

PC21 DRAFT DETERMINATION - NI WATER RESPONSE
Annex 5.1 Summary of NI Water Sub-programme DD Responses



No.	DD Ref	DD Section Title	Extract of Key Text from DD	NI Water Draft Determination Response
		Main Report		
1	4.13	PC15 Outturn	Our assessment [of PC15 Outturn -£81.8m Net] is based on the company's business plan submission which was itself based on information available in 2019. We will update this assessment for the final determination based on the latest information available at that time	Refer to Annex 5.21 - PC15 Outturn Report (End November 2020)
2	4.17	Capital maintenance investment	... noted that capital maintenance investment has remained at constant levels in real terms since 2007 while serviceability was stable or improving.	NI Water agree that broadly capital maintenance investment has remained at constant levels in real terms since 2007 while serviceability was stable or improving. We also note the UR comments that 'because serviceability is stable at present, it is reasonable to assume that capital maintenance investment in the recent past has been adequate for the current asset base. That is not to say that an increase in investment will not be necessary in the future. But it does indicate that a significant stepped increase in investment to maintain the company's existing assets is not warranted.' NI Water would highlight that there are already indications of pressure on Serviceability as evidenced by the work on the potential introduction of a mature compliance model that has highlighted that a number of works, that are not deemed theoretically to be overloaded, would fail under an un-announced sampling regime. It was also highlighted within the Serviceability submission for PC21 that the results for COD effluent have shown a trend upwards in recent years indicating some additional pressure on Wastewater compliance. Also as highlighted within the Capital Maintenance Appendix there was significant investment in WTWs from the period of 1997 to 2006 and also in Wastewater assets during Strategic Business Plan period from 2007 to 2010. The M&E/ICA assets installed at the time will be reaching and surpassing their expected life during the PC21 period with increased risk of failures.
3	4.28		we expect NI Water to provide the following by the end of November 2020: □ A statement of the sewerage and wastewater treatment schemes whose scope is sufficiently well developed to allow them to be included in the final determination with confidence, with an explanation of why this is the case. □ A programme of further study and development work necessary to confirm the scope and costs of the remaining sewerage and wastewater treatment works schemes included in its Business Plan. We plan to use this programme to define a 'development objective' for PC21 which will allow costs and outputs to be confirmed or redetermined through the Change Control process in time for the work to be incorporated in the last three years of PC21.	Refer to Annex 5.17 - Scope Certainty Exercise Submission (End Nov 2020)
4	4.36	Capital expenditure profile	Killyhevlin WTW - A copy of the full treatability study to be provided, highlighting the areas of highest risk for Cryptosporidium and the specific recommendations referred to in Annex A.	Refer to response to DD Ref 6.73
		ANNEX I		
5	5.12	Serviceability Trends	The average rate of capital maintenance has remained broadly consistent in real terms over the medium term. Our broad conclusion is that serviceability has been maintained at an average level of investment (2007 - 2020) of £96.7m per annum.	Refer to response to DD Ref 4.17
6	5.28	Consequential capital maintenance	Capital maintenance (sewerage). Much of the increase in capital maintenance expenditure relates to £33m linked to mature compliance which the Reporter has challenged. We have not included this in our assessment of consequential capital maintenance.	Refer to Annex 5.5 - Wastewater Regulation Reform Capex Interventions
7	5.36	Alternative Botex approach	We would welcome any proposals from the company to change the mix of capital maintenance and operational expenditure in a way which would reduce overall costs while delivering the same or improved service to consumers.	Refer to Annex 5.5 - Wastewater Regulation Reform Capex Interventions, for example of Alternative Botex Approach.
		ANNEX I Individual Programmes of Work		
		SP00 Cap Sals		
8	6.14	Assessment of NI Water's Proposed Investment	We have used average rates for capitalised staff in PC15 to determine costs for additional staff in PC21	Refer to Annex 5.4 - Capitalised Salaries and On-Costs Response
9	6.15	Table 6.2: Assessment of capitalised salaries and on-costs	The capital maintenance element of the programme has not increased materially. The increase in capital maintenance is driven by consequential base maintenance on identified projects on the wastewater programme and should not require additional resource other than that identified above for project management. The maintenance of capacity and demand planning is part of the normal functions of a wastewater company and is inherent in the operational and base maintenance benchmarking we undertake to set and other base maintenance activities are inherent in the benchmarking we undertake to establish base maintenance costs.	NI Water require additional staff as part of Controlled Reservoir Safety which was not highlighted in the original submission but there is now an opportunity as part of the DD response to include. This relates to the legislation and requirements in relation to Controlled Reservoir Safety. As part of the Inspection requirements 10 additional Operational staff are required (100% Opex) and the proposal is also to recruit for 2no. Staff for the Reservoir Safety Team (100% Capex). Refer to Annex 5.12 Controlled Reservoir Maintenance & Inspections Response, which includes for the need of 2 no additional staff required for work associated with inspection, evaluation and interventions at reservoirs required for new legislation not covered by the PC21 plan.

10	6.15	ADD - Drinking Water Regulation, Analytic Services and SCAMP	1. The company has identified a range of risk and activities relating to water quality and water abstraction which it expects to increase in PC21. These are general activities which have been undertaken in PC15 and there is no expectation of an increase in PC21. 2. Business as usual activities are included in the benchmark costs for operations and base maintenance. 3. The cost of resources to manage the transitional works on the Analytical Services laboratories are included in the relevant project. 4. Mature compliance costs have been included in opex. 5. An additional 2 FTE have been included to support SCAMP and sampling activities.	Refer to Annex 5.4 - Capitalised Salaries and On-Costs Response
11	6.16	Assessment of NI Water's Proposed Investment	We consider the overall allowance for 60 additional staff to manage the increased capital programme to be reasonable.	Refer to Annex 5.4 - Capitalised Salaries and On-Costs Response
			SP01 Base Maintenance (water)	
12	6.39	SP 1 - Chemical and Sludge Tanks – Water	For the final determination we will seek further evidence that there is no overlap of expenditure between this and other investment areas, such as water treatment works base maintenance and investment at water treatment works included under sub-programme 04.	As part of a previous Query - 'Query 128 - PC21_Appendix_6.23_Development_and_Application_of_Foward_Looking_Risk_Assessment' it was confirmed that no tanks were identified for replacement within the DRRM models outputs as this was covered by this project - 2284_Chemical and Sludge Tanks – Water. An additional check has been carried out between this project and the Treatability Studies within SP04 and this identified one chemical tank at both Caugh Hill and Glenhordial that are included in SP04 but are likely to be covered by this project. The total expenditure for these items within the SP04 projects [REDACTED] Hence Project 2020 Caugh Hill Treatability Improvements is to be reduced by [REDACTED] Project No 1116 Glenhordial Treatability Improvements is to be reduced by [REDACTED]
			SP02 Base Maintenance (sewerage)	
13	6.43	SP 2 - WwTW and WwPs Base maintenance	NI Water has based its WwTW base maintenance requirements on PC15 run-rate expenditure and then uplifted this figure by £33m for investment to address risks associated with the implementation of a 'mature' compliance model in the future by NIEA (i.e. unannounced final effluent regulatory sampling). We have removed the £33m related to mature compliance based on the Reporter's recommendation. The Reporter's recommendation is based on the fact that the estimate is high-level and lacking in clear rationale to explain and justify the cost, risk and base maintenance allocation assumptions. The generic Reporter adjustment was applied to the remaining budget to determine the pre-efficiency PC21 allowance. This resulted in a figure which was just under 30% lower than the company submission. Whilst we have removed the mature compliance element for the draft determination, we are prepared to consider this further if the company can provide a well-founded plan which clearly demonstrates that the investment will secure compliance in the longer term.	Refer to Annex 5.5 - Wastewater Regulation Reform Capex Interventions
14	6.44	SP 2 - WwTW and WwPs Base maintenance	The company's wastewater pumping station asset submission based on a unit cost of £23k per site. We have accepted this figure and applied the generic Reporter adjustment to determine the pre-efficiency allowance for PC21, but will test the derivation of the unit rate further for the final determination.	It states within Section 6.4 of Annex I Capital Investment that the company's wastewater pumping station asset submission is based on a unit cost of £23k per site. It should be noted that this is not the case as DRRM outputs were used to inform the submission. The reference to £23k was just to highlight a potential average spend per site based on the overall number of WwPS.
15	6.46	SP 2 - Chemical and Sludge Tanks – Wastewater	For the purposes of the draft determination we have allowed the preefficiency budget subject to the generic Reporter adjustment. For the final determination we will seek further evidence that there is no overlap of expenditure between this and other investment areas, such as wastewater treatment works base maintenance and specific investment at wastewater treatment works included under sub-programme 16.	A check has been carried out and this has identified potential duplication of £1.7m between the WwTW Chemical and Sludge Tank Project and the WwTW Enhancements Projects within SP16 & SP17. In addition an additional £0.48m of potential duplication has been identified between the WwTW Base Maintenance project and the WwTW Chemical and Sludge Tank Project. Therefore the Chemical and Sludge Tank Project should be reduced to [REDACTED]
			SP03 Water resources and supply resilience	
16	6.54	SP 3 - Reservoir inspections	The GB Reservoirs Act 1975 includes an inspection regime for "large raised reservoirs". The Reservoirs (Northern Ireland) Act is likely to be brought into effect during PC21 and will mirror the requirements of the GB legislation. This will make the inspection and maintenance of controlled reservoirs mandatory.	It should be noted Although the Reservoir Act is not currently fully enforced a Technical Guidance Note – 'The Practical Application of Strategic Planning Policy for 'Development in Proximity to Reservoirs' was introduced by the Department for Infrastructure. This explains the general approach DfI Rivers will follow when providing advice to Planning Authorities on all relevant applications for development within the potential flood inundation areas of controlled reservoirs. As part of the guidance note and subsequently to avoid planning issues within the flood inundation zones downstream of NI Water Controlled Reservoirs NI Water were required to sign-up to a MOU in relation to Responsible Reservoir Manager Status. This involved entering into a written agreement with the Department to comply with key provisions of the Act. As such although the act is not fully in place the inspection and maintenance of controlled reservoirs is already mandatory as part of the Responsible Reservoir Manager Status requirements. NI Water notes that only 50% of the funding for PC21 impounding reservoir inspections subject to the generic Reporter adjustment has been granted by UR. The Draft determination states 'We have reduced this allowance as only a limited number of impounding reservoirs require inspection during PC21 period based on the 10 year inspection cycle. The provision of this level of funding will allow 50% of inspections to be undertaken and for the company to start to 'smooth' the profile of inspections over forthcoming price control periods. ' NI Water would highlight that if 50% of inspections are only carried out in PC21, NI Water are unlikely to be able to meet the dates defined in the S10 reports by the ARPE by which matters in the interest of safety are due to be completed. Hence NI Water will be unable to comply with the Reservoirs Act and planning within the flood inundation zones of the affected reservoirs will be refused. In addition the company will be liable to reputational damage associated with Reservoir Safety concerns. Hence the full allowance for impounding reservoir inspections included in Project 2295 is required. <i>Refer to accompanying paper 'Annex 5.266 DD Response Controlled Reservoir Maintenance & Inspections Para 6.57'</i>

17	6.57	SP 3 - Reservoir inspections	This work is driven by legislative requirements and is necessary to ensure the safety and integrity of these critical assets. In determining our preefficiency allowances we have: • Allowed 50% of the funding for PC2 impounding reservoir inspections subject to the generic Reporter adjustment. We have reduced this allowance as only a limited number of impounding reservoirs require inspection during PC21 period based on the 10 year inspection cycle. The provision of this level of funding will allow 50% of inspections to be undertaken and for the company to start to 'smooth' the profile of inspections over forthcoming price control periods.	Supervising Engineer : NI Water notes that funding has been allowed for the retention of a Supervising Engineer less the generic Reporter adjustment (£0.46m). This was based on an original submission figure of [REDACTED]. Since this time NI Water went to market and the Supervising Engineering costs for 20/21 was [REDACTED]. This would equate to [REDACTED]. Therefore NI Water believe the funding for this element should be increased to this amount and should also not be subject to the generic reporter adjustment. This would be a [REDACTED] from the DD. It should be noted that if funding is provided for the Reservoir Safety Engineer role then this should offset some of this requirement in the latter years of PC21. It is anticipated that 30 sites could be under the supervision of a Reservoir Safety Engineer in the last year of PC21 and thus the need for increased funding could be reduced by [REDACTED]. Impounding Reservoir Inspections : NI Water would highlight that if 50% of inspections are only carried out in PC21, NI Water are unlikely to be able to meet the dates defined in the S10 reports by the ARPE by which matters in the interest of safety are due to be completed. Hence NI Water will be unable to comply with the Reservoirs Act and planning within the flood inundation zones of the affected reservoirs will be refused. In addition the company will be liable to reputational damage associated with Reservoir Safety concerns. Hence the full allowance of [REDACTED] these inspections, as contained within the PC21 submission for Project 2295, is required. Service Reservoir Inspections : In addition it was assumed in the PC21 submission that 20 SR Section 10 Inspections would take place in PC15. However due to the impact of Covid on the Reservoir Cleaning Programme there has only been one inspection carried out to date and in reality there will only be a maximum of 5 SR Section 10 Inspections in PC15. Therefore an additional 15 inspections will be required at these sites in the early part of PC21. An additional [REDACTED] required for SR Inspections in the PC21 Project 2295 for the sites not inspected in PC15 ([REDACTED]). In summary the investment required for Project 2295 is [REDACTED] (as per the PC21 bid) plus [REDACTED] the Supervising Engineer) plus [REDACTED] (for additional SR Inspections), totalling [REDACTED] Refer to Annex 5.12 - Controlled Reservoir Maintenance & Inspections Response.
18	6.57	SP 3 - Reservoir inspections	Allowed the funding for the retention of a Supervising Engineer less the generic Reporter adjustment.	Refer to response to above DD Ref 6.57
19	6.57	SP 3 - Reservoir inspections	Allowed for the PC21 work generated by the PC15 inspections and the anticipated cost of works generated from inspections of 41 service reservoirs less the generic Reporter adjustment.	As part of the Controlled Reservoir Maintenance submission (Project No 2294, with a PC21 submitted cost of [REDACTED] was identified to deliver the recommended outputs from the Section 10 inspections, for Impounding Reservoirs, and £1.0m for the Service Reservoir Inspecton outputs. Since the submission more detailed costs have been established, for the Impounding Reservoir Section 10 outputs, as ECI works which included exploratory investigations at the sites have been carried out. In addition due to the need to repeat a number of Section 10 inspections to comply with the Responsible Reservoir Manager Status MOU some new elements have been identified. In general the increase in costs is due to new requirements for Leakage Surveys at a number of sites and also increased costs associated with remedial work at Toe Drains. This has seen the estimated costs for this part of the project increasing from [REDACTED] an increase of [REDACTED]. However it is anticipated that some work will be carried out this year with a possible maximum of £500k of work being completed. Therefore in summary NI Water requests an additional [REDACTED] for Project 2294 (ie [REDACTED]). The [REDACTED] for the Service Reservoir Inspecton outputs has not changed. Refer to Annex 5.12 - Controlled Reservoir Maintenance & Inspections Response.
SP04 Water treatment works				
20	6.71	SP 4 - Investment in Annex A water treatment works	6.71 NI Water issued nine water treatment works Annex A submissions to DWI. The NI Water Alpha sites were not included, but we understand that the company intends to make a further submission to DWI in relation to these sites in the near future. 6.77 We have excluded all of the investment proposed for the Alpha WTW sites at this stage. These sites were recently purchased by NI Water off the previous concessionaire. This process was subject to a cost benefit analysis and due diligence exercise. We therefore assume NI Water assured itself that it was purchasing fit for purpose assets which were operationally robust and capable of meeting regulatory standards. Any additional investment requirements should therefore primarily be base maintenance which we expect NI Water to address through its WTW Base Maintenance programme allocation in sub-programme 01.	On-site investigations into the treatability recommendations made by Arup are ongoing and are not expected to complete until late 2021. It is envisaged that the Annex A submissions will be complete and issued to DWI by January 2022. The DWI have supported the need for investment at NI Water Alpha sites; DWI have served Regulatory Enforcement notice on NI Water with respect to Ballinrees WTW; DWI and the PPS are currently considering prosecution under 'water unfit for human consumption' in relation to Castor Bay WTW. The investment requirement, whilst not tied down through a treatability study, is required to meet the Enforcement order and to meet the deficiencies in treatment highlighted by the Castor Bay incident of June 2018. There is readacross from the Castor Bay incident of 2018 to Dunore Point WTW. Refer to Annex 5.6 - NIW Alpha WTWs Treatability Improvements Response, outlining why the Company maintains that the funding for Alpha WTW sites should be retained.
21	6.72	SP 4 - Investment in Annex A water treatment works	DWI formally responded to the NI Water's Annex A submissions at the start of September 2020. In its response it expressed a number of concerns which we endorse, namely: • That the proposed WTWs programme is 'back end' loaded. This is of particular concern for Annex A works which would be expected to be of higher priority. We note that Caugh Hill WTW which has been deferred in two previous price controls and represents over 40% of the total 'Annex A' cost is not scheduled for delivery until 2026-27. It is unclear why this would be the case if the need was clearly established.	The Company accepts that delivery of Caugh Hill WTW merited higher priority within the overall PC21 programme. On review we have proposed to bring this forward in the programme with a beneficial use date in 2024. The financial profile has also been changed with a total cost of [REDACTED]. The deduction of [REDACTED] (as a result of the duplication of a chemical tank in Project 2284) is to be made to the above figures, reducing the total to [REDACTED]. DWI have supported this investment and asked that it be brought forward in the programme.
22	6.72	SP 4 - Investment in Annex A water treatment works	DWI formally responded to the NI Water's Annex A submissions at the start of September 2020. In its response it expressed a number of concerns which we endorse, namely: • That Bouchier and Badenoch recommendations in relation to cryptosporidium have been identified at a number of sites. These requirements were identified in the 1990s and investment to address any shortcomings might have been expected to have been prioritised in the interim.	The comment regarding Bouchier and Badenoch recommendations is acknowledged and noted and we agree that best practice is complied with as far as is reasonably practicable. In order to do so, the PC15 Treatability studies were specifically requested to review the WTW against Badenoch & Bouchier recommendations. This will continue to form part of the specification for treatability studies going forward.

23	6.72	SP 4 - Investment in Annex A water treatment works	• That the justification for the internal targets chosen by NI Water to assess risk and justify investment is not clear. For example THMs have been identified as a parameter of concern at seven of the nine 'Annex A' works and we are aware that the company reduced its internal target from 75µg/l to 50µg/l in 2018. Using this lower threshold to justify investment has the potential to drive inappropriate decisions and result in unnecessary investment if it is not clearly linked to the risk on non-compliance with regulatory standards. The justification for the change in internal standards will therefore need to be clearly evidenced in every circumstance to demonstrate that any associated investment is necessary prior to our final determination.	The NI Water internal 'near miss' notifications for final water parameters is 75% of the PCV and this level is used as a monitoring /trigger level for treatment optimisation. Alerts are set within LIMS at this 75% of PCV level to flag results to the water quality team. Following implementation of the Water Supply (Water Quality) Regulations (NI) 2017, the Company undertook a review of the DWSP risk assessments and in particular the DWSP risk scoring "not to exceed" targets for final water. in 2018, NI Water developed it's strategic approach for improving THM compliance, at the request of the Drinking Water Inspectorate. As part of this strategic approach, the previously used DWSP THM near miss notification of 75µg/l in the final water was revised to 50µg/l to ensure that the risk for THM compliance at the customer tap is assessed at an appropriate level as the THM parameter is the one most likely to increase in concentration through the distribution system due to the potential for THM formation if treatment does not effectively remove and reduce the level of THM precursors in the water. NI Water provided clarification to DWI on the justification for the change to the internal target for THMs in the final water from 75µg/l to 50µg/l in 2018 through reference to the Strategic Approach for Improving THM Compliance document. The likelihood of THMs increasing in distribution is realised and therefore a lower limit leaving the WTW is accepted by the DWI to manage the risk for THM noncompliance at the consumers' tap. Refer to Annex 5.24 - DWI Response Letter to NI Water Annex As, which shows that DWI are supportive of NI Water's proposals.
24	6.73	SP 4 - Table 6.7: Annex A submissions	Altnahinch WTW - A copy of the treatability study to be provided to enable a more detailed assessment of treatment requirements to be made.	Information provided to DWI by A.McM 22/09/20. - Altnahinch WTW Process Appraisal Report rev 1 dated Apr 2017 - Altnahinch WTW Treatability Business Case v2 dated Apr 2018 (Both documents included within the PC21 Business Plan submission). DWI supported this investment.
25	6.73	SP 4 - Table 6.7: Annex A submissions	Caugh Hill WTW - Clarification required on whether recommendations contained in the Arup report and in the DWSP Risk Assessment Action Plan with respect to Cryptosporidium control and THMs are to be completed as they are not referred to in the Annex A.	A revised Annex A was provided to DWI post PC21 business plan submission. This indicates measures to reduce the risk of cryptosporidium and THM control. The Annex A comprised the following documents: Annex 5.25.1 Annex A - Caugh Hill WTW Annex 5.25.2 Caugh Hill WTW and Supply System Risk Assessment_2020 V009 Annex 5.25.3 Annex A - Caugh Hill WTW - Appendix 6 The above three documents accompany this response, and are located within Annex 5.25 NI Water Annex A's Submission Response Information provided to DWI by A McM 22/09/20. - 2019 JL772 Caugh Hill Treatability Appraisal Report Stage 2 Version 6 inc Appendices dated August 2019 - Appendix B - 264806_ARP_03_CAU_RP_PX_0001 Caugh Hill Treatability Appraisal dated No 2019 (Both documents included within the PC21 Business Plan submission). The following items are included within the Caugh Hill Treatability Improvements project as recommended in the Arup report:- Primary Filters - Refurbishment Primary Filter refurbishment (Media replacement) - 4 Filters Primary Filters (Additional monitoring to assess filter performance). - Install a combined turbidity instrument Primary Filters (Improve filter resilience). - Install run to waste system Clarifiers (Improve flow split between clarifiers) - Improve flow splitting between the clarifiers and; Improve polymer flow paced control Supernatant return - Higher than normal percentage flows returned to the head of the works (recent upgrade to the washwater treatment system includes supernatant return filters) -Improve supernatant return flow control. Due to the duplication between project 2284 (Chemical and Sludge Tanks – Water) and the Caugh Hill Treatability Improvements Project with respect to a chemical tank, the Caugh Hill Project is being reduced by £19,642 to a revised value of [REDACTED]
26	6.73	SP 4 - Table 6.7: Annex A submissions	Clay Lake WTW - Further clarification and discussion in relation to the detail of the proposals.	DWI have confirmed support for this project. The Company has confirmed to DWI, in response to their assessment, that further clarification and discussion in relation to the detail of the proposals can be provided as necessary.
27	6.73	SP 4 - Table 6.7: Annex A submissions	Derg WTW - Further information identifying a preferred option is required to enable DWI to support the application to ensure THMs compliance will improve. An updated Annex A should be submitted removing works that are planned for completion in 2020/21 as part of the enforcement Notice. There is limited evidence that THMs is an issue at the WTW but appears to be more of a risk in distribution due to the length of the network.	Information provided to DWI by A McM 22/09/20. Refer to Annex 5.25.4 Derg WTW Process Appraisal Report_rev.1, which is located within Annex 5.25 NI Water Annex A's Submission Response The final decision on the work to deal with the current enforcement is yet to be concluded other than an agreed beneficial use date. Recent pilot plant trials at Derg WTW have indicated that DAF is not suitable for the effective treatment of the raw water and that the DAF system should be replaced with clarifiers. Details of scope and costs outlining this proposed change will be provided prior to March 2021 to allow a decision to be made in advance of the Final Determination. A revised Annex A will be provided to the DWI as part of this package. With regard to THMs, in the period 2015-2019, Derg WTW has exceeded NI Water internal THM standard of >50 µg/l 50 times. DWI supported this investment
28	6.73	SP 4 - Table 6.7: Annex A submissions	Drummaroad WTW - Clarification on the presence or not of automatic coagulation and assurance that the proposed works will improve the water treatment process for aluminium compliance. Final investigation report into the cause of the Cryptosporidium is also required.	The current autocoagulation control unit at Drummaroad WTW has not been operational for a number of years. The proposed works will improve the water treatment process for aluminium compliance. [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] three documents accompany this response, and are located within Annex 5.25 NI Water Annex A's Submission Response. DWI supported this investment.

29	6.73	SP 4 - Table 6.7: Annex A submissions	Dungonnell WTW - A copy of the treatability study to be provided to enable DWI to establish the justification for concluding that Ion Exchange is the preferred option for the pilot study. Information to be provided on the interim measures to manage the risk until the pilot study is completed and the remedial works are complete.	Information provided to DWI by A McM 22/09/20. - Dungonnell WTW Treatability Report final D04 July 2019 - IBE1271 (Document included within the PC21 Business Plan submission). Interim Measures The Garron Plateau blanket bog restoration project will over time help to reduce the risk of colour/NOM and turbidity in the raw water supply. We will continue monitoring of the raw water quality data to assess the improvements from the bog restoration project, however it is acknowledged that improvements to the raw water are anticipated to be achieved over a long-term basis. Final water THM samples will continue to be taken to monitor THH levels and risk and to assist with treatment optimisation for organic and THM precursor removal. New pH instruments are to be installed at Dungonnell WTW and this is scheduled to be complete by the end of March 2021. This will help with treatment optimisation and control. Lime and FAS are dosed in close proximity to each other in the treatment stream, which may reduce the effectiveness of the FAS if the lime has insufficient time to raise the pH. The relocation of the lime and coagulant dosing points at the inlet is to be reviewed as part of the pilot study on site. This is planned to commence in May 2021 and run through to March 2022. If it is determined that it will be advantageous to relocate the dosing points, this work will be taken forward. DWI supported this investment .
30	6.73	SP 4 - Table 6.7: Annex A submissions	Killyhevlin WTW - A copy of the full treatability study to be provided, highlighting the areas of highest risk for Cryptosporidium and the specific recommendations referred to in Annex A.	Information provided to DWI by A McM 22/09/20. - Rep 260733-191300 Killyhevlin WTW Process Audit Issue 1 RF dated Jun 2019 - Killyhevlin WTW Treatability Business Case rev 2 dated Jan 2020 (Both documents included within the PC21 Business Plan submission). Cryptosporidium Risks The Sirofloc process has no chemical coagulation/flocculation process, which leaves the primary filters more vulnerable to turbidity carry over. The Sirofloc plant is vulnerable to changes in raw water quality and its ability to operate at maximum capacity whilst maintaining chemical efficiency (particularly magnetite). Improvements to the process in magnetite recovery, washing and automatic loading are needed to increase the process robustness, allowing better Sirofloc performance to reduce the particle load on the downstream RGF filters and organics load on the GAC plant and improve its ability to deal with cryptosporidium. Turbidity removal on the existing Sulzer filters has been unsatisfactory and needs improvement. The existing Sulzer filters urgently require modification to allow improved performance. The existing sand and carbon filter media is life expired. The risk for unsatisfactory turbidity removal through the existing Sulzer filters may contribute to risk of Cryptosporidium breakthrough as effective turbidity removal will minimise the risk for oocyst breakthrough. Turbidity is used as the main indicator of filter performance with regard to product water quality. The filter media replacement work which was to be carried out in PC15 has been deferred to PC21 due to funding constraints. DWI supported this investment.
31	6.75	SP 4 - Table 6.7: Annex A submissions	The final decision on the full list of 'Annex A' submissions is therefore dependent on the receipt of the additional information requested from NI Water. We have therefore decided to wait until this process concludes and the exact requirements have been established before determining on the Annex A investment. This will be done for the final determination.	All information has been forwarded to DWI at this point. Further information can be provided if requested. Refer to Annex 5.24 DWI Response letter to NI Water Annex As, which shows that DWI are supportive of NI Water's proposals.
32	6.77	SP 4 - Investment in Annex A water treatment works	We have excluded all of the investment proposed for the Alpha WTW sites at this stage. These sites were recently purchased by NI Water off the previous concessionaire. This process was subject to a cost benefit analysis and due diligence exercise. We therefore assume NI Water assured itself that it was purchasing fit for purpose assets which were operationally robust and capable of meeting regulatory standards. Any additional investment requirements should therefore primarily be base maintenance which we expect NI Water to address through its WTW Base Maintenance programme allocation in sub-programme 01.	Refer to Annex 5.6 NIW Alpha WTWs Treatability Improvements Response, which outlines why the Company maintains that the funding for Alpha WTW sites should be retained. Refer to the DD Ref 6.71 response above.
33	6.8	SP 4 - Investment in other water treatment works	For the draft determination we checked the base/enhancement split applied by the company for each scheme by reviewing the individual elements of investment included within the company's costing system. In general the split proposed did not appear unreasonable apart from Carmoney WTW which the company has submitted as 99% Enhancement. Our assessment suggests this should be closer to 100% Base as it primarily relates to refurbishment of existing assets. This scheme was deferred from PC15 and we note that in the PC15 submission NI Water indicated it was 100% Base. So we have changed the base percentage from 1% to 96% based on the outcome of our assessment.	The Company is content with the change to 96% Base as assessed in the Draft Determination.
34	6.81	SP 4 - Investment in other water treatment works	We have also made some cost adjustments to this programme. We have removed expenditure for a proposed treatability study at Carmoney which we believe should be covered by the 'WTW treatability Studies for PC27' programme of work in sub-programme 01. We have also removed 50% of the costs submitted for the Glenhordial sludge treatment project pending clarification on expenditure included for work required at the receiving WwTW site.	Carmoney The Company accepts the removal of costs for a treatability study at Carmoney WTW. This can be included within the WTW treatability studies for PC27 programme of work. Glenhordial The work required at the receiving WwTW is for the provision of a sludge holding tank complete with level indication and mixer. This is to allow the WTW residual sludge to be bled into the incoming effluent at the WwTW in a controlled manner. The value of this work is 49% of the total construction costs of the Glenhordial project and NI Water request that the latter is included in the FD.

35	6.82	SP 4 - Investment in other water treatment works	For the remainder of sites we have allowed the submitted costs, following the application of the generic Reporter adjustment to establish the pre-efficiency allowances for the draft determination. However prior to the final determination we intend to reconsider: • Why so many of the business cases refer to water quality issues when the risk is not deemed sufficient to merit an 'Annex A' submission. • Why further treatability investment is required at Glenhordial WTW following completion of a treatability scheme in PC15 at a cost of around £0.6m. • Whether some expenditure could be deferred pending completion of other remedial work or the investigation of alternative processes, for example remedial work to the soda ash system at Lough Bradan where lime dosing is being considered as an alternative. • Whether work on containment of dosing lines is a duplication of work included in the EMS project.	Annex As At a PC21 DWQG meeting on 15.11.2019 the Company presented details of each of the WTWs and proposed work identified at each site to DWI. Through this mechanism agreement was reached with DWI as to which sites would require an Annex A submission. In addition to this DWI have an issued document namely "Guidance and Information Requirements [Annex A] to Northern Ireland Water on Long Term Planning for Drinking Water Supplies in PC21 issued by Drinking Water Inspectorate for Northern Ireland" dated 06/11/2018. It was on this basis that the sites requiring an Annex A were agreed with the DWI at the meeting on 15.11.19. Glenhordial The treatability assessment undertaken in PC15 identified some recommended improvements that would reduce THM levels in final water. The improvements were undertaken in Year 15/16 at a cost of £373k inclusive of consultants costs. The assessment also recommended that once the improvements were made the outcome be observed to assess the impact on compliance with regulatory THM levels throughout the life of the plant, or whether subsequent capital investment would be required. It was on this basis that a further treatability assessment was undertaken at Glenhordial WTW, which has identified the need for further investment in PC21. Due to the duplication between project 2284 (Chemical and Sludge Tanks – Water) and the Glenhordial Treatability Project with respect to a chemical tank, the Glenhordial Project is being reduced by [REDACTED] to a revised value of [REDACTED] Deferral of work The Company would welcome further discussion on deferral of some expenditure pending completion of other remedial work or the investigation of alternative processes. It is the aim of the Company to ensure that best use is made of available finances and that the most appropriate processes are installed to ensure ongoing operability and compliance for the future. For the quoted example of the soda ash system at Lough Bradan we would expect to undertake a review of alternative to soda ash e.g. lime prior to instigating any of the recommended improvements to the soda ash system. For information, Lough Bradan did use lime in the past but was switched to soda ash for better pH control to ensure optimum treatability of a particularly difficult raw water. Dosing Lines The WTW EMS project does not include containment of dosing lines. The EMS WTW project centres on fuel delivery areas, bunding and signage.
			SP05 Water Trunk Mains	
36	6.89	SP05 - Water Trunk Mains	6.89 We reviewed each scheme and challenged the scope and costings. In response to queries the company: ☐ Agreed that the costs for crossings included in some schemes were too high and provided updated costs which have been included in the draft determination. ☐ Provided a technical response to a challenge on comments on the scope of the proposed schemes including options for partial replacement of mains and the use of booster pumping. The company's response addressed the technical issues. ☐ Agreed that costs on the Northern WRZ Resilience scheme had been duplicated in the Business Plan and provided a revised schedule of costs.	The updated costs for crossings provided by the Company have been included accurately in the Draft Determination. There is however an anomaly that has been identified in the reductions within the Draft Determination for the following projects: - IPAC 2047 Edenasop to Killeter SR - IPAC 1784 Trunkmain – High Tober It appears that the UR has applied the cost reduction for High Tober in the calculation for Ednasop to Killeter and, vice versa, has applied the cost reduction for Ednasop to Killeter in the calculation for High Tober. The resulting calculations show an overestimate of £0.213m for Ednasop to Killeter and an underestimate of £0.214 for High Tober. The net result for this anomaly is neutral. The acknowledged duplication of costs within JL790 - Northern WRZ Resilience and 1093 - Northern Resource Zone Resilience - Phase 4, relates to costs attributed to Phase 4 costs only. Within JL790 - Northern WRZ Resilience the Phase 4 sub-total amounted to total project costs of [REDACTED] is proposed to reduce JL790 - Northern WRZ Resilience by this amount resulting in a revised total of [REDACTED] this project.
			SP07 Service reservoir rehabilitation	
37	6.104	SP 7 - Service Reservoir Rehabilitation	We have requested specific details of the rehabilitation work undertaken in each year of PC15 to allow us to distinguish between the impact of the new methodology and the impact of budget constraints. This information has not yet been provided, so for the draft determination we have based projected expenditure on the average expenditure in the first three years of PC15. This has resulted in an allowance which is 25% less than the company's submission. Whilst this approach should have helped mitigate against the impact of budget constraints it is unlikely to have captured the full benefits realised through the new methodology. We hope to resolve this issue for the final determination once we have received the information requested from the company. The generic Reporter adjustment has not been applied to this programme of work as we have based our pre-efficiency allowance on historic costs.	A detailed response and supporting information has been developed. Refer to Annex 5.13 - SR Rehabilitation Programme Response (incorporating Annex 5.13.1 SR Rehab Methodology and Annex 5.13.2 SR Rehab - Analysis) NI Water would propose the PC21 investment for SR Rehab should be [REDACTED]m. This investment is a significant increase on the amount invested in PC15 which was £8.372m. The number of SR Refurbishments carried out in PC15 was limited by the funding available as NI Water sought to remain within Base Maintenance funding limits. In PC15 it is estimated that only 51 sites will be addressed due to these constraints compared to the 208 planned for PC21. It should be noted although there is a proposed 87% increase in investment in PC21 it is estimated over four times the amount of sites will be addressed as part of this increase. This is a reflection of the improved methodology which is seeking to complete SR Base Maintenance as efficiently as possible having changed to the UKWIR Toolkit Methodology which better incorporates an improved risk approach to interventions. Although it is acknowledged that the updated rates are from a limited dataset we believe the revised PC21 submission is a reasonable reflection of the work to be done and despite serviceability indicators indicating stable service without these interventions taking place there is a risk of deterioration in Water Quality and structural integrity.
			SP08 Water mains rehabilitation	
38	6.113	SP8 - Water main rehabilitation	NI Water pointed out that the DRRM modelling creates numerous work packages comprising of short lengths of main and that these would be inefficient to deliver. It has suggested that it may be appropriate to increase the overall output length in our determination as a result. We will consider this further for the final determination.	For the PC21 submission the length of mains identified for Water Mains Rehabilitation was 659km (Not including the Leakage Pilot) and this was based on the outputs from the DRRM model. NI Water had highlighted a number of concerns with the model outputs and in particular the number of small work packages identified for replacement that would be inefficient to deliver. As a consequence it was highlighted an increase in length of water mains to be rehabbed may be required. Since the submission the DRRM model has been updated with the two key changes being • The introduction of Parent Lengths to the Model. Parent lengths introduces more sensible lengths of mains to the model based on common attributes and helps to negate the issue of small lengths. • PVC Water Mains split between pre and Post 1970. This was due to evidence that Pre 1970 water mains deteriorated at a different rate than post 1970 PVC. This change has increased the length of water mains the model predicts needs to be rehabbed to maintain stable service with the new proposed length being 838km. During PC15 it is predicted that 771km will be rehabbed (Based on AIR Outputs and 96km delivered in 20/21) and as service is still stable NI Water would not propose declaring an length in excess of this. Therefore NI Water propose the length of Water Mains to be rehabbed (Not including the Leakage Pilot) should be similar to PC15 at 771km. <i>This would be an increase of [REDACTED] to the draft determination based on the agreed unit rate of [REDACTED]</i>
39	6.12	SP8 - Low pressure development output	We applied the water mains rehabilitation unit rate to the length of mains being delivered by this project to determine a pre-efficiency allowance for PC21. This resulted in a figure which is 21% lower than the company submission. The tasks of refreshing the DG2 register, pressure logging etc. have also been included by the company in the Studies to inform project, so we have not allowed for them under this project.	Yes – Project 1953 (Studies to Inform – Water Infra) includes for the DG2 Register Refresh [REDACTED] NIW accepts the URs Determination for Mains Rehab ([REDACTED] as suitable for the 14km of mains within this project. The Determination is 14,000m [REDACTED]

40	6.124	SP8 - Studies to inform	The Studies to inform project covers a range of modelling outputs to enhance NI Water's network modelling capabilities at a cost of £6.647m. We will be seeking further information on the build-up and justification for these costs for the final determination, but for the purposes of the draft determination have allowed the submitted costs subject to the generic Reporter adjustment.	NIW challenges the application of the 6.7% reduction as the cost estimates were based on assumptions on number of resources and where available historical spend (eg ongoing model build programme), as opposed to IPAC cost curves.
41	6.125	SP8 - Studies to inform	We note that there is a risk that some of the consultancy costs associated with hydraulic and ad-hoc modelling may be embedded in the PC15 outturn unit rate as these tasks have been ongoing during PC15. If this is the case the allowances may be adjusted to account for this in the final determination.	There is no duplication of modelling activities across the PC21 projects. Project 1953 (Studies to Inform – Water Infra) is primarily the model build programme, but also for the analysis of network problems which include DG2 low pressure issues and the development of network improvement schemes. It also includes for Network Capacity Checks for new development and commencing new modelling techniques and new functionality within the Infoworks WS software. Project 2576 (AD – Asset Strategy – Water Asset Performance Modelling) focusses on the analysis of base drivers and schemes. It includes verifying and packaging Watermains Rehabilitation work packages using outputs from WIIM/DRRM, and integrating into these packages the hydraulic schemes arising from Project 1953. Project 2296 (Watermains Rehabilitation), the unit rate is agreed [REDACTED] and includes for modelling support during the design and installation of mains rehab schemes. Modelling is often required to predict the impact of backfeed options, and for scope changes as a result of the enabling works (eg diameter, length, route, downsizing at bridges due to limited cover, boundary changes).
			SP10 Ops capital (water)	
42	6.142	SP 10 - Developer Services (Mains to Housing)	6.142 The company was unable to provide information on the number of developments, or the meterage of mains laid for the developments in PC15 to date. Therefore, in order to estimate the volume of work in PC21 we used the increase in the forecasted number of new connections in PC21 compared to PC15 as a multiplier. The number of new connections was used to project costs because we found that there was a strong correlation between historic connection numbers and spend against developer services. We have informed the company that the forecasted connection numbers will be reviewed prior to our final determination so that any variations to anticipated connection numbers at the end of PC15 can be taken into account. 6.143 Our analysis resulted in a minor reduction in allowance (-2%) when compared to the costs submitted by the company.	NIW accepts the URs Determination for Developer Services (Mains to Housing) of [REDACTED] based on the current forecast of 44,400 which subject to review before Final Determination.
43	6.145	SP 10 - Reactive Lead	The company submitted a pre efficiency figure of around £2.9m to cover expenditure for this project. Given the difficulty in estimating future volumes due to the reactive nature of this work, we have based our draft determination on the average historic spend over PC15. This has resulted in a pre-efficiency allowance of around £2.2 million, which is 24% lower than the company's submission.	NIW accepts the URs Determination for Reactive Lead of [REDACTED] which is based on the average PC15 run-rate as opposed to the higher IPAC rates which include for Risk & Oncosts (26% uplift) which are not applicable to the reactive lead programme.
44	6.147	SP 10 - New Connections	6.147 To determine an allowance for our draft determination we calculated a unit rate based on the costs and volumes from PC15. We then applied this unit rate to the forecast number of new connections submitted by NI Water in its business plan. 6.148 Our resulting draft determination pre-efficiency allowance of around £14.7 million represents an 18% reduction in expenditure when compared to the business plan submission. 6.149 We have informed the company that the forecasted connection numbers will be reviewed prior to our final determination so that any variations to anticipated connection numbers at the end of PC15 can be taken into account.	The DD is based on the first 4 years of PC15 where, based on the connections volume from Table 5.3 and the costs in Table 3.3, the average unit rate of a new connection was [REDACTED]. The unit rates increased in October 2019 when Contract C665 was replaced with C936, which has higher tendered rates. The volumes and costs of New Connections since 2015/16 have been extracted from our Costs to Serve system and are included in the accompanying annex. The average unit rate for new connections in the old contract (C665) was [REDACTED] and this increased to [REDACTED] new contract (C936). Using this rate of [REDACTED] with the predicted 44,400 connections outputs a projected spend of [REDACTED] (compared to [REDACTED] as submttd in the PC21 bid), which NI Water is proposing for the Final Determination. We acknowledge that the current forecast of 44,400 is subject to review before FD. Refer to Annex 5.14 Ops Capital Water New Connections. (Note that all the unit rates above are in 2018/19 prices.)
			SP12 Sewerage	
45	6.157	SP 12 – Sewerage: Assessment of sewerage investment	Experience of previous price controls has shown that these major sewerage projects are likely to be delayed and subject to cost increase as detailed solutions are developed. Since many of these projects will be delivered in the second half of PC21, there is an opportunity for the company to undertake further analysis and assessment before we finally determine an efficient cost for these projects. NI Water Business Plan included a development objectives for the completion of this work	Refer to Annex 5.17 - Scope Certainty Exercise Submission (End Nov 2020)

46	6.158	SP 12 – Sewerage: Assessment of sewerage investment	In view of need to undertake further work to confirm the scope and costs of sewerage and wastewater treatment schemes, we expect NI Water to provide the following by the end of November 2020: • A statement of the sewerage schemes whose scope is sufficiently well developed to allow them to be included in the final determination with confidence, with an explanation of why this is the case. • A programme of further study and development work necessary to confirm the scope and costs of the remaining sewerage schemes included in its Business Plan. We plan to use this programme to define a 'development objective' for PC21 which will allow costs and outputs to be confirmed or re-determined through the Change Control process in time for the work to be incorporated in the last three years of PC21.	Refer to Annex 5.17 - Scope Certainty Exercise Submission (End Nov 2020)
			SP16 Wastewater treatment works - new starts	
47	6.167	SP 16 – Assessment of wastewater treatment investment	In view of the range detail of the business cases for other wastewater schemes in the of other Business Plan submission and the time the company has had to further develop solutions and estimates, we expect the company to provide the following by the end of November 2020: • A statement of wastewater treatment schemes whose scope is sufficiently well developed to allow them to be included in the final determination with confidence, with an explanation of why this is the case. • A programme of further study and development work necessary to confirm the scope and costs of the remaining wastewater treatment schemes included in its Business Plan. We will consider using this programme to define a 'development objective' for PC21 which will allow costs and outputs to be confirmed or re-determined through the Change Control process for works planned for the last three years of PC21.	Refer to Annex 5.17 - Scope Certainty Exercise Submission (End Nov 2020)
48	6.169	SP 16 – Assessment of wastewater treatment investment	We have accepted need and scope of the investment for study work proposed by the company. We note the proposed development objectives linked to this work and expect the company to prepare a programme of work with outputs and delivery dates in advance of the final determination	Refer to Annex 5.28 Wastewater Study Work.
			SP17 Small WWTW programme	
49	6.173	SP 17 – Small WWTW programme	The company's PC21 submission proposed delivering improvements to a further 36 works in the 20-249PE size band during P21. Three of these are to be delivered through sustainable solutions. Although the total number of outputs proposed is higher than the number of works currently expected to be non-compliant at the end of PC15, it is recognised that additional works will cross the 20PE threshold during the period and that other works already within the range may become non-compliant. We have therefore accepted the total number of outputs proposed by NI Water for the purpose of estimating costs for the draft determination. We will however review this figure for the final determination once NI Water's ongoing engagement with NIEA to agree the priority programme for the PC21 has concluded.	NI Water accept 36 WwTW between 20-249PE, as the output number for PC21, which includes the provision of 3 sustainable solutions. Although it should be noted that a meeting on the 9th December 2020 between NI Water and NIEA defined a list of 46 sites requiring capital intervention over the PC21 period. This is due to be ratified in the next coming weeks.
50	6.18	SP 17 – Small WWTW programme	However our analysis of the additional information provided indicates that 60% is a more appropriate figure for the proportion of future schemes that might require land, rather than the 75% proposed by the company. We have also not yet seen sufficient evidence to suggest that an increase beyond the original number of outputs included in the business plan is justified.	With reference to Annex 5.15 - Rural WwTW Programme Response, Table 1.1 shows that 29 out of the 38 sites require land ie 76%. Table 1.2 shows that 13 out of the 16 sites, for which the land requirement is known, require land ie 81%. These two results indicate that the 75% as proposed by NI Water, for future schemes that might require land, is a more appropriate estimation.
			SP18 Ops capital (sewerage)	
51	6.196	SP 18 - Developer services and sewer adoption	The company has recently submitted information requesting that additional costs be allocated to this area of expenditure due to changes in working procedures. We will consider this request for the final determination.	NI Water acknowledges UR's statement that they will consider the submitted information requesting additional costs. NI Water is seeking UR to approve the revised costs of [REDACTED] for Sewer Adoptions.
			SP19 Metering	
52	6.204	SP19 - Proactive meter exchange (PME)	In order to determine an allowance for PC21 we obtained an extract from the company's meter database and calculated the number of meters that would have been in service for 17 years and therefore need to be replaced within the PC21 period. We applied an uplift to account for meters that would need to be replaced because they are recording high volumes and then a reduction to account for meters which will already have been replaced through meter maintenance activity (as meters approaching replacement age are more likely to fail). We based both these adjustments on information provided by the company. A unit rate for PME installation was then applied based on outturn costs and activity volumes in the first 4 years of PC15. This resulted in an allowance which was around 16% lower than the company's submission. This difference was primarily due to NI Water not allowing for the overlap with the MMR activity in its calculations.	In the January 2020 submission, the number of meters meeting the 8000m3 volume threshold was assumed as 5% uplift of the quantity reaching 17 years (ie 5% uplift on 15,235 = 762). Therefore we included for 762 meters reaching 8000m3 volume. Post submission a bottom-up calculation using the average daily consumption suggests the number reaching 8000m3 during PC21 is 6,622 meters. We request that the UR substitutes the 5% uplift figure with 6,622 and then applies the 10% reduction for the meters which will already have been replaced via RMM. Draft determination is 16,370, add 5%, reduce 10% = 15,470 meters @ [REDACTED] [REDACTED] is suggesting 16,370, add 6,622, reduce 10% = 20,692 meters @ [REDACTED] [REDACTED] in Draft Determination is 5,222 meters or [REDACTED]

53	6.205	SP19 - Selective and new non-domestic meter installations	To determine an allowance for selective installations and new non-domestic installations, we used the projected number of installations and connections submitted in the company's business plan and applied the average unit rates of installation from first 4 years of PC15. This produced an allowance which was around 60% lower for selective installations and 70% lower for new connections. These variances resulted from the company using rates which were not reflective of PC15 actual outturn unit costs in its submission.	Selective Installations NIW accepts URs Determination for 600no meters and unit rate of [REDACTED] We accept that the unit rate used in the January Submission [REDACTED] does not reflect the actual unit rates in PC15 [REDACTED]. The overestimated rate used in the January Submission was based on the assumption that: (a) all of sites would require a toby box/chamber (average unit rate [REDACTED]) whereas during PC15 a proportion of the jobs only require a meter fit into existing box (average unit rate [REDACTED]) (b) a portion of the meters would be >=40mm whereas during PC15 the larger meter installations were undertaken under the RMM contract New Connections NIW accepts URs Determination for 2400no meters and unit rate of [REDACTED] We accept that the unit rate used in the January Submission [REDACTED] does not reflect the actual unit rates in PC15 [REDACTED]. The overestimated rate used in the January Submission was based on the assumption that: (a) all of sites would require a toby box/chamber (average unit rate [REDACTED]) whereas during PC15 only the meter fit was included in this category (average unit rate [REDACTED]) (b) a portion of the meters would be >=40mm of which a portion would require a man entry chamber, whereas during PC15 the meter installations were undertaken under the RMM contract
54	6.206	SP19 - General meter purchase	The allowance for the purchase of meters for the above installations was determined by applying the rate submitted by the company for a 'dumb' meter to the total combined number of installations from the MMR, PME, selective install and new connection activities detailed above. Our allocation allowed for an estimate of the number of MMR jobs that would not need a meter to be fitted. This resulted in an allowance which was 13% lower than NI Water's submission. This difference is primarily due to the companys allowing for fitting meters at all MMR jobs.	NIW accepts URs Determination for the volume of meters required for the four categories of BAU metering (28,064 meters) and the unit rates of [REDACTED] for small meter and larger meters as per Query Response 35, on the understanding that this is reviewed in line with the final PME volumetric meters. Since the January Submission, NIW realised that we had omitted the meters purchased for teams outside the SP19 Metering Programme and the cost of non-meter ancillary items. See Annex 5.16 Metering Programme Response, for the actual PC15 quantities/costs and our projections for PC21. The PC21 projections are summarised as follows: Meter purchased for other teams – 6,881 [REDACTED] Non-meter ancillary items = [REDACTED] Additional PME volumetric meters - 5222 @ [REDACTED] = [REDACTED] [REDACTED] the UR to increase the General Meter Purchase Determination for these additional costs (+6,881 meters and [REDACTED] of ancillary items) and also for the final PME volumetric meters (+5,222 meters).
55	6.209	SP19 - Smart meter installation for all business as usual activity	To determine the appropriate cost uplift required to fit smart meters we applied NI Water's uplift cost for installing a fully 'Smart' meter as this does not appear unreasonable. However for the final determination we will consider whether automatic meter reading installations should be subject to a different unit rate. Our determined allowance for this element of the programme is 15% lower than NI Water's submission. This is a result of our lower estimate of the number of business as usual meters required.	NIW acknowledges the URs Determination which is for the cost of AMR/Smart meters for only the BAU metering during PC21, at an uplift of [REDACTED] over the cost of the dumb meter. This [REDACTED] uplift will be reviewed to align with the latest Smart Metering Business Case. Challenging the UR's DD to include the additional PME volumetric meters (+5,222) & meters for other sub-programmes (+6,881) = +12,103 meters @ [REDACTED] NI Water is seeking UR to determine on the revised total of [REDACTED] for this project.
56	6.211	SP19 - Installation of additional Smart meters	The cost associated with this additional programme of work is significant due to the high unit cost of each installation. Is it estimated that around £6m would be required to replace these fully operational and serviceable assets (note that this differs from original submission figure of around £7.5m due to a significant element of double counting). This estimate includes around £1m for the installation of enabling IT technology and systems. The company tried to justify this additional expenditure by linking it to Opex cost savings and submitted a simple payback analysis which showed the cumulative return becoming positive towards the end of PC27 to support this. However the cost benefit analysis submitted did not appear to be correct as it did not align with proposed activity levels during PC21. 6.212 We undertook a separate cost benefit analysis which suggests that, if the company continue to replace and install only the meters required (i.e. excluding the additional 22,000), the cumulative return would become positive at the start of PC27 rather than the end, as NI Water's analysis had showed. This earlier net positive is achieved due to the comparatively lower capital outlay required and appears to represent better value for money. Adopting this policy would avoid the early replacement of fully operational and serviceable assets and would still deliver Smart meter penetration rates of around 93% by the end of PC27 which we consider reasonable.	NIW has reviewed it's proposed approach to the Smart Metering Programme. Our latest Smart Metering Business Case includes a cost benefit analysis for the full range of options from Do Nothing to replacement of the complete meter stock with AMR meters over the PC21 period in conjunction with communications to enable Smart Metering. This Business Case is being issued to the UR as part of the response to the DD and we would welcome further discussion with the UR before the Final Determination, on NI Water's proposal of the [REDACTED] this project. Refer to Annex 5.7 SMART Metering New Business Case
SP20 Management and General				
57	6.225	20c ICT Base Refresh	We believe that the [ICT Base / Refresh] expenditure should be classed as 100% base maintenance because, although new equipment may provide some minor additional benefits in terms of functionality, the customer will not receive a noticeable improvement in service. We also disallowed the requested innovation funding of £0.6m, as this appears to be a subset of contact management in Planning for the Future.	Refer to Annex 5.18 Purpose Allocation and Service Allocation Response
58	6.231	20c ICT Telemetry, Telecoms and SCADA	NI Water informed us during the query process that the expenditure in PC15 was £20.7m, but the majority of the projects are not listed in table 3.3. We were only able to identify expenditure of £12.5m during PC15 and have based our determination on this figure. This is 16% lower than the company's submission	No response required

59	6.235	20c Fleet	Given the extent of uncertainties and the speed of developments in this area, we do not believe that it would be appropriate to allow investment for a wholesale move to electric vehicles during PC21 at this stage. However, we do recognise that commercial vehicles have a finite economic lifespan and must be replaced accordingly. We have therefore included a pre-efficiency allowance of £13.733m in the draft determination with the caveat that the actual funding requirements for the final three years of the price control be assessed and determined at the PC21 mid-term review.	In November 2020, Prime Minister Boris Johnston announced that new cars and vans powered wholly by petrol and diesel will not be sold in the UK from 2030, part of the "green industrial revolution" to tackle climate change and to accelerate the transition to electric vehicles. The latest change, which revises the government's original target of 2040 by 10 years, is part of a wider plan to make the UK carbon neutral by 2050. The latest change, which revises the government's original target of 2040 by 10 years, is part of a wider plan to make the UK carbon neutral by 2050. With a fleet of circa 600 vehicles covering c2 million miles per annum, NI Water recognises the opportunity the PC21 period presents to prepare for the ban and demonstrate our commitment to nature through the adoption of low-emission vehicles. We have already undertaken two 'short-term' pilots of electric vehicles - a Nissan eNV200 in September 2017 and a Renault eKangoo in Summer 2019 – and are planning a 'long-term' pilot from April 2021 by purchasing our first EV vehicle(s) – Renault eKangoo – for use in either Silent Valley and/or along the North Coast. The close links to Energy are key and NI Water Fleet Group have been working closely with our Energy team to determine how its PC21 Energy Strategy can support the introduction and charging requirements of circa 250 alternative fuel vehicles at 50-55 depots and to manage the impact of our energy usage on the environment – other types of alternative fuel, such as hydrogen, are also being considered. Given the above and the changes in government policy between the Business Plan submission and Draft Determination until now, with the ban on the sale of traditional petrol and diesel vehicles from 2030 and the certainty of direction this sets out, NI Water is keen to retain its original proposed projections for alternative fuel vehicles at this stage to make all new LCV vehicle purchases for fleet to be zero emissions from 2026/27; • 2024/25 – 25% of new vehicles • 2025/26 – 50% of new vehicles • 2026/27 – 100% of new vehicles
60	6.236	20c Other	We have included a pre-efficiency allowance of £15.967m for the remaining projects in this programme which represents a 20% reduction against the company's submission of £20.076m.	The amount of funding within Sub-Programme 20c for the further development of Deterioration and Risk & Reliability Model has been reduced from £1.501m to £1.092m. It should be noted it is anticipated that the predicted outturn for Phase 1 is [REDACTED] and given the licensing costs alone for such products it is felt the reduction is not warranted. This reduction will affect the future development of these models to inform PC21 Base Maintenance decisions and PC27 planning capability. NI Water is seeking UR to reconsider the PC21 submitted allocation of £1.501k for this project.
61	6.236	20c Other	We largely based our allowance on the projection of historic run-rates as there was no compelling evidence submitted to justify why this should increase. We have disallowed the CPMR Re-platform project as the need to complete this project in PC21 has not been demonstrated. We will consider this further for the final determination if the company can provide additional evidence to support this investment.	CPMR : The Outturn for PC15 was affected by a running programme of PC15 transformation. We require the requested full investment of £600k to ensure that, as we continue to transform, our IT systems have the agility to transform the digital environment, in which our Data is stored and reported from, including risk and value and dashboards with links to P6. CPMR Re-platform : Updated Business Case submitted. The requested investment of £1.4m will enable the business to accurately assess the performance following change and adjust if required, to minimise disruption and maximise outcomes. Refer to Annex 5.8 - CPMR Re-Platform Updated Business Case
62	6.238	20d Estate	We are concerned that there may be an overlap between the expenditure for the Westland Campus, the proposed construction of the IOC (SP20f), Health and Safety expenditure (SP20e) and the proposed construction of new labs (SP20b). We will engage with NI Water on these issues prior to the publication of the final determination. In the meantime we have accepted NI Water's proposals subject to GRA of 6.7%	Refer to Annex 5.26 Estate and H&S Facilities Management Overlaps Response
63	6.240	20e Health & Safety	We remain concerned that there may be an over-estimation of the floor space requiring H&S expenditure, given the proposed investment on Westland campus buildings, the proposed movement of staff to Westland from other sites and the proposed construction of the new laboratories	Refer to Annex 5.27 H&S Facilities Management Update
64	6.242	20e Health & Safety	We intend to engage further with the company to establish a more accurate [H&S] figure for the final determination	NI Water will be happy to engage with the UR on this aspect.
65	6.246	20f Planning for the Future IOC	Before reaching a decision on this [IOC] project we expect NI Water to consider its approach in the light of new circumstances [Covid19] including the potential for more home working and the potential the costs of leased offices will reduce.	Refer to Annex 5.9 - PftF IOC, Energy Efficiency and EV Charging Response
66	6.249 / 250 / 251	20f Energy Efficiency	We disallowed funding for the following three projects that advocated early replacement of serviceable equipment: □ Blower upgrades □ Pumping station upgrades; and □ Generator upgrades because we are not clear that the NPC calculations support the need for this investment. Furthermore, it is not clear if any associated impacts on other sub-programmes have been taken into account. We will engage further with the company on these issues prior to completing our final determination	NIW challenge the deduction and request UR to approve the £10.47m sought in the PC21 submission.. Additional information is provided in Business Cases to confirm no overlap with Capital Maintenance and the extra over cost for the higher efficiency plant is costed within this project with a payback period of circa 7 years. Refer to the following annexes : Annex 5.9 PftF IOC, Energy Efficiency and EV Charging Response, and Annex 5.10 PftF Energy Efficiency Updated Business Cases
67	6.252	20f EV Charging	We have disallowed the funding for EV Charging on the basis that we are deferring EV expenditure until the mid-term review. We will reconsider this funding when the strategy for electric vehicles is formalised.	Refer to Annex 5.9 - PftF IOC, Energy Efficiency and EV Charging Response NI Water challenge this deduction. Given the changes in government policy between the Business Plan submission and Draft Determination, with the ban on the sale of traditional petrol and diesel vehicles from 2030 and the certainty of direction this sets out, NI Water is keen to retain its original proposed projections for EV Charging of £1.8m. Although fleet will change gradually towards Ultra Low Emissions Cars & Vehicles, the charging infrastructure must be rolled out ahead of vehicle upgrades to enable the transition. This also forms part of NIW's carbon commitment and road to zero carbon as stated in the Nature Strategic Priority part of Our Strategy 2021 to 2046 .
			SP23 Water mains new and renew	

68	6.259	SP 23 - New water main requisitions	6.259 However we did not find any robust justification for the company's allocation of 42% growth which appears excessive. This compares to a growth rate of just under 5% in PC21 based on the company's submission for the total number of new connections. 6.260 In our draft determination we have projected the historic run rate of expenditure to estimate the water main requisition allowance for PC21, but have reduced the growth uplift to align with the company's estimate of the increase in the number of new connections. This results in a pre-efficiency allowance which is around 24% lower than the company's submission. 6.261 The connection numbers in the last 2 years of PC15 will have changed from those estimated in the submission due to actual demand and the impact of COVID-19. NI Water has been working to assess the impact this might have on projections for PC21 and we will continue to engage with the company with a view to establishing an agreed set of numbers for use in the final determination. The allowance for water main requisitions will be adjusted to reflect the outcome of this process when it has concluded.	NIW accepts the URs Determination for new water main requisitions using PC15 outturn costs and applying the final agreed growth factor.
69	6.264	SP 23 - Roads schemes including public realm and diversions	NI Water's submission indicated that it had based its assessment of the PC21 investment required for public realm work of around £4.8m on historic spend. However when an exercise to map historic expenditure to PC21 project lines within this sub-programme was undertaken, no public realm work was identified. During engagement with the company, it advised that any public realm work required in PC15 had been undertaken by the water main rehabilitation contractor under sub-programme 08. This means that the historic costs have already been accounted for in our projected costs for water main rehabilitation and so we have not allowed the cost here.	Refer to Annex 5.11 - Public Realm Water and Wastewater Response In summary NI Water would ask that funding for major Public Realm schemes is reconsidered with a total estimated budget of £5.008m as detailed below. Public Realm – Water (SP23) £0.200m Public Realm – Wastewater (SP24) £4.808m
70	6.265	SP 23 - Roads schemes including public realm and diversions	In our engagement with NI Water, it indicated that it had not been undertaking some public realm improvements in PC15 due to budget constraints and that some level of additional provision might therefore be appropriate. If the company can provide evidence to support this view we will consider it for the final determination.	Refer to response to DD Ref 6.264
71	6.273	SP 23 - Trunk main rehabilitation	6.273 The company also included two general budget lines within this programme of work. • The first is for raw water trunk main rehabilitation at a pre-efficiency cost of around £1m. This is primarily to target work at raw water aqueducts and associated structures identified through investigations being carried out under a separate Water Asset Performance Modelling project. Initially the company used deterioration risk and reliability modelling to estimate the costs. However the outputs from this process were not used, as the company acknowledged that the statistical relationships to predict failure were too uncertain given the fact there is very little failure data to drive the models. The submission therefore simply represents a holding budget for potential work and has been categorised as a development output by NI Water due to the uncertainty over the exact requirements. • The second is a general pre-efficiency budget of around £2.8m for further trunk main rehabilitation work which has yet to been identified. The company has allocated 40% of this budget to enhancement in its submission. We have changed this to 7% to reflect the split of base and enhancement expenditure in the remainder of the subprogramme and the expected nature of this type work. 6.274 We recognise that further work may be required in both these areas as a result of ongoing investigations and assessments and so for the purposes of the draft determination we have included both these sums subject to the generic Reporter adjustment of 6.7%. However we will be seeking further evidence on how these budgets have been quantified prior to the final determination to establish whether they are fully justified.	Raw Water TMs - As indicated by UR a budget of █████ has been identified for Raw Water Trunk Main Rehabilitation in PC21. This is to primarily target Raw Water Aqueducts & Structures as part of a development output from Raw Water Aqueducts & Structures Investigations that are being carried out under a separate Water Asset Performance Modelling project. There are over 250km of Raw Water Trunk Mains and Aqueducts within NI Water. These tend to be older, large diameters assets which supply the raw water to the Water Treatment Works for Treatment. They are therefore a key asset to ensure the supply of clean, safe drinking water to the households and businesses within Northern Ireland. The highest risk Raw Water TMs can be seen in '201106 - Raw Water TM R&C Priority' and these will form the initial focus for the Raw Water Aqueducts & Structures Investigations with initial outputs being delivered through this project. A budget of █████ would appear to be a conservative figure for this type of activity. Further TM Work - As stated a general pre-efficiency budget of around £█████ further unidentified trunk main rehabilitation was submitted for PC21. This budget in essence equates to an extra 15% added into Strategic Mains Base maintenance to cover emerging issues that we are currently aware of but have not yet progressed to detail design. A few examples have been identified below:- <u>Foyle Road /Prehen Road</u> A recent cut out at Foyle Road ,near Craigavon Bridge in Derry ,following a burst had shown there was little or no life left in that particular section. It is suspected that these mains in the bank alongside the River Foyle may have deteriorated due to the fact that they are in the vicinity of the rising and falling water table at the river. There is potentially 2000m or more of this main to be rehabilitated This main is the key supply main from Caugh Hill to the City. Potential Cost █████ <u>Rationalising 5 Mains in the Access Road to Killyhevlin WTW</u> These mains are so closely intertwined on the Access Road and in such poor condition that there is a great risk to supply in the event of a breach Approx. Cost █████ (From draft feasibility Report) <u>Tullywhisker Newtownstewart</u> This main failed on a couple of occasions in PC15 causing large DG3 events A draft outline solution has been compiled however we are still looking at options and some further investigation Approx. Cost █████ (From draft feasibility Report) There are several more Strategic Mains to be inspected in early PC21 which may well require investment. There were several Strategic Mains interventions which arose unexpectedly in PC15, so this Budget is to allow NIW to intervene in any similar issues which may arise.

72	6.275	SP 23 - Lead pipe replacement programme	6.275 The company's submission for proactive replacement of lead communication pipes is based on a continuation of the PC15 rate of 1,844 pipes per annum. This rate of replacement has been agreed by key stakeholders. The company stated that its pre-efficient cost of £8.2m was based on average outturn costs in PC15. Our initial assessment however indicated that the unit rate and total cost submitted were significantly higher than the company's historic data would suggest. We queried this during the draft determination process and received additional information which indicated that costs had reduced significantly in the latter stages of PC15 following a retender of the relevant framework contract in 2018-19. 6.276 For the draft determination we have applied the average unit rate for replacement since the establishment of this contract to the number of communication pipes being replaced in PC21 to determine an allowance. This has resulted in a pre-efficiency figure which is around 38% lower than the company submission.	NI Water accept the DD unit rate of [REDACTED] as indicative of the outturn unit rate for a lead pipe replacement using the Water Mains Minor Works Framework in place since January 2018. We however request that an additional 12.4% is applied to this unit rate for PM overheads as per our response to Query 86. Therefore NI Water request UR to approve [REDACTED]*11,064 lead pipes = [REDACTED]. The PC21 Drinking Water Quality Group agreed that the target for lead pipe replacement would be no lower than the PC15 target.
			SP24 New and renew sewerage	
73	6.283	SP 24 - Sewerage - First time services and sewers for adoption	6.283 The company indicated it had estimated the PC21 budget requirement of £25.27m for first time services on a pro rata uplift of outturn expenditure in the first 4 years of PC15, with a 1% cumulative allowance for growth. In the absence of information on the extent of future requisitions, this approach to the assessment of costs appears reasonable. However company's business plan submission indicates that it expects the number of sewer connections to reduce by around 6% in PC21, rather than increase. The growth assumption stated for this programme of work therefore does not appear reasonable. 6.284 For the draft determination we obtained an updated projection of PC15 outturn expenditure from the company and reduced this in proportion to the anticipated reduction in connection numbers in PC21. This results in a preefficiency allowance for first time services in PC21 which is around 6% lower than the company submitted.	In our PC21 Business Plan we assumed 30.5k new household sewer connections during the PC21 period. This equates to an overall increase of almost 5%, which is just less than 1% per annum.
74	6.286	SP 24 - Sewerage – Culmore drainage area development objective	6.286 NI Water included a pre-efficiency budget of around £8.8m for work required to address capacity issues in a trunk sewer which is restricting development. The investment proposed would deliver a wastewater pumping station and just under 9km of large diameter pumping main. NI Water has acknowledged that the cost estimates are uncertain as they are based on a study completed in 2011. As a result they have categorised this as a development output and plan to complete a new drainage area plan, including hydraulic modelling, to confirm the exact requirements. This plan is ranked number one on the priority list that the company has agreed with NIEA. 6.287 For the purposes of the draft determination we have included this investment and applied the generic Reporter adjustment of 6.7% to get our preefficiency allowance. However the company should not proceed with any investment until it has completed its drainage area study, fully developed its solutions and submitted final proposals to us for separate determination. We will seek an update from the company on its programme for completing this work prior to completing our final determination.	The current programme for completing the Culmore DAP and fully developing the solutions is dependent on both DAP and IEM completion. We currently estimate returning to UR at Batch 4, [REDACTED] with the fully developed solution for review. Key milestones to this date include the Culmore DAP Model Build and Verification completed in [REDACTED] DAP only needs and options completed in [REDACTED] IEM baseline complete [REDACTED] and IEM needs and option planned for completion [REDACTED] which may impact the recommended option.
75	6.289	SP 24 - Roads schemes including public realm	NI Water's submission indicated that it had based its assessment of the PC21 investment required for public realm work of around £4.8m on historic spend. However, as with SP23, when an exercise to map historic expenditure to PC21 project lines was undertaken, no public realm work was identified. The assumption is that any relevant expenditure in PC15 would have been undertaken by the sewer main rehabilitation contractor under subprogramme 12. This means that any historic costs would have already been accounted for elsewhere in our assessment and so we have not included an allowance for public realm work within this sub-programme.	Refer to Annex 5.11 - Public Realm Water and Wastewater Response Belfast Streets Ahead Phase 3 CCTV (Cost £200k) has already identified circa £3m of work required on one of four major Public Realm schemes proposed for PC21 with additional surveys still to complete. NI Water ask that the funding for Public Realm Wastewater is reconsidered as per the original submission of £4.808m. In summary NI Water would ask that funding for major Public Realm schemes is reconsidered with a total estimated budget of £5.008m as detailed below. Public Realm – Water (SP23) £0.200m Public Realm – Wastewater (SP24) £4.808m
76	6.29	SP 24 - Roads schemes including public realm	In our engagement with the company, it indicated that it had not been undertaking some public realm improvements in PC15 due to budget constraints and that some level of additional provision might therefore be appropriate. If the company can provide evidence to support this view we will consider it for the final determination.	Refer to response to DD Ref 6.289

77	6.293	SP 24 - Roads schemes including public realm	The budget allocated for sub-programme 24 does not appear to have been estimated from activity levels, but instead appears to be the balance of the overall constrained budget following deduction of the water main element. The constrained budget for both water mains and sewers of just over £3m compares to anticipated expenditure of around £6m in PC15. For the draft determination we have followed the same approach as the company and allowed the balance of the constrained budget following deduction of the water main element. This results in a pre-efficiency allowance which is 24% lower than the company's submission due to the fact that a higher figure was estimated for sub-programme 23 based on stated activity rates. However the overall pre-efficiency allocation across both sub-programmes for railway, road and river infrastructure work remains the same as in the company's submission. The Reporter's generic adjustment has not been applied as this budget is already constrained.	Refer to response to DD Ref 6.289
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