.

Doncaster Borehole has now been included to allow sufficient groundwater monitoring before the final solution design.

Taste odour - we are requesting that the transitional funding requirement be recognised for Ingbirchworth to ensure delivery of the compliance date and PCD delivery profile milestones. We have held planning workshops and, in our assessment, the programme should achieve the date required for the DWI if transition funding is in place. At this stage it is essential that this planning and investigation work does not have to pause and jeopardise the outcomes completion date.

Lead transitional is required to allow investigation, identification and stakeholder engagement for delivery of the lead programme. We have allocated £350k for identifying lead pipes in 'DMA hotspot' schemes and £150k for identifying and agreeing with school stakeholders in the Yorkshire region. Investigation and stakeholder engagement as part of the transitional expenditure will then allow construction to take place in Year 1 of AMP8, therefore maximising the benefit to our customers.

CW13 – Best value analysis; enhancement expenditure - water resources and water network+

2025 onwards has been updated following updated CW3.

CW14 – This table is a direct copy of CW13.

CW15/CW16 – Best Value Analysis

Values updated to reflect changes to Performance Commitment profiles in OUT Tables. Please reference Please refer the Outcomes for customers document (YKY-PR24-DDR-06). Benefit values updated using latest ODI Rates.

CW18 - Cost adjustment claims - base expenditure: water resources and water network+

Metering cost adjustment claim values updated to reflect changes to the latest unit rate and metering numbers. Please see the smart metering chapter in cost efficiency part 2 enhancement costs -water (YKY-PR24-DDR-03)

CW21 – Water – net zero enhancement schemes

Table now reflects zeros as CW21-1 Solar scheme has now been removed from the enhancement case.

Costs – Wholesale wastewater (CWW)

You can find further information within our cost efficiency part 3 enhancement costs - wastewater (YKY-PR24-DDR-04)

CWW1 - Totex analysis - wastewater network+ and bioresources (post frontier shift and real price effects)

Updated to apply frontier shift to latest totex view from cost tables as set out below.

CWW1a - Totex analysis - wastewater network+ and bioresources

2023/24 data updated to match APR.

2024/25 data updated to show latest expenditure forecast.

CWW1a.10 updated to match line DS3.13.

CWW1a.14 matched to updated line DS1e.29.

CWW2 - Base expenditure analysis - wastewater network + and bioresources

2023/24 data updated to match APR.

2024/25 data updated to show latest expenditure forecast.

2025 onwards updated to show latest forecast.

CWW3 - Enhancement expenditure - wastewater network+ and bioresources

2023/24 data updated to match APR.

2024/25 data updated to show latest expenditure forecast.

2025/26 onwards has been populated with latest forecast of schemes and cost requirements the main areas of change are:

Continuous Water Quality which has seen a decrease to scope change following updated guidance.

Storm overflows – Note some expenditure in line CWW 3.22 & CWW3.46 has money but no benefits or defined schemes within any associated tables (eg CWW20) (additional SOAFs from year 5 investigations).

Also line CWW3.187 has expenditure but no benefits or defined schemes within any associated tables (eg CWW20) A second ADD20 table will be produced to capture the salient data relating to this expenditure.

Micro biological treatment – additional treatment included following the new designation at Knaresborough.

Investigations – increase for additional new SOAF investigations to meet statutory compliance requirements.

Net Zero – Reduction please see cost efficiency part 3 enhancement costs - wastewater (YKY-PR24-DDR-04) for further information.

PR19 carryover – Inclusion of expenditure to updates on the reconciliation model,

First time rural sewerage – Inclusion of first-time rural sewerage interventions.

Destruction technology for sludge to land- Inclusion of expenditure to initiate delivery of an alternative sludge disposal route. information.

Resilience – Inclusion of expenditure for power and flood resilience schemes.

IED – Representation for the allowance for full cost requirements in line with rest of industry.

CWW4 - Wastewater network+ - Functional expenditure

2023-2024 updated to match APR. 2024/25 data updated to show latest Yr5 forecast.

CWW5 - Wastewater network+ - Large sewage treatment works

2023-2024 updated to match APR. 2024/25 data updated to show latest Yr5 forecast.

CWW6 - Wastewater network+ - Sewer and volume data

2023-2024 updated to match APR. 2024/25 data updated to show latest Yr5 forecast 2025 onwards updated to show latest forecast.

CWW7a - Wastewater network+ - Sewage treatment works; size and consents

2023-2024 updated to match APR.

CWW7c – Wastewater network+ - Sewage treatment works data; treatment type

2023-2024 updated to match APR.

CWW8 - Wastewater network+ - Energy consumption and other data

From 2025/26 number of coastal bathing water designations should reduce to 17 due to the anticipation that Skipsea will be de-designated by East Riding Council.

From 24/25 number of inland bathing water designations should increase to 3 (Knaresborough and Wetherby were designated in May of this year).

CWW9 - Enhancement expenditure (cumulative) - wastewaster network+ and bioresources

2022/23 data updated to match APR. 2023/24 data updated to match APR. 2024/25 data updated to show latest expenditure forecast. 2025 onwards has been updated following updated CWW3.

CWW11 - Third party costs by business unit for the wholesale wastewater service

2023/24 data updated to match APR. 2024/25 data updated to show latest expenditure forecast.

CWW12 Transitional Expenditure

Changes have been made to the wastewater transitional request below is a brief deprescription of the main changes:

Storm Overflows – YW have increased the value of storm overflow transitional requirement to allow YW partners to investigate and understand all the CSO's within the programme. This will allow YW to understand its procurement needs, efficient programme delivery and now includes those that were proposed to be delivered by DPC & additional UIMP4 driver which has an output date of 2028.

UMON4 - have a compliance date of December 2026 we need to start investigation and design work so we can be confident we will achieve the regulatory output date.

UIMP7 - YW have included a small amount of expenditure to allow investigation of the UIMP7 so we can understand the best solution including potential nature-based solutions that may require land purchase. Starting to look at this early ensures YW can hit the compliance date.

INV4 – YW has reduced the value of transitional expenditure due to delays with the EA guidance documents that were late being published and were impacted by a further delay due to the general election. The scope of work, based upon the draft guidance, can vary significantly up and down based on how the work progresses through the stages of the process YW are progressing where possible.

CWW13 – Best value analysis (enhancement expenditure) - wastewater network+ and bioresources

This has been updated following the update to CWW3.

CWW14 - Best value analysis of alternative option (enhancement expenditure) - wastewater network+ and bioresources

This table is a direct copy of CWW13.

CWW15 - Best value analysis; benefits - wastewater network+ and bioresources

Alignment to changes in the OUT tables for greenhouse gases and spill frequency to benefits.

CWW16 – Best value analysis of alternative option; benefits - wastewater network+ and bioresources

This table is a direct copy of CWW15.

CWW17 – Accelerated expenditure.

2023/24 data updated to match APR. 2024/25 data updated to show latest expenditure forecast.

Within CWW17, our expenditure proposals for our 'Inland bathing water improvement scheme – Wharfe Ilkley' remain as per our original business plan submission. As conversations are ongoing with the Environment Agency and Ofwat, and no final decision has been made on our proposed solution, our cost proposals remain unchanged.

CWW18 - Cost adjustment claims - base expenditure: wastewater network+ and bioresources

This table has been updated to reflect the combined sewers cost adjustment claim reassessment using Ofwat's draft determination models. Please see the Cost efficiency intro and base costs (YKY-PR24-DDR-02) - Combined Sewers CAC for more details.

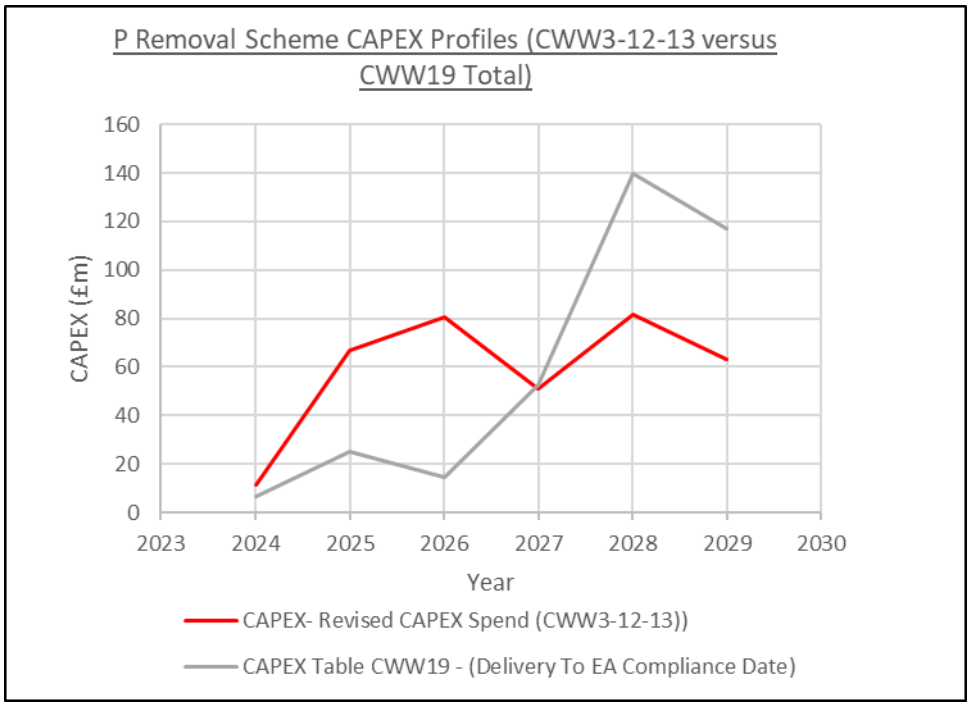
CWW19 -Wastewater network+ - WINEP nutrient removal (phosphorus and total nitrogen) scheme costs and cost drivers

Table CWW19 Includes Phosphorus Removal schemes with expenditure assigned to the following Enhancement Categories (as presented in the response to Query OFW-OBQ-YKY-150)

Enhancement Category	CW3/CWW3	Scheme
25 year environment plan; (WINEP/NEP) wastewater	CWW3.100/ CWW3.101	Scheme 19 -DANBY WISKE/STW-08YW102013a
Treatment for nutrients (N or P) and / or sanitary determinands, nature based solution (WINEP/NEP) wastewater	CWW3.70/ CWW3.71	Scheme 6 - BALDERSBY/STW-08YW100091a Scheme 38 - KIRKLINGTON/STW-08YW100126a Scheme 54 -SAND HUTTON/STW-08YW100483a

Treatment for phosphorus removal (chemical) (WINEP/NEP) wastewater	CWW3.64/ CWW3.65	All Other Schemes

- The overall AMP8 totex for WINEP nutrient removal has not changed.
- The capex annual profile in CWW19 is not aligned to the capex profile in tables CWW3-CWW12-CWW13. The differing capex profiles are shown in the figure below.



- This is due to the fact that we have amended the capex profile in CWW3-CWW12-CWW13 in response to Ofwat's suggested reprofiling of the expenditure in the PCD and in line with concerns about deliverability. The updated profile in CWW3-CWW12-CWW13 is a capex build programme only and assumes that the sites will not be commissioned until the regulatory compliance date. On this basis, we have not adjusted the Performance 5 for phosphorous removal Commitment in Tables OUT 1-5 as the benefit is not realised until the regulatory compliance date. We discuss this in Section 1.3 of Price control deliverables (YKY-PR24-DDR-07).
- Until the final PCD mechanism is agreed with Ofwat we cannot refine our programme at scheme level due to the magnitude of a scheme's OPEX determining its viability of early commissioning. As such we have not adjusted the capex or opex profiles in Table CWW19.

CWW20 - Wastewater network+ - Sewage treatment works population, capacity and network data

Lines 62 & 63 – Further to Ofwat's challenge, we have reassessed the WFD_INV_MOD schemes as being "simple" investigations, rather than "complex" investigations. We have reflected this change in the tables.

CWW21 - Wastewater sewers; asset condition

Note that this commentary supersedes the original made in the PR24 submission which was incorrectly based on all collapses, rather than those reported in the APR.

Legacy sewers

Due to time constraints, analysis is based on a snapshot of sewer attribute data taken on 30 April 2021, which was originally used to update the wastewater collapse model developed for PR24. In the future, the SAP S4 transition will speed up the process of mapping jobs to assets making this process easier to replicate.

Analysis involves a total length of 29,396km of foul, combined and surface water sewers having 1,282 collapses over the five-year APR period 2018-2023.

The total length of sewer modelled differs from that of the 30,501.9km stated in APR21 due to the exclusion of a) 801.5km of sewer whose function was neither combined/foul/surface water and b) 305.4km of Abandoned Assets.

Operational maintenance of the sewers during the period of data analysis relates to the structural refurbishment (Cured in Place Pipeline) of 62km. In line with Ofwat guidance, the date of refurbishment of these assets has been used as the date of construction.

The magnitude of the standardised beta coefficients associated with the collapse model enables a ranking of the strongest to the weakest drivers of collapses for this dataset. This ranking was used to inform the ordering of secondary variables for cohorting.

The primary variables used to cohort are as follows:

- *Material Group* - Brick (BR) / Cast Iron (CI) / Concrete (CO) / Ductile Iron (DI) /Glass Reinforced Plastic (GRP) / Polyethylene (PE) / Pitch Fibre (PF) / Polyvinyl Chloride (PVC) / Vitrified Clay (VC)/ Other
- *Former private sewer or lateral drain (s105A sewer)* - Yes/No
- *Sewer Function* - Combined/Foul/Surface Water
- *Installation Year Band* – Pre-1880, (1880-1900], (1900-1920], (1920-1940], (1940-1960], (1960-1980], (1980-2000], (2000-2020], Post 2020
- *Size* – (0, 165mm], (165mm, 320mm], (320mm, 625mm], (625mm, 1500mm], >1500mm

Material Group is used as an input into the sewer collapse model and results from an aggregation of individual sewer material types.

The following, in decreasing order of influence on collapses, were available to use as secondary cohorting variables if required:

- *Secondary Installation Year Band* - further splitting of *Primary Installation Year* bands
- *Secondary Size* – further splitting of *Primary Size* bands.
- *Gradient*
- *Sewer Type* (Public/S24)

Formerly private sewers and lateral drains (s105A sewers):

Analysis is based on sewers totalling a length of 3,315km which as at August 2023, had had one or more work orders assigned and which had been recorded in Odyssey (ie: 'red-lined' assets). This equates to 15.4% of the assumed total length of s105A sewers. Analysis is based on a total of 1,525 collapses over the APR period 2018-2023.

The primary variables used to cohort are as follows:

- *Material Group* - Brick (BR) / Cast Iron (CI) / Concrete (CO) / Pitch Fibre (PF) / Plastic (PL) / Steel (ST) / Vitrified Clay (VC)
- *Sewer Function and Installation Year Band* – as for the legacy sewers
- *Size* – (0, 165mm], (165mm, 320mm], (320mm, 625mm].

The following were used as secondary cohorting variables:

- *Secondary Installation Year Band* - further splitting of *Primary Installation Year* bands
- *Secondary Size* – further splitting of *Primary Size* bands

Given the lack of pipe attribute data recorded for the S105A assets, the following were used as secondary cohorting variables:

- *Hotspot Drainage Area Zone (DAZ)* – Yes/No
- *Catchment* – North, South, East, West
- *Catchment Management Zone (CMZ)* – Barnsley, Bradford, Colburn, Doncaster, Harrogate, Hull, Leeds, Scarborough, Sheffield, Tadcaster, York
- *Drainage Area Zone (DAZ)* – 300 in total

A total of 11 hotspot drainage area zones were identified – 10 of which are in the West of the region with the remaining one being in the South. These are zones found to be outliers with regards their average annual historic collapse rate but which were *not* outliers with regards to any of the cohorting variables, ie: zones having a relatively

large collapse rate which could not be explained by any of the cohorting variables. *Mean Age, Size, % length combined sewer, % length PF sewer* were used to identify hotspot zones.

Outlier thresholds for each variable were estimated using the following rule:

*Upper bound outliers = 75th percentile + (1.5*IQR)*

*Lower bound outliers = 25th percentile – (1.5*IQR)*

where *IQR* is defined by the interquartile range.

Results – Legacy and S105A sewers

Analysis produced 230 cohorts following aggregation and/or splitting of initial cohorts in line with Ofwat guidance.

A total of 9 cohorts (3.9%) fall outside of the required range of collapses per year. Reasons for no further aggregation or splitting of these cohorts have been included in the Excel output file supplied.

Averaged over all cohorts, the expected number of collapses is 2.28 which falls within the +/- 10% tolerance of the nominal size of 2.5 stated in the guidance.

Prior to estimating cohort condition grade, the remaining 18,245km of S105 sewers were pro rata'd across all S105 cohorts based on the proportion of total length (3,317km) within each.

Table 1 below provides the percentage splits of legacy sewer length by condition grade, after taking sewer function into account. It is not known how this compares with any previous work that may have been undertaken with regards condition grading of sewers.

CG	C	F	S	All Legacy
1	88.16%	82.77%	100.00%	88.19%
2	10.48%	16.31%	0.00%	11.05%
3	1.35%	0.79%	0.00%	0.7%
4	0.00%	0.13%	0.00%	0.07%
5	0.00%	0.00%	0.00%	0.00%
Total	100.00%	100.00%	100.00%	100.00%

Table 1: Percentage splits of legacy sewer length by sewer function within each condition grade

Table 2 below provides the percentage splits of the S105A sewers by condition grade:

CG	%
1	0.00
2	18.39%
3	18.62%
4	33.28%
5	29.72%
	100%

Table 2: Percentage splits of s105A sewers by condition grade

Relatively little is known about these assets and to date, information has only been gleaned from the small sample that have had jobs allocated to them since the transfer of ownership in October 2011. It is expected that the transferred sewers are likely to be in poorer condition than those that have in the past been the responsibility of Yorkshire Water. The results obtained from this analysis would confirm that this is likely to be the case given less than 40% of the total length of s105A sewers are assigned CG1-CG3 compared with 99% of the legacy sewers.

Pareto analysis of the combined cohorts of legacy and S105A sewers suggests that approximately 80% of collapses are associated with just under 30% of the sewer length.

Other wastewater network pipes

Poor population of asset reference on the corporate system has meant it has not been possible to build a failure history for these assets. In the absence of any better information, the proportion of asset length within each condition grade is assumed to be the same as that for the legacy sewers (see Table 1).

See CWW21 Legacy and S105 sewers additional information (YKY-PR24-DDR-65) for required outputs.

Sewage pumping mains

Analysis is based on a snapshot of rising mains data taken in September 2022 which was used to update the rising mains burst model developed for PR24. The dataset comprises a total length of 1,324km and 328 reportable bursts over a 5-year period. It compares with a total length of 1,288km reported in APR23. The difference is due to inclusion of the following in this analysis:

50.7km of T2011 assets

2.9km of non-operational (closed) assets

9.7km for which Legal Status is unknown.

Increase of 2km between the September 2022 data cut and April 2023 APR data

Operational maintenance of these assets during the period of data analysis relates to the structural refurbishment (Cured in Place Pipeline) of 159m. In line with Ofwat guidance, the date of refurbishment of these assets has been used as the date of construction.

The primary variables used to cohort these assets are as follows:

Material Group – Asbestos Cement (AC) / Cast Iron (CI) / Ductile Iron (DI) / Polyethylene (PE) /Plastic (PL) / Polyvinyl Chloride (PVC)

Size - <=320mm / > 320mm

Sewer Function and Installation Year Band - the same as those used for legacy sewers with the former starting at (1900, 1920]

The following were used as secondary cohorting variables:

Secondary Installation Year Band - further splitting of Primary Installation Year bands

Hotspot Drainage Area Zone (DAZ) – Yes/No

A total of 28 Hotspot Drainage Area Zones were identified in line with the approach used for S105A sewers. For these assets, outliers were identified using Age, Size, and % length AC, CI and PL within a zone. These materials were found to be associated with increasing burst rates in the clean water asset deterioration models.

Analysis results in a total of 60 cohorts following aggregation and/or splitting of cohorts in line with Ofwat guidance. Assets of Material Group ST or CO were placed into four separate cohorts (two Size groups for each Material Group), each of which had a zero failure history. This was the case for a further 15 cohorts resulting in a total length of 66.6km of rising main which did not have a failure history. Rather than excluding this length from the analysis, it was pro rata'd between the remaining 41 cohorts taking care to ensure that the smaller (<=320mm) and the larger (>320mm) sized assets were distributed amongst the cohorts comprising assets belonging to the same Size group.

A total of 11 cohorts (26.8%) fall outside of the required range of bursts per year of which five related to cohorts comprising assets of size <=320mm (nominal expected bursts of 2.5 p.a) with the remaining six relating to cohorts comprising assets of size >320mm (nominal expected bursts of 1.0 p.a). Aggregation of these cohorts with others was deemed inappropriate either because the cohort was uniquely defined (eg: all AC combined sewers > 320mm) or because aggregation with the cohort immediately preceding or following (if of similar cohorting characteristics) would result in total bursts falling outside of the required tolerance.

Averaged over all cohorts the expected number of bursts falls within a tolerance of +/- 10% of the nominal sizes stated in the Ofwat guidance.

Ofwat guidance requires that the condition grading of rising mains uses the thresholds provided for the analysis of clean water mains. The historic data has an average of 66 bursts per year and based on a total length of 1,324km, equates to an average of 4km between bursts. This is significantly less than the CG1 threshold for clean water mains (up to 125 bursts/1000km/annum over five years or equivalently, 16km or more between bursts over the five-year period). This explains why, when using the thresholds specified for clean water mains, analysis leads to approximately 95% of the rising mains being assessed as CG1 (not included).

Guidance states that ".....given the consequence of rising main failure is often high, consideration will be given to the provision of condition grades with lower thresholds." Further analysis has been undertaken to estimate more suitable thresholds for rising mains. It is based on a comparison of the average distance between historic legacy sewer collapses over a five-year period with that associated with each of the legacy sewer condition grade thresholds. In doing so, it is possible to obtain a calibration factor for each condition grade which is then applied to the average distance between historic rising main bursts. This provides an estimate of the average distance between bursts for each condition grade from which a threshold of number of bursts on rising mains can be estimated.

Worked example for CG1

Average no. legacy sewer collapses in 5 years = 1,282

Based on a total legacy sewer length of 29,395,368m:

Average distance between collapses over a 5-year period = 22,929m (assume 23km).

Based on a total rising main length of 1,323,955km and 328 bursts over a 5-year period:

Average distance between bursts over a 5-year period = 4,036.449m (assume 4km).

For legacy sewers, CG1 is equivalent to a distance of at least 16km between collapses over a 5-year period.

Comparing this with the average distance between legacy sewer collapses yields a calibration factor of 0.7, ie: CG1 threshold is 0.7 times the average collapse distance for the legacy sewers.

Applying this calibration factor to the average distance between historic rising mains bursts suggests that the threshold for CG1 rising mains is 0.7 times this average distance, ie: 2,825m.

Therefore, for CG1, it is required to find no. bursts/1000km annum/over a five-year period which is the equivalent to 2.8km between bursts over the five-year period.

1000/(5 * no. bursts) = 12.92km which estimates the CG1 threshold for no. bursts to be 16 (rounded).

This approach was repeated for the remaining condition grades which leads to the thresholds in Table 3 below being used for rising mains (all thresholds have been rounded as appropriate):

Condition Grade	General meaning
1	Excellent Burst average up to 72/1000km/annum over five years, (equivalent to approx. 3km or more between bursts over the five-year period).
2	Good Burst average greater than 72 up to 144/1000 km/annum over five years, (equivalent to less than 3km down to 1.5km between bursts over the five-year period).
3	Adequate Burst average greater than 144 up to 288/1000km/annum over five years (equivalent to less than 1.5km down to 0.17km between bursts over the five-year period).
4	Poor Burst average greater than 288 up to 575/1000 km/annum over five years (equivalent to less than 0.17km down to 0.09km between bursts over the five- year period).
5	Very Poor Burst average greater than 575/1000 km/annum over five years (equivalent to less than 0.09km between bursts over the five-year period).

Table 3: Amended thresholds used for rising main condition grades

Table 4 below provides the percentage splits of rising mains by condition grade. It is not known how this compares with any previous work that may have been done with regards condition grading of these assets.

CG	%
1	83.45%
2	12.35%
3	2.92%
4	0.6%
5	0.68%
Total	100.00%

Table 4: Percentage splits of rising mains by condition grade

Outputs from the Pareto analysis indicate that approximately 80% of bursts in the historic data are associated with just under 60% of the length of rising mains.

See CWW21 Rising mains additional information (YKY-PR24-DDR-66) for required outputs.

CWW22 - Wastewater - net zero enhancement schemes:

First row scheme ID CWW22-1 reflects zeros as this scheme has been removed from the renewables enhancement case and will not be progressed any further.

Second row scheme ID CWW22-2 has been amended to reflect changes to our enhancement case per our enhancement representation – both the documented costs (capex, opex and totex) and the cumulative emissions benefit and net emissions benefit have been amended. These changes will be associated with an updated PCD.

Third row scheme ID CWW22-3 the costs (caped, opex and totex) remain the same – there has however been an updated to the cumulative emissions across the AMP and to the net emissions benefit.

Bioresources (BIO)

BIO1 - Bioresources sludge data

2023/24 data updated to match APR. FY25 updated for latest TTDs forecast.

BIO2 - Bioresources operating expenditure analysis

2023/24 data updated to match APR.

BIO3a - Bioresources energy analysis

2023/24 data updated to match APR.

BIO3b - Bioresources; income, liquors and metering analysis

2023/24 data updated to match APR.

BIO4 - Bioresources sludge treatment and disposal data

2023/24 data updated to match APR.

Retail (RET)

RET1 - Cost analysis - retail (post frontier shift and real price effects)

2023/24 data updated to match APR. 2024/25 data updated to show latest expenditure forecast. Updated to apply correct retail price effect adjustment at 22/23 prices.

RET1a - Cost analysis – retail

2023/24 data updated to match APR. 2024/25 data updated to show latest expenditure forecast.

RET2 - Residential retail

2023/24 data updated to match APR. 2024/25 data updated to show latest expenditure forecast.

RET3 - Business retail tariffs (Welsh companies only)

Not applicable.

RET4 - Cost adjustment claims - residential retail

No updates.

Developer Services (DS)

Amendments have been made to the following tables

DS1e - Developer Services Revenue

2023/24 capex data updated to match APR.

2024/25 capex data updated to show latest forecast.

- increased AMP8 water and waste reinforcement revenue DS1e.4 and DS1e.18 to reflect increase in reinforcement expenditure in DS2e.1 and DS3.1
- AMP8 revenue includes catch up for AMP7 under recovery in revenue for matching costs to comply with Ofwat charging rules
- across AMP8 increased waste revenues to reflect SLP property increase in DS4 from retrospective update to AMP7 APR reporting in Table 4Q
- revenue adjustments to match new requisition mains and sewers costs in DS2e.6 and DS3.4 respectively

- finalisation of revenue profiles based on the latest market share trends between incumbent, SLP and NAV customers forecast into AMP8

DS2e - Developer Services Expenditure (excluding diversions) - water

2023/24 data updated to match APR.

2024/25 data updated to show latest expenditure forecast.

- update to DS2e.1 network reinforcement costs based on updated forecast from water networks
- AMP8 increased costs in lines DS2e.1 to DS2e.7 to reflect final headcount cost allocation, revised delivery partner costs and updated IT investment

DS3 - Developer Services Expenditure (excluding diversions) - wastewater

2023/24 data updated to match APR.

2024/25 data updated to show latest expenditure forecast and increased costs in lines DS3.4 to DS3.6 including final headcount cost allocation and updated IT investment

DS4 - New Connections, properties and mains

The following changes have been made in the Table DS4:

- update to AMP7 retrospective SLP connections and properties and AMP8 waste forecasts following clarification from Ofwat
- change to customer lines profiles for water and waste based on latest market share forecasts
- change to water mains lengths lines DS4.13 and 14 based on market share update

DS5 - Network reinforcement costs

2023/24 data updated to match APR.

2024/25 data updated to show latest expenditure forecast.

Long-Term Delivery Strategy

LS1 Forecast outcomes & LS2 Forecast outcomes from base expenditure

Amendments have been made to tables LS1 and LS2 to align performance to wholesale water OUT tables. Please reference Outcomes for customers document (YKY_DDR_06).

Business demand

2024-25, AMP8 and beyond glidepath has been re-calculated based on the rebased baseline proposal and the reductions in-year from our AMP8 programme of activity for NHH demand reduction.

Mains repair

2024-25 value has been updated to align to the most recent company view of performance. Future performance has been re-considered based on Ofwat's challenge at draft determination. This is an Improved performance level forecast.

LS3 - Wholesale water totex enhancement expenditure by purpose, core pathway & LS4 - Wholesale wastewater totex enhancement expenditure by purpose, core pathway

Amendments have been made to tables LS3 and LS4 to align costs to wholesale water and wastewater tables (CW3 and CWW3).

4.2.1 LS3 changes

There have been minor changes to LS3 in AMP8, which now includes costs for PFAS investigation and new SRO schemes, these were not included in previous submissions. No changes have been made to cost forecasts from AMP9-12.

LS3b - Wholesale water totex enhancement expenditure by purpose, alternative pathway 2

We have also amended an alternative pathway relating to our Water Resources Management Plan (WRMP) in LS3b. This change reflects the integration of our preferred WRMP pathway with our core pathway (i.e. our original alternative pathway has been removed), and the addition of a new pathway to accommodate enhanced long-term environmental destination requirements should these be needed in future to support sustainable water resources management for the long term.

LS3d - Wholesale water totex enhancement expenditure by purpose, alternative pathway 4

LS4 - Wholesale wastewater totex enhancement expenditure by purpose, core pathway

For wastewater LTDS we have now incorporated all the DPC costs within the LTDS, which did not appear in the original draft submission. We have reflected the known defined changes but have not reflected the £370m changes as these sites will not meet the SODRP targets and further work will need to be undertaken. This will be modified with time once the programme delivers, and new costing and volumes and solutions are identified to bridge the gap to delivering the SODRP.

RR2 AMP9 has also been amended to show the increase in AMP9 costs.

Supplementary tables (SUP)

SUP1A – connected properties, customers and population

Updated for 2023-24 APR.

2024-25 and AMP8 HH forecasts have been updated to reflect opening position and updates to new connection forecasts in DS4.

SUP1B – Property and meter numbers – at end of year (31st March)

Updated for 2023-24 APR.

2024-25 and AMP8 HH forecasts have been updated to reflect opening position and updates to new connection forecasts in DS4.

SUP11 – Real price effects and frontier shift

SUP11.2R has been updated to reflect the application of labour RPE at 22/23 prices rather than nominal prices in our original submission. This aligns with Ofwat's approach in the draft determinations.

SUP12 - Direct procurement for customers (DPC)

SUP12 has been updated. A new scheme classified as Water Network Plus has been added in, known as Kielder SRO has gone in and its associated costs filled in across the entire table. Meaning there are now x 3 Water Network Plus schemes and all suitable for DPC. For the 3 schemes classified as Water Network Plus (12.2) – Chellow, Elvington and Kielder. More specially the updates are focused on the development costs (12.8) and construction costs (12.9) with updated figures compared to the previous submission. (12.10) has also been updated to reflect annual opex costs for each scheme as well as the anticipated year each one becomes operational (12.13). DPC related costs within AMP 8 have also been updated (12.14).

The costs for the x 2 schemes classified as Wastewater Network Plus (12.2) (Storm Overflows AMP8 & Ilkley WWTW) have not been changed and remain the same as the last submission. What has changed for these 2 schemes is Under (12.6) they have been classified as “no” when addressed as suitable for DPC, on the previous submission they were confirmed as “yes”.

SUP15 - Affordability - residential customers

Updated table for actual outturn for 2023-24 where data was available.

Updated forecasts for Watersupport and Watersure volumes covering additional customer willingness to pay forecasts within section A1.

Summary Tables (SUM)

SUM4 - Expenditure

SUM4 table has been updated to reflect the new values of discretionary spend the main impact is the new value of net zero has been reflected in the discretionary column.

Past Delivery (PD)

Amendments have been made to PD1, PD4, PD5, PD8, PD9, PD10, PD11 and PD12. Please see the document Past Delivery and Reconciliation Commentary (YKY_DDR_62) for further information.