South Staffs Water

Statement of Response

to representations on our Draft Water Resources Management Plan 2019

Cambridge region

making water count

August 2018

1. INTRODUCTION

This is our, South Staffs Water (incorporating Cambridge Water), Statement of Response (SoR) to the representations we received following publication of our draft Water Resources Management Plan (dWRMP) for the Cambridge region. We published our dWRMP for twelve weeks' public consultation from 2 March 2018 to 28 May 2018. We thank the twelve organisations that contacted us with comments, suggested changes and questions about various aspects of our dWRMP.

This SoR shows what these organisations asked us and how we have responded. In many cases we have responded to the point entirely within this document but, in other cases, we have addressed the point or made the suggested change in our revised draft Water Resources Management Plan (rdWRMP). We have published this rdWRMP alongside this SoR.

Where we have addressed the point or made a change in our rdWRMP we have referred to this in our SoR and signposted where in the rdWRMP we have made the appropriate changes. Note that we do not consider our rdWRMP to be our final 2019 WRMP. It is an update to our dWRMP but we have some steps to take before we are ready to finalise our WRMP for the period 2020-2045. In addition, we have:

- Updated other sections in the rdWRMP that we said we would update in our draft WRMP. For example, section 5.2 of our dWRMP was entitled 'Further engagement opportunities to follow'. We have replaced this with a description of the work that we have now completed
- Made changes to our plan based on customer and stakeholder preferences. For example, we have amended the narrative in our rdWRMP to include our more ambitious commitment relating to reducing average household consumption between 2020 and 2025
- Given the meaning of any acronym not previously defined and corrected spelling or grammatical errors as appropriate.

However, we have yet to complete the updates to our headroom modelling and to our WRMP tables. In addition, we have updated appendices such as our Strategic Environmental Assessment (SEA) but we would not class this as complete until we have the appropriate agreement from our regulators. Subject to this regulatory agreement we expect to finalise our WRMP by December 2018.

During August 2018 our Board of Directors have reviewed and endorsed our proposed Statement of Response and rdWRMP. We have revised our Board assurance statement accordingly and published it on our website alongside our SoR and rdWRMP.

2. CONSULTATION RESPONSES

The following organisations responded to our consultation:

Organisation	**Type of Stakeholder**
Affinity Water	Water company
Beds Cambs and Northants Wildlife Trust	Wildlife trust
Cam Valley Forum	Local interest group
Cambridge Ahead	Local interest group
Consumer Council for Water (CCWater)	Statutory consultee
Defra	Statutory consultee
Environment Agency	Statutory consultee
Historic England	Environmental group
Middle Level Commissioners	Statutory corporation
Natural England	Statutory consultee
NFU	Customer group
Ofwat (Water Services Regulation Authority)	statutory consultee

3. SUMMARY OF REPRESENTATIONS AND RESPONSES

The following tables show the consultation responses from each of these organisations and how we have responded.

Consultee	Comment	Response	How have we addressed and where is our response?
Affinity Water	We understand that CWC no longer maintain a supply that could form part of a future supply demand balance transfer between the companies at Lowerfield. This is consistent with our understanding from our pre-consultation work with CWC on options prior to the draft plan submissions. Our review of both draft plans with regard to Lowerfield and our previous email correspondence (Wed 11/04/2018) is summarised as follows: • No option for Lowerfield is contained within either of our 'preferred' company plans (DYAA/DYCP) • Where the option is selected within the CWC modelling it is in Year 55, which is beyond the planning horizon that is used within the CWC preferred plan • It is selected within the Affinity dWRMP19 alternative plan, but this is also relatively late on. The most recent discussion has involved in principle agreeing to retain the connection for a bi-directional resilience scheme in the order of 4Ml/d that could become feasible in the future. Our revised plan will therefore not include any supply demand balance scheme between the companies, but will include text that will reference the retention of the connection and a commitment to continue to explore opportunities to strengthen this connection under the resilience remit and in the future to explore alternative options (e.g. ahead of WRMP 2024).	We agree with Affinity Water that our preferred plan excludes any supply demand balance transfer between the companies. This is consistent with our draft WRMP (dWRMP), so we do not need to change our plan. We continue to explore the possibilities of bi-directional transfer facilities for resilience purposes. We are continuing to work with Affinity and other water users in the region to identify the best regional solutions for water resources planning challenges. For example, we are active members of the Water Resources in the East (WRE) regional water resource planning group.	We have responded in this SoR.

Consultee	Comment	Response	How have we addressed and where is our response?
Beds Cambs and Northants Wildlife Trust	The Wildlife Trust believes that while the broad approach to strategic water supply measures included in the Cambridge Water draft WRMP is reasonable, the scale of ambition in several areas is insufficient to address future challenges. The Wildlife Trust welcomes the proposals to reduce the overall amount of water abstracted to meet environmental protection requirements in accordance with the WINEP2.	We note the comment about the scale of ambition and respond fully below. We acknowledge the comment about overall reductions in water abstracted and we note that we are planning to meet the latest WINEP requirements, as set out in WINEP3.	We have responded in this SoR.
Beds Cambs and Northants Wildlife Trust	However, the scale of ambition with respect to reducing leakage, reducing per person water use, and increasing the percentage of households with water meters will result in Cambridge Water falling behind other water companies. This will result in increased water resource pressures in the future as the natural environment comes under further pressure from water abstraction from a rapidly increasing population and predicted climate change impacts. The availability of water resources is also likely to limit the scope for further growth in the area, as espoused by wider government policy towards the Oxford-Milton Keynes-Cambridge arc. It is difficult to see how increased growth rates above those currently planned could be sustainable or compatible with the available water resources.	Our draft WRMP shows how we intend to manage supply and demand over the next 25 years, and to ensure that that our abstractions will not impact on the environment. Although the Trust's view is that we might fall behind other companies in terms of demand management we do not agree. For example, we plan to reduce leakage by more than 40% over the 25 year period. We think this will put us in the upper quartile in the industry in terms of the proportion of our distribution input that is lost via leakage. We are planning to encourage more meter optants and already have one of the higher meter penetration rates in the country. We have also set a performance commitment (PC) over the 2020-25 period to reduce per person water use and we project that this will fall over the 25 years as a whole. We recognise that there will be future challenges in relation to having sufficient water to meet growth in total demand. However, our dWRMP shows how we will meet these challenges sustainably over the next 25 years. If regional resources need to be developed, we can agree the most sustainable solution through engagement with	We have responded in this SoR.

Consultee	Comment	Response	How have we addressed and where is our response?
		groups like Water Resources in the East (WRE).	
Beds Cambs and Northants Wildlife Trust	The Cambridge Water proposals for leakage reduction in the next AMP period are a good start and the long-term ambitions to 2045 are commendable. However, comparison with other water companies (from data gathered by the Blueprint for Water coalition), suggests that the current proposals with result in Cambridge Water slipping from having the 5th best leakage results (out of 18 companies) to 7th best by 2025.	We thank the Wildlife Trust for commending our long term ambitions in relation to leakage. We do not dispute that the Blueprint for Water coalition data may show our proposed leakage rates slipping when compared to other companies but we note that there are many different measures for leakage and different ways of 'normalising' the data to make comparisons between companies of different sizes. One method is to calculate what percentage of our distribution input or DI (i.e. the water we put into supply) is leakage. All methods of have pros and cons. For example, this method means that if we promoted both leakage reduction and customer water efficiency then the percentage of DI might not change. Whereas, if a company reduced leaks but did not encourage customers to use less, the percentage of DI made up by leakage would fall. We plan to both reduce leakage and encourage water efficient use.	We have responded in this SoR.
Beds Cambs and Northants Wildlife Trust	Likewise, the water mater penetration, although currently high and likely to increase further, will none-the-less see Cambridge Water slip from 5th best to 6th in the rankings by 2025. Another area of concern regarding the Cambridge Water plans is the very limited improvements in water efficiency (per person water consumption) predicted over both the next 5 year period and the full 25 year cycle. This would result in Cambridge Water slipping from 5th best to no better than 7th best (and possibly even worse). In one of the driest parts of the country. Cambridge Water needs to be aspiring to be one of the	Our customer research has indicated that customers do not support compulsory or change of occupier metering, and we are not classed as water stressed. This means that we cannot compel our customers to have meters. Our demand management options included enhanced meter optants, through which we will actively engage with a wider cross section of customers to promote the benefits of switching to a meter. We are trialling a 'meter my street' strategy to install meters at unmeasured dwellings when mains are replaced or rehabilitated. The data collected will help us to actively promote optants, and will allow these	We have responded in this SoR.

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	best performing water companies.	properties to become metered on change of ownership. Not only will the increased levels of metering tend to lower per person consumption but, as mentioned above, we have also proposed a more ambitious fall in per person consumption in the Cambridge zone.	
Beds Cambs and Northants Wildlife Trust	However, the per person water consumption is not just the responsibility of Cambridge Water. National planning policies are limiting the ability of Local Authorities to request the highest standards of water efficiency in new developments in Cambridgeshire. Cambridge Water is promoting a voluntary approach through their developers' forum and by show-casing best practice in grey water use with the University of Cambridge on their north-West Cambridge development. The proposal to look at differing tariffs based on water efficiency is welcome and we look forward to the development and testing of actual proposals. However, these measures are insufficient by themselves and it is essential that all new developments and individual dwellings in potentially water stressed areas are built to the highest water efficiency standards. Local authorities should be given the powers to require this and not be held back by inadequate national government policy.	We agree that per person water consumption is not just our responsibility. We also agree that new developments should be as water efficient as possible. We are not able to directly drive national policy or to give powers to local authorities but we will continue to play our part in best practice developments such as the one in North-West Cambridge. Other factors that have significant impacts on per person consumption include occupancy (i.e. how many people live in each house) and the design of 'white goods' such as washing machines. We expect that future white goods will be more efficient than current models (which will help reduce per person consumption) but we expect occupancy rates to fall. Decreasing occupancy rates will increase per person consumption but occupancy and other demographic trends are not within our control. It is also worth noting that consumption generally rises in hot, dry periods. This means that we have to account for climatic factors to see the real, underlying trends in consumption.	We have responded in this SoR.

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Beds Cambs and Northants Wildlife Trust	The fact that Cambridge Water has not been able to re-assess their water stress status is unacceptable. The Wildlife Trust does not believe that the previous Environment Agency assessment (2013) of Cambridge Water as not water stressed is accurate, having before this (in 2007) been deemed to be seriously water stressed. At the very least we would expect the Cambridge Water area to be one of moderate water stress, as there are several "unsustainable" augmentation water transfers for wetland SSSIs and rivers in place. Even if a full re-run of the assessment demonstrates no water stress now, the scale of growth and development currently underway and proposed over the next 25-30 years is likely to put significant pressure on water supplies and local rivers and wetland environments. Measures such as compulsory water metering or other approaches to demand management, to either reduce the levels of water stress or avoid them becoming exacerbated should be put in place prior to damage being done (the precautionary approach).	We note that should the Trust wish to discuss the methodology for calculating water stressed status, it should contact the EA directly. However, even if we had water stressed status it is unlikely that we would use these legal powers to compulsory meter customers. This is because the customer engagement described in section 5 of our dWRMP (and in appendix E) shows that our customers preferred an approach that encouraged rather than compelled customers to change or opt for a meter. Our current AMP6 National Environment Programme (NEP) schemes will result in further protection of river flows by restricting our abstractions at times of low flows. Our preferred plan shows that we can achieve this with minor additional supplies, an ambitious demand management programme and no undue risk to the riverine environment. Our demand management proposals seek to increase metering, reduce leakage, encourage efficient water use and all at an acceptable cost to our customers. This approach allows us to meet the demands for water from the expected growth over the next 25 years.	We have responded in this SoR and in the updated appendix E which we will publish alongside our final WRMP.

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Beds Cambs and Northants Wildlife Trust	The final area of concern for the Wildlife Trust is the relatively modest uptake of catchment management approaches by Cambridge Water. While understanding that reductions to nitrates and other agricultural chemicals in drinking water need to be reduced through engineering solutions in the short term, to meet statutory requirements, more rapid changes to agricultural practices are required to move to a long-term sustainable solution. The longer that catchment management approaches are delayed, the longer it will be before more sustainable solutions to water quality are in place. At present the polluter is not paying, rather Cambridge Water and their customers are paying through nitrate treatment plants.	Our catchment management programme has been developing in the 2015-2020 period (AMP6), with the introduction of schemes to support measures that reduce the inputs of agri-chemicals to land. Where we have had to put in treatment to remove pollutants these are needed now to deal with parameters arising from diffuse inputs over a period of many decades. We hope to be able to manage future inputs in the catchments so that further treatment in the future is not required, and that we may not need to replace treatment at the end of the asset life. Our catchments are very slow at responding to inputs so the polluter pays principle is difficult to apply in this instance, but our customers will benefit where we can reduce or remove the need for treatment in the future.	We have responded in this SoR.
Cam Valley Forum	Over abstraction is key and this is continually acknowledged by the EA and Natural England. It is recognised by the Company as well. We are in the driest part of Britain, this is well recognised also. However, good chalk streams are a nationally and a Europe-wide endangered environment. This is less well known locally, but is a threat which DEFRA at last recognises as serious. The unfortunate knock-on from poorly treated rural sewage, poor farming practice (with respect to run-off) and inappropriate land usage combining together with this over abstraction (low flows) is the resultant often 'poor' water quality in the tributary rivers of the Cam. Our highly valued ground water is polluted with increasing traces of agrochemicals. This is acknowledged in this plan. The DEFRA 25 year plan now recognises all these	Our preferred plan has incorporated the latest view of the Environment Agency on the risk of deterioration to ecology supported by the water environment from our abstractions, as set out in the latest version of the Water Industry National Environment Programmes (WINEP3). In many cases this means that we are not proposing to utilise our abstraction licence rights to the maximum. Our current AMP6 National Environment Programme (NEP) schemes will result in further protection of river flows by restricting our abstractions at times of low flows. Our preferred plan shows that we can achieve this with minor additional supplies, an ambitious demand management programme and no undue risk to the riverine environment and. The demand management proposals in our WRMP seek to increase metering, reduce leakage and encourage efficient	We have responded in this SoR.

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	scenarios. Much of the problem therefore lies with the licensing and not the water company itself. It will be more costly to correct these problems than many planners want to recognise.	water use. This approach allows us to meet the demands for water from the expected growth over the next 25 years. As well as investigating risks due to abstraction, the WINEP3 includes measures to improve chalk streams and schemes to tackle diffuse pollution through collaborative catchment management work with the farming community.	
Cam Valley Forum	Cambridge Water, for several decades now, has realised that its practice must at least threaten the environment. The ground water support provided for key wildlife sites and streams (perhaps 20% of the total abstraction) has been carried out for mitigation and to make it seem as if this is not a symptomatic indication of problem. The current Nine Wells intervention shows that this is still 'policy'. Such intervention is for, indirectly, by the company and therefore, in due course, by the consumer. It is not 'wrong' to pass on this cost but it is a practice that deceives the public, our planners and political leaders into thinking that development can proceed without environmental impact. Cambridge Water, as is shown by this plan is fully "Water wise" and we can commend them for that (WINEP/WISER, etc.), but there is a great urgency for us all in our water consuming community to act differently. Some possibly stronger steps our group have discussed. • Metering must be promoted faster (however unpopular). • The social inequalities of wealth distribution might necessitate charging more to the rich and less to the	We have worked with the Environment Agency over many years to ensure that our operations are not harming the environment, and that the mitigation measures we implement are the most appropriate, cost effective solutions. In some cases this mitigation requires river support schemes. Our preferred plan allows us to meet the demands for water from the expected growth over the next 25 years. In response to the specific points: • Metering – as mentioned in response to the Wildlife Trust, we are unable to compulsorily meter domestic customers but we have included a programme of additional promotion of our free meter optant scheme • Cambridge Water has a number of tariff options available to assist customers: http://www.cambridge-water.co.uk/customers/special-tariffs • Our customers are able to use as much water as they need and we will not penalise this. However, we continue to encourage efficient use of water through our 'use water wisely' campaigns. We also offer advice and water efficiency devices to help our customers with this • We plan to further improve our supply network and will	We have responded in this SoR.

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	poor (graduated water rating). • Excessive water use should certainly be penalised more heavily. • The supply network (old pipework) needs to be improved further. • The projected reduction in per capita supply (15%) must become a reality sooner not just as a distant target (by 2045). • The current building regulations, with respect to water use, must be sharpened up by government on new and existing homes. • Alternative water sources and water supply must be considered as a regional priority e.g. storing winter flood water and using it for supply. • Recycling of all waste water should be considered much more seriously, especially with the rising over all demand. Only with such measures will the pristine chalk water that our environment once had possibly return as a reality. Biodiversity losses can be reversed as is shown by many projects that are undertaken with the support of businesses like Cambridge Water.	replace 9.5km of mains per year between 2020 and 2025. This is an increase on the rate we are replacing them in the 2015 to 2020 period • As we described in response to the Beds Cambs and Northants Wildlife Trust comments about per capita consumption, there are many factors involved and not all of these are within our control • We also support any further improvements to building regulations water consumption targets. We have introduced incentives for housing developers to include more water efficiency in dwellings • Our draft plans have considered an array of options for water supply. We have evaluated these using a multiple criteria approach and have taken the most appropriate options forward to our preferred plan • As a water only supplier we note that Anglian Water provide the waste water services in this region. However we are actively encouraging and supporting water re-use systems, and rainwater harvesting, where appropriate, to reduce demands on potable water supply. Our WINEP3 obligations include biodiversity and environmental measures, and in our business plan for 2020 to 2025 (AMP7), we have included a measurable Performance Commitment (PC) for Environmental Improvements alongside our statutory responsibilities.	

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Cam Valley Forum	Many forces have combined to make Cambridge not just 'one of the fastest growing regions' but unquestionably the fastest growing region in Britain and, quite possibly, in Europe as well. Unless the hand of Government recognises the huge squeeze that this places on the water supplier we will just not only run out of water but also drive our water environment further from the EA targets that we can and should meet. The regulators (EA) must speak up and more openly so about the problem. Cambridge Water says "everything we do starts and ends with our customers". It is, unfortunately, not that simple unless the environment, with its own Natural Capital assets, is taken more seriously as well. This is a very good plan in many ways. It has been produced by capable and responsive people who are well aware of the issues, but the disquiet of many people in this region about unsustainable development is very real too.	Our draft WRMP shows how we intend to manage supply and demand over the next 25 years to ensure that we do not "*run out of water"* and that our abstractions will not impact on the environment. We recognise that there will be future challenges if growth continues beyond 25 years. If this happens, we expect that regional resources will need to be developed. This is why we are fully engaged with Water Resource East (WRE) regional long term project to identify the appropriate solutions and ensure secure supplies are maintained.	We have responded in this SoR and we discuss our WRE work in several sections of our rdWRMP, such as 4.3.6.1.
Cambridge Ahead	There are several useful points and a specific focus on the current and future growth in Cambridge and surrounding areas…. The section of their response states "*It is interesting to see that growth spread through all sectors and outwards across the city region. This data lends power to the argument that we need to ensure that our infrastructure can cope with the challenges that the scale and pattern of this growth brings with it.'*	Our draft WRMP shows how we intend to manage supply and demand over the next 25 years and the options to do this require limited additional infrastructure. We do recognise that there will be future challenges if growth continues beyond 25 years at a similar rate, and if this growth does continue, we believe that regional resources will need to be developed. We are fully engaged with Water Resource East (WRE) regional long-term project to identify the appropriate solutions and ensure secure supplies are maintained.	We have responded in this SoR.

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CCWater	3.1 We welcome the summary document which clearly explains customers' priorities, the challenges faced by the company, and its proposed plan of works to deliver what it believes to be the best options for water supply and demand balance, which was helped to be shaped by customers through the company's engagement.	We note this comment.	We have responded in this SoR.
CCWater	3.2 Whilst the main document is detailed, there is an element of repetition which could be streamlined for ease of readability.	One cause of this is that we have included overviews at the start of each chapter. Although we accept that this causes some repetition we feel that it also makes our plan easier to follow.	We have responded in this SoR.
CCWater	3.3 The main focus of the dWRMP is for the period up to 2045, and often the report looks at the short-term up to 2025. We are aware of other companies who have given a bigger picture of future challenges. We would like Cambridge Water to consider the impact of climate change, population growth, and supply-demand balance up to and beyond 2045. We have seen evidence of longer-term planning for climate change where the company has set out the impact to peak demand up to 2080. However, it would be valuable to have some indication of the company's view on the full extent of the time horizon covered by the Water UK sponsored study of long-term water balance.	We have used a Decision Making Framework model – applying multiple criteria to selected solutions to identify the appropriate portfolio of measures to address the supply demand balance problem. We ran this model beyond 25 years to 2080 but we constrained it by setting the latest start date as 2045 to align with the standard 25 year WRMP period. In addition, as CCWater has said, our climate change work looked forwards to the 2080s. We continue to review our WRMPs annually and fully update them every five years. We believe that our approach has properly covered the fact that uncertainties over many components increase greatly into the future. Our time scale also aligns with the WRMP guidance. Our view on the time horizon covered by the Water UK sponsored study is that it is appropriate for an indicative and high level study.	We have responded in this SoR.
CCWater	3.4 The dWRMP states that the main challenges facing the company over the next 25 years are:	We note that this is a good summary of the main challenges that we will face over the next 25 years.	We have responded in

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	• increased demand for water as a result to significant population growth (forecast 38% increase in connected properties by 2045); • the need to change the way the company extracts from its resources in order to reduce deterioration of the environment; and • to respond to customers' expectation to reduce leakage on its network, help customers save water, and better manage their water bills.		this SoR.
CCWater	3.5 The dWRMP makes clear the intention to make a transformational 15% reduction in leakage by 2024-25 in response to Ofwat's requirement on companies in its PR19 methodology. Given that leakage is a priority area for customers, we would like to see detailed evidence of the company's plans beyond this period. As leakage reduction is a key element in supply and demand balance, and is currently proving a challenge for the company, we also seek assurance that this target is realistic and achievable.	Our target of a 15% leakage reduction between 2020 and 2025 (the period we call AMP7) was ambitious and matched Ofwat's 15% expectation. In addition, we are also targeting a continued, linear reduction in leakage in the 20 years after 2025. The result of all of this leakage reduction is equivalent to a decrease of more than 40% over the 25 year planning period. We are confident that these targets are realistic and that we can deliver the reductions by 2025 and over the entire planning period. We will embrace new technology wherever possible to help us to deliver this reduction in leakage.	We have responded in this SoR.

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CCWater	3.6 It is stated that under the continuation of existing policies, the baseline supply and demand balance shows that the region would not have enough water to meet demand plus target headroom in 2020 under average conditions, but for peak conditions the company does not foresee a problem. We would like greater clarity on this as it would appear to infer that under average conditions the target headroom is more difficult to achieve than at peak conditions. We also seek assurance that the company's approach is based on robust modelling that has been assured and is realistically deliverable. South Staffs Water need to clearly explain why it believes it is doing enough to address this critical issue and that it is not putting customers' water supplies further at risk.	We described our modelling approach to resolving the supply demand balance in section 10.3 of our plan. We have discussed this approach at length with the Environment Agency. We would be pleased to host a session to describe the model in further detail. We have less headroom under average conditions as under this condition – for a dry year with unconstrained demands – the constraint on our available supply is our abstraction licence volumes and reductions to these which protect the environment. Under peak conditions, the critical period for our Cambridge water resource zone is a peak week. During this shorter period of higher demands we have more headroom because our abstraction licences allow us to abstract a higher quantity for a peak period than over a prolonged period. This means that the sum of all of our peak licensed volumes is significantly in excess of the sum of all of our annual volumes divided by 365.	We have responded in this SoR.
CCWater	3.7 From our discussions with the company and from the dWRMP, we are aware that the next 25 years and beyond will prove a challenge for the company to achieve supply and demand balance. This will require close monitoring of the key elements of its WRMP; which include reduced leakage, increased metering, greater water efficiency to reduce baseline PCC, and operating existing water sources in the most efficient way. We question why the company has not put in place policies to help elevate these issues in the current AMP period.	We agree with the point about needing to monitor the key elements of our supply demand balance closely. We already have processes in place to closely monitor changes in both the supply and demand we actually experience. For instance, we review our WRMPs annually and we track progress against our performance commitments (PCs) in AMP6 and AMP7. We have PCs for both leakage and per capita consumption (PCC). We are already elevating these issues within AMP6, so that we will be in a favourable position before the 2020-25 period begins.	We have responded in this SoR.

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CCWater	3.8 Increasing resilience, specifically relating to drought, is a priority area for customers and, therefore, CCWater. The dWRMP gives assurance that the company's analysis shows supplies are resilient for a range of droughts across the 25 year planning period, including 1 in 200 and 1 in 500 events. Cambridge Water, therefore, advises it is not putting forward any new drought management options in addition to those currently in its drought plan, but it will review this assessment when the company has greater certainty on the impact of no deterioration. We would like to see information about this review when it happens to ensure customers are appropriately protected.	Our primary assessment of drought resilience is contained within our statutory drought plan. We ran a public consultation on our drought plan in 2017 and received Defra's permission to finalise this drought plan in July 2018. The permission was conditional on our incorporating "a few additional considerations" in our drought plan. We will consult on the future revisions to our drought plan, which take place on a 5-yearly cycle. We have edited the overview in section 4 of our rdWRMP to better describe the ongoing reviews we make of drought resilience and our ability to maintain our customer levels of service.	We have responded in this SoR and in section 4 of our rdWRMP.
CCWater	3.9 We are pleased with the scope and level of customer engagement that the company has carried out. This has revealed customers priorities which are clearly set out in the summary and main dWRMP document, and has helped to shape the company's focus for the next five to 10 years and beyond.	We have noted this comment.	We have responded in this SoR.
CCWater	3.10 Whilst we are aware that the views of future bill payers have been sought by the company, we would like to see more in the final WRMP about intergenerational issues and how the proposals deliver a fair and balanced plan for current and future customers.	As described in section 5 of our rdWRMP and in appendix E, we have considered future bill payers and the associated intergenerational issues. This latest customer research was not available when we published our draft WRMP. This research included WRMP workshops and engagement events, at which 'future customers' were one of the particular demographic groups whose priorities were sought.	We have responded in this SoR, in section 5.3 of our rdWRMP and in the updated appendix E.

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CCWater	3.11 We are pleased to see that the company has approached retailers to discuss their plans to promote water efficiency with non-household customers in the open market; although it would appear customer uptake has not yet been established. We would like to understand if this position has moved forward in the final WRMP and how Cambridge Water plans to take this forward with retailers.	We have added some extra details on our work with retailers in section 3.10 of our rdWRMP.	We have responded here and in section 3.10 of our rdWRMP.
CCWater	3.12 We are aware that Cambridge Water exports a small number of bulk supplies to Anglian Water and Affinity Water, and receives some in return. We would like to see evidence that Cambridge Water has been communicating with neighbouring companies about these arrangements to achieve consistency across each of the company's dWRMPs.	We have described how we have communicated with neighbouring companies regarding bulk supplies in our dWRMP. We are unable to reproduce copies of this correspondence due to issues of commercial sensitivity and GDPR compliance. However, for additional clarity we have added a log to describe our communications with third parties over potential bulk supplies in section 10.4 of our rdWRMP.	We have responded here and in section 10.4 of our rdWRMP.
Defra	Letter dated 23 March 2018 from Dr Therese Coffey to our Managing Director noted that: "customers and government expect increasing resilience to drought and extreme weather" They are pleased that we are "planning to be among the best performers in per capita consumption and would like you to consider with your customers how to lead the way in reducing consumption further" They noted that we "responded positively to Ofwat's leakage challenge" They would like to understand how our plan "will help to deliver the government's 25 year plan for the	We agree that increasing resilience is extremely important. We have learned from the 'Beat from the East' and the hot, dry weather in 2018 how best to keep our supply on during peak demands. We have set out our proposed investment in our PR19 plans and a key part of this involves maintaining or improving resilience. We welcome the comment on PCC and we hope that our more ambitious water efficiency reduction (described in section 11.1.3 of our rdWRMP) and our plans to promote more meter optants should bring about future reductions in consumption. We welcome the fact that Defra thinks we have responded positively to Ofwat's leakage reduction challenge. In order to deliver environmental net gain we	We have responded here and in the relevant sections of our PR19 business plan and in our rdWRMP.

Consultee	Comment	Response	How have we addressed and where is our response?
	environment, in particular how it will deliver net environmental gain "Consideration should be given to increasing tree cover in your area to assist in water management".	have proposed an environmental/ biodiversity PC for AMP7. We are also expanding our catchment management programme and some of the grants that we award encourage wildlife. We recognise the importance of ensuring the sustainability of our groundwater abstractions and the implications on other users. Therefore, to address these issues, we have ensured that our preferred programme includes only those groundwater options, which have been assessed as being compliant from a WFD perspective. In response to the final bullet point, we are exploring whether we have opportunities to increase tree cover for water management purposes but we note that this is not the only way to deliver environmental benefits.	
Defra	This letter also set out expectations in relation to drought preparedness, namely: • "you need to demonstrate that you have effective plans in place, that you are checking that your plans are delivering and that you are thinking about what action you may want to take now for the longer term" You should demonstrate how you have stepped up your preparations for drought. For example, by highlighting the infrastructure that you have invested in to improve supply, how you are tackling leakage, and how you are helping households and businesses to be 'water wise'. Water companies should be making it easier for people and businesses to make water smart choices by	We have effective plans in place to ensure drought preparedness. For example, we annually review the WRMP we finalised in 2014 and send our reviews of this WRMP to Defra and the EA. One of the things we report on in this annual review is where we have invested to reduce demand and/ or increase supply. We actively engage with Waterwise to share best practice and encourage water efficiency. We provided detail on our ongoing and innovative demand management activity in the annual review of our WRMP14 that we submitted in June 2018. As we described in section 10 of our dWRMP we used a 'resilience lens' when selecting options for our PR19 plans. Our additional work on more severe droughts has given us confidence that our supplies are resilient to more extreme droughts than those historically observed.	We have responded here and in the relevant sections of our drought plan and our rdWRMP.

Consultee	Comment	Response	How have we addressed and where is our response?
	providing advice, technology and tools “	This helps us to ensure that our assets provide benefits in the short and the longer term and our preferred plan is resilient. We provided full details of our drought preparedness in the drought plans we submitted to Defra in November 2017, which we expect to finalise later in 2018.	
EA	**R1.1 The WRMP does not provide the change in annual risk of temporary use restrictions, ordinary drought orders and emergency drought orders** Linked to direction 3 (b) 'a water undertaker must include …. how it expects the annual risk that it may need to impose prohibitions or restrictions on its customers under each of those provisions to change over the course of the planning period as a result of the measures which it has identified in accordance with section 37A(3)(b)’. The company must provide detail of how the annual risk of temporary use restrictions, ordinary drought orders and emergency drought orders changes over the planning period.	We have provided the annual risk of restrictions in a new table in section 7.1.4 of our rdWRMP. We have said in section 7.1.4 that, based on there being no change to our planned levels of service, we estimate a 5% risk in each year of a TUB (i.e. a 1 in 20) and a 2% risk of a NEUB (1 in 50) and, for emergency drought orders (EDOs), we have a 1 in 100 level of service (1% annual risk). We based these risks on the assumption that we are not proposing any changes to our current levels of service in our PR19 plans and we do not change our levels of service between now and 2045. We discuss our assumptions and methodology further below.	We have responded here and with the new table and text in section 7.1.4 of our rdWRMP.
EA	**R1.2 WRMP does not provide the assumptions used to estimate the risk of temporary use restrictions, ordinary drought orders and emergency drought orders.** Linked to direction 3 (c) ' a water undertaker must include in its water resources management plan a description of the following matters - the assumptions it has made to determine the estimates of risks under sub-paragraph (b)'. The company must provide the methodology and	We have added to section 7.1.4 of our rdWRMP to describe the assumptions and methodology we used to derive the annual risks discussed above. The first step we took was to convert from a 1 in X return period to a percentage risk. We did this for TUBs, ordinary and emergency drought orders. For example, where we have a 1 in 100 level of service for emergency drought orders this converts to an annual probability of 1% (1/100). We calculated levels of service and the annual probability by using our historic design drought and our intention to meet,	We have responded here and in section 7.1.4 of our rdWRMP.

Consultee	Comment	Response	How have we addressed and where is our response?
	assumptions it has used to calculate the annual probability of temporary water use restrictions, ordinary drought orders and emergency drought orders. The company must include assumptions about the severity of drought it has used and the methodology must refer to both the annual percentage of risk over the 25 years and the changes over the 25 year period	or exceed, these levels of service in the future. Should any of these risks change during the 25-year planning horizon, for example as a result of a changing climate, we will bring in timely demand or supply side options that mean we can still maintain our customers levels of service. Our design drought is based on historically observed data but we have also modelled more extreme/ severe events as described in section 7.4 of our rdWRMP. This analysis has not changed our levels of service.	
EA	**R1.3 No numerical data on greenhouse gas emissions** Linked to direction 3 (d) ' the emissions of greenhouse gases which are likely to arise as a result of each measure which it has identified in accordance with section 37A(3)(b), unless that information has been reported and published elsewhere and the water resources management plan states where that information is available'. The company must provide in numerical format how much greenhouse gas it estimates it will emit for each measure in its current and future operations or signpost where this information can be found outside of the WRMP.	We have added a table and some new text in section 7.6 of our rdWRMP to cover compliance with direction 3(d) and 3(e). The table provides numerical data on greenhouse gases from our current and future operations as well as the assumptions we made to produce these values. We also signpost the fact that we annually report greenhouse gas emissions, as the South Staffs Group, to the EA as part of the CRC (Carbon Reduction Commitment) scheme.	We have responded here and in section 7.6 of our rdWRMP.
EA	**R1.4 Limited data on the impact of climate change impact on current and future operations** Linked to direction 3 (e) ' (i) the implications of climate change, including in relation to the impact on supply and demand of each measure which it has identified in accordance with section 37A(3)(b);'. The company must provide a quantification of the impact	We have added a table and some text in the new section 7.6.5 in rdWRMP on compliance with direction 3(d) and 3(e). This shows how we adjusted the deployable output (DO)/ yield from our selected options. We have also incorporated the impact of climate change on demand within our demand forecasts, as we described in section 6.6 of our dWRMP.	We have responded here and in section 7.6 of our rdWRMP.

Consultee	Comment	Response	How have we addressed and where is our response?
	of climate change on supply and demand for each measure in its future operations.		
EA	**I1.1 Worst historic drought/ design drought** It is not clear which drought the company is using to define dry year deployable output. It is not clear if the company is planning against the worse drought on record or what the return period for this event is. It is not possible to determine how resilient the company's supply-demand balance is to a range of droughts and that its final plan contains all the options needed to secure resilient supplies for customers in the short and long term. The company should provide clarification of how it has selected the worse drought on record and which drought it has used to define its deployable output. If the company has not used the worse drought on record it must undertake an assessment to determine how this affects the supply-demand balance and levels of service and how it will improve its plan to meet the requirement of the water resources planning guideline. For example the worse drought might vary source by source in which case better labelling of data on Source Output diagrams in Appendix K would be useful.	We assessed DO in accordance with UKWIR practice for groundwater sources. It is constrained by various factors, including licence, treatment constraints, etc. The hydrological yield does not constrain DO at the majority of sources, so selecting different and "worst" droughts makes no difference to most of the sources that make up our DO. We based our Design Drought on actual observed data, whereas the "worst drought" results were those determined using hindcasting regression to reconstruct groundwater levels based on observed rainfall. The stochastic lumped parameter modelling we did showed that the worst droughts determined from historical rainfall records (early 20th century) are of a severity equivalent to return periods in excess of 200 years in terms of groundwater yield. To better reflect our chosen levels of service, we have chosen instead to use the worst groundwater conditions observed in the historical groundwater record as Design Drought. Worst droughts do vary somewhat between sources, but this variation is minor compared to intrinsic uncertainties in yield relating to borehole and aquifer properties. It is more precautionary to base DO on assuming minimum historical groundwater drought conditions occur everywhere, but the difference compared to an overall figure for a specific severe drought is minor. The hindcast drought curve used to determine worst droughts for each source is clearly marked and highlighted	We have responded here and in the text amended in section 7.4 & 7.4.3 of our rdWRMP. We will ensure the table 10 data we publish alongside our final WRMP19 is clear.

Consultee	Comment	Response	How have we addressed and where is our response?
		in the Source Output diagrams in Appendix K. We will reflect this clearly in the WRMP tables we will publish alongside our final WRMP19.	
EA	**I1.2 time limited licences** The company has identified that there is a risk that its TLL licences may be renewed at lower volumes, but it is unclear how the company has considered this risk in its plan. This could result in a reduced supply-demand balance and put security of supply at risk. The company should amend the TLL renewal date to 2024. The company should clarify how it has considered the risk of TLLs being renewed at lower volumes and clearly show how this has been included in its plan and how it will ensure security of supply.	We have revised the renewal dates in the text of section 7.3 of our rdWRMP to reflect the licence expiry dates since applied by the EA. These were different from those applied for and stated in the draft WRMP for consultation. We have included the risk of renewal at lower volumes in our revised headroom analysis. We will describe the updated analysis in the revision to Appendix N that we will publish alongside our final WRMP.	We have responded here and in the updated appendix N, which we will publish alongside our final WRMP.
EA	**I2.1 Drought characteristics** Without additional details explaining the approach used to generate the stochastic drought events and how specific events have been selected for modelling, we cannot have confidence the drought selected are appropriate or fully review the assessment. The company should in its revised dWRMP provide: • the details of how the stochastic droughts were generated and selected for assessment • the magnitude of the historic events and how this was calculated • an explanation for how the drought severities have been calculated (D7:D11).	We have added Appendix U which explains in detail how we generated the stochastic droughts. Appendix K differs from appendix U as appendix K is a source by source review whereas appendix U specifically focuses on droughts with a return period in excess of 1 in 200 years. In summary, the approach we used to generate stochastic droughts is the same approach used in the Water Resources East (WRE) project. We used 200 sets of 91-year, stochastically generated, time series of rainfall and temperature to simulate modelled storage in the groundwater (GW) using lumped parameter models (LPMs). These LPMs calculate time series of storage from spatially-average recharge, determined from the generated precipitation and temperature series. Our stochastic	We have responded here, in section 7.4 of our rdWRMP and in appendix U.

Consultee	Comment	Response	How have we addressed and where is our response?
		methodology doesn't attempt to quantify individual events in terms of duration and magnitude. Instead, it determines the minimum modelled GW storage value in each year, ranks these by storage, and finds the storage with a 0.5% chance of occurrence in any year. The LPM modelling showed negligible difference in terms of GW storage between any drought events more severe than a 100-year return period, so we determined a single extreme drought DO for every source representative of all such severe events. Uncertainty in other aspects of yield determination significantly outweighs any variation in yield between different events. We did not use the weather generator to evaluate the impact of climate change on more severe droughts. There is insufficient evidence that applying climate perturbation factors to stochastic drought events is realistic. More sophisticated weather generators are being developed which can incorporate the effects of climate change, and we intend to make use of these for WRMP24.	
EA	**I2.2 Stochastic droughts** We cannot fully assess this section of company's table 10 assessment as there is missing data and it is not clear why the two additional drought scenarios are not included separately as outlined in the guidance (drought plan links Nov 2016). The company should include the 1:200 and 1:500 year events separately, and provide an explanation for why the DO is higher in these droughts than others in table 10. The company should also complete all rows in table 10.	We provide full details on our stochastic drought generation approach in an additional Appendix – Appendix U. This demonstrates that there is not a significantly greater impact from a 1 in 500-year event to that of a 1 in 200-year event, as determined using the Lumped Parameter Model (LPM) approach to determine recharge, or storage return. This is also shown in Figure 9 in our draft WRMP document. We have revised and updated all of our WRMP tables including table 10. We have amended DOs where necessary and completed all relevant sections in these updated tables.	We have responded here and in the WRMP tables that we will publish alongside our final WRMP.

Consultee	Comment	Response	How have we addressed and where is our response?
EA	**I2.3 Historic drought DO** Insufficient evidence has been provided to fully assess the historic droughts detailed in table 10. See I2.1. The company should provide an explanation for why the different historic droughts which have different severities have the same DO. It would also be helpful to provide clarity on which of the droughts in table 10 has been used to calculate the company's DO.	We have partly addressed this in our responses to I2.1, and I2.2 above. In addition, we note that we calculated our DO using the design drought as stated in section 7. We based our Design Drought on actual data of the worst groundwater conditions observed in the historical groundwater record. This includes the 1991-92 drought sequence, the only occasion when we had to impose a temporary use ban (TUB). We have evaluated all sources for worst case historical yield conditions. More than half of our available resource is constrained by licence and not hydrological yield, and is therefore unaffected in drought conditions. We have updated our table 10 to be clearer.	We have addressed this here and in the tables we will publish alongside our final WRMP.
EA	**I2.4 Drought permits** The details provided in table 10.5 is not consistent with the company's drought plan. The company has not explained why it has selected the drought permits listed and how they will be used and why this is not consistent with the company's drought plan. Without this information we cannot be confident the company's plan is secure against a range of droughts and if it has selected sufficient options to provide resilience and maintain levels of service to its customers. The company should provide additional clarity on the information provided in table 10.5 regarding the use of drought permits. If drought permits are needed in the company's WRMP they should also be in its drought plan - this may drive the need to revise its drought plan. The company should also consider how it can improve	As mentioned above we have updated the details in our table 10 to add clarity. We also note that the 'potential' drought permits we mentioned in the overview boxes of section 4 and section 7 are only future, possible considerations and are not included in our current WRMP or drought plans. We do not rely on these for supply demand or for our current level of drought resilience. We would prefer to secure additional reliable supplies rather than use drought permits. However, due to the unavailability of resources in, or close to, our supply area, these would need to be part of the WRE regional strategy. Hence, we have considered the potential of drought permits as an interim measure but only if we had exhausted all other possibilities.	We have addressed this here and in the tables we will publish alongside our final WRMP.

Consultee	Comment	Response	How have we addressed and where is our response?
	resilience in the long-term instead of resorting to using drought permits.		
EA	**I2.5 Incomplete critical period planning table** As per the guidance table 10 should be completed for the critical period. The company should complete table 10 for its critical period.	As requested, we have completed table 10 for the critical period.	We have addressed this in the tables we will publish alongside our final WRMP.
EA	**I3.1 Lack of description of the methods used to assess climate change** There is insufficient information presented in the plan to determine how the company has completed its assessment of climate change or if the method is appropriate. Without this information it is not possible to determine if the company's assumption about the impact of climate change on supply and options is valid or if it has over or underestimate impacts on the supply demand balance. The climate change assessment should be amended to include: • more detail to explain and justify the approach used to assess climate change impacts on DO • justification for the use of a mix of peak and average DO information • an explanation of what analysis is new for WRMP19	In order to predict the effect of climate change on groundwater levels, we developed a model to simulate yearly groundwater level minima, depending on the amount of recharge to the groundwater and the change in groundwater levels. We selected the type of model for our climate change analysis using the Decision Tree provided as Figure 3.1 of the EA Water Resources Planning Guideline document (Ref; GEHO0612BWPE-E-E, June 2012). The Decision Tree provides an indication of the level of complexity that should be considered for modelling climate change and source vulnerability. In general, we consider our sources are of low to medium vulnerability, based on the results of the most recent (2012) Source Reliable Output (SRO) studies for the sources and in previous assessments. Our climate change analysis used UKCP09 probabilistic climate change projections and a regression analysis to model rainfall/recharge and groundwater level minima. For WRMP19, we reviewed our WRZ vulnerability assessment in light of any other	We have addressed this here, in section 7.6.2 of our rdWRMP and the full details are in appendix M.

Consultee	Comment	Response	How have we addressed and where is our response?
	and what has been reused from WRMP14, and if they have been combined and show this is appropriate for the climate been combined and show this is appropriate for the climate change assessment • a description of what the highlighting used in the appendix M shows • details of the input variables used in the assessment.	changes in baseline DO. This showed Cambridge WRZ continues to be low vulnerability to climate change, hence our WRMP14 analysis remains valid, and there was no need to update. However, we will review climate change impacts once UKCP18 results are available. The mix of peak and average DO in the results table at the end of Appendix M is because results are only presented for the critical conditions at vulnerable sources (i.e. where constrained by yield). Some sources have DYAA DO constrained by an annual licence but DYCP DO constrained by potential yield, in which case we only specified the peak DO impact, and vice versa. In the summary table of Appendix M, black cells show the climate change scenario which results in minimum yield for the source. Red cells show where the minimum yield under climate change is lower than the baseline DO, such that climate change would impact DO of the source. The modelling applied 12 variables to correlate observed groundwater levels and simulate groundwater levels for climate scenarios. The variables include; soil moisture deficit, rainfall, and temperature to determine recharge for climate change projections, and observation borehole levels.	
EA	**I3.2 Chosen climate change scenario** The company states it has used the medium emissions scenario, which has the largest impact on DO. This means it may have taken a worst-case approach to climate change, rather than the medium case the company sates if has used in s7.6.3 of the main plan. It is	Whilst there is a general expectation that a High emissions scenario would be “worse” than a Medium or Low scenario, this is not automatically the case for all systems that might be affected. For example, a scenario that produced a more dramatic seasonal shift in rainfall (from summer to winter) might be more beneficial in terms of	We have addressed it here and in the updated section 7.6 of our rdWRMP.

Consultee	Comment	Response	How have we addressed and where is our response?
	not possible to determine if the company's assessment of climate change on deployable output is valid or if it has over or underestimated the impact on the supply demand balance. The company should explain and justify why it has used the scenario which has the largest impact on DO when it is stated that the medium case emissions scenario was picked to avoid choosing a 'best' or 'worse' case scenario. The company should also explain why the medium scenario has the biggest impact on DO.	Deployable Output than one with more moderate changes. The detailed results in the table at the end of Appendix M show several cases where there is an improvement in DO on moving from 2030s to 2060s to 2080s, as well as from the 10th to 50th to 90th percentiles. These results might appear counter-intuitive, but they reflect the fact that climate change may have beneficial impacts for particular sources. The reduction in WRZ DO turns out to be greater with the Medium scenario than either the Low or High, but the differences are not large. We have decided to adopt the results for the Medium emissions scenario, noting that this may be precautionary. Whilst this is the worst of the three presented, there are many other scenarios that could be selected, so it is not necessarily the worst case. Notwithstanding the above, we agree that the results appear anomalous and further comment could have been included in the dWRMP, but we would stress that the changes are small. The scale in figure 11 (in our dWRMP) makes the reductions look more dramatic than they actually are, but the Medium emissions line actually shows a decline of less than 0.05% per year. It should also be noted that this relates only to the sources that are not licence-constrained, with a combined DO of 31.3Ml/d. More than two-thirds of our DO is from sources where we expect no adverse climate-change impact. We prefer to take a precautionary approach, so are comfortable to adopt the Medium scenario even though it is slightly worse than the Low or High scenarios. The review comments included a reference to the medium emissions scenario	

Consultee	Comment	Response	How have we addressed and where is our response?
		being picked to avoid choosing a 'best' or 'worst' scenario, which appears to be a reference to section 7.6.3. The comment there was actually referring to the use of the 50th percentile rather than the 10th or 90th percentile, and not to the choice of emissions scenario.	
EA	**I3.3 Climate change projections** Insufficient evidence has been provided to fully assess the methods used to choose the climate change projections in each emission scenario and time slices in the plan. The company should provide a description of the methods used to choose the 10th, 50th and 90th percentile projections for each of the emissions scenarios and time slices used in its plan.	In order to consider the range of uncertainty associated with climate change projections, we developed 15 scenarios from the 10th, 33rd, 50th, 67th and 90th percentiles of the low, medium and high emission scenarios. We selected these scenarios based on the principles of climate change risk assessment best practice, in terms of communicating the probable range of uncertainty; however, it is worth noting that the current emission pathways are in line with the high emission scenario. Using multiple scenarios, such as the 15 described above, is the most appropriate way of making risk based decisions under uncertainty. We applied each of the scenarios to model the groundwater levels, without bias, and we used the lowest drought groundwater level (independent of scenario) to determine the "worst case" climate change deployable output. This assessment does not consider projections from the 'Very Unlikely' (less than 10% probability).	We have addressed it here and in section 7.6.3 of our rdWRMP.
EA	**I3.4 Climate change assessment methodology** Insufficient evidence has been provide to support the plans statement that a tier 3 method has been used. The company should provide additional explanation to justify its method as a tier 3 method	In response to I3.1 we have mentioned that we used a UKCP09 method to assess climate change and the reason why we used this approach. We have referred to the EA guidance from June 2016: 'Estimating impacts of climate change on water supply' when deciding on the approach to take and this states that UKCP09 methods are 'tier 3'.	We have addressed it here and in section 7.6 of our rdWRMP.

Consultee	Comment	Response	How have we addressed and where is our response?
EA	**I4.1 Resilience option SIPW** Concerns that option SIPW may not achieve the volume given and may not be sustainable. This would reduce the resilience benefit of the option and the company could require alternative options to provide resilience. The company should consider if an alternative resilience option(s) are needed. The company should include a scenario in it revised dWRMP to assess the impact of excluding SIPW to test what alternative options this may drive.	During our pre-draft consultation discussions with the EA, for example at a meeting in Northampton on 19th October 2017, this option was not screened out. We recognise that the source has not been used for a number of years, and to provide confidence in the option being included, we have undertaken modelling of the shallow aquifer to determine the likely reliable yield under drought conditions. This has satisfied us that we can achieve the DYAA licenced volume. Despite this we have considered a scenario excluding SIPW and this would drive additional demand management. This would have many disadvantages, namely we are already heavily reliant on demand side schemes so it would take our plan further away from a twin track approach. Equally importantly, the SIPW scheme brings water into an area where we know there will be high future growth. Although we can move water from other areas, the energy and carbon associated with this is less efficient than using a source in this location. We note that the more ambitious PCC reduction we have now included in our preferred plan would make up some, but not all, of what we would lose if we cannot develop SIPW.	We have responded in this SoR.
EA	**I5.1 New leakage consistency methodology** Per the leakage guidance note (August 2017), if the consistency of reporting approach cannot be used for WRMPs the plan should 'clearly set out what steps you are taking to implement the new approach, what additional data you may require to do this and when this data will be available. This may mean that you need to	We have edited section 11.1.1 of our rdWRMP to address this suggested improvement in relation to the impact of the new method on our plan. In summary the impact is not material. We have responded to the point about using up to date methods and having confidence that we can deliver our leakage reduction commitments in reply to CCWater's	We have responded here and in section 11.1.1 of our rdWRMP.

Consultee	Comment	Response	How have we addressed and where is our response?
	improve your monitoring network and the way you analyse data'. The guidance also advises that a scenario(s) be used to show the impacts of the new method for the company. Reducing leakage is a key issues for customers and government. The company needs to show that it is using the best and most up to date methods in order to provide customers and regulators with confidence that it can deliver its commitment to reduced leakage. The company should provide a summary programme of work to align with the consistency methodology including what elements of the data need to be collected and when this will be achievable. The company should report on this in it revised WRMP and update in it its annual review submission. The company should also use scenarios, as detailed in the guidance, to assess impacts from the revised approach. For example the plan should provide more information on the likely impact of the leakage reassessment using the new methodology on final target leakage and how the outcome may affect the preferred plan.	point 3.5. The new text in section 11.1.1 describes our programme of moving towards the consistency methodology (we will achieve this by 2020). We report on both the previous and the consistency methodology and provide progress against this in our WRMP annual reviews. As mentioned above the impact of the changes to the methodology is not material especially when compared with the magnitude of our leakage reduction ambitions. Therefore, the impact of the new methodology on our target leakage will not affect our preferred plan.	

Consultee	Comment	Response	How have we addressed and where is our response?
EA	**I5.2 Leakage option clarity** Without additional clarity of how the final leakage solution has been arrived at from the initial options evaluated in Appendix Q, we cannot have confidence that the preferred solution reflects the outcomes of the modelling. This reduces confidence that the company can meet the leakage reductions described in its plan and planning tables and this could have an impact on the supply demand balance. The plan should provide additional transparency of how the final leakage solution has been arrived at and ensure all relevant parts of the plan and technical reports align.	We have now described our latest customer research, which was not available when we published our dWRMP, in section 5 of our rdWRMP and in appendix E. As we describe in this revised text and in section 10 our leakage programme is driven by customer and stakeholder preference and is not part of a least cost portfolio. We think that the additional detail on customer preference now makes our decision making on leakage more transparent.	We have responded here and in sections 5 and 10 of our rdWRMP.
EA	**I5.3 Leakage cost Option 73** The company could be using out of date information. ALC technologies and contract practices may have changed over the past 5 years, and efficiencies found which would change the associated costs. The company should review the cost information and ensure it is using up to date and appropriate data to inform its plan.	Although we mentioned an active leakage control (ALC) cost relationship from our WRMP14 in Appendix Q we used 2016-17 ALC costs to derive our SELL. We will clarify the text on page 99 of section 4.4.3 in our updated appendix Q. However, as our leakage programme is driven by customer and stakeholder preference and is not part of a least cost portfolio, the cost ALC costs will not change our final WRMP.	We have responded here and will edit appendix Q.
EA	**I6.1 Scenario 1 'extreme' WINEP (Water Industry National Environment Programme)** Without further detail on how the company choose this reduction volume we cannot be sure this is a suitable scenario to test the plan. The company should provide addition details for how it developed scenario one 'extreme' WINEP and provide justification for why this is appropriate to test its plan to.	This scenario includes applying the same recent actual licence cap to two abstraction licences which have recently been renewed on a time limited basis with an aggregate volume. If the recent actual was applied to each licence in isolation, then this would represent a further reduction to DO. There are no lines in WINEP3 that include this, however, this scenario is appropriate for sensitivity testing because it represents a potential future EA approach to capping of licences in future, both permanent and time	We have responded in this SoR.

Consultee	Comment	Response	How have we addressed and where is our response?
		limited.	
EA	**I6.2 No deterioration scenario** There is significant risk that headroom on licences could be removed to cap abstraction towards recent actual rates (2005-2015) to prevent WFD deterioration. This would affect the company's supply demand balance and could drive the need for new options. We suggest the company should include a no deterioration scenario capping its groundwater sources (that are in water bodies that failing or at risk of failing WFD objective) towards recent actual abstraction rates. This would allow the company to assess the scale of the required reduction in abstraction and the, the effect to the company's supply demand balance and what options this would drive. The company should clarify if the potential need to reduce groundwater abstraction will drive any supply-demand deficits and set out how it plans to meet these. The need to reduce groundwater abstraction and limit further increases to prevent additional deterioration in water body status is a challenge shared by all companies involved in the Water Resources East (WRE) project. We support the joint work of WRE group to ensure water supplies are secure and resilient. We would expect Cambridge Water to use the outcomes of the work to fully inform its preferred plan.	Our WRMP includes WFD No Deterioration in the baseline scenario, as sustainability reductions. In the absence of any indicative sustainability changes in WINEP3 for the 'capping' of abstraction licences, we have used the figures provided by the EA for recent actual abstraction for the 2005-2015 period to derive a potential sustainability change figure. This approach was supported by the EA in correspondence of 3 November 2017, and we explained this in section 7.11 of our dWRMP. It is this adjustment to deployable output, alongside growth, that drive the baseline supply demand deficit and hence the need for the options selected in our preferred plan. We have not included any further reductions for groundwater body deterioration that may result from the Groundwater balance test as there is insufficient certainty around the likelihood or magnitude of these changes. We are a key partner in WRE and we give our full support to this project. We have used its outcomes in order to inform our preferred plan. For example, we included various WRE options within our DMF modelling (as described in section 10.5 of our dWRMP). We have presented the reasons why we have not selected these options in the third party log in section 10.4 of our rdWRMP. We note that the first phase of WRE reporting will be complete in September 2018.	We have responded here and in sections 7.11, 10.4 and 10.5 of our rdWRMP.
EA	**I7.1 Freeze-thaw and flooding resilience** If no assessment of resilience to events other than	We have assessed our resilience to events, such as freeze-thaw and flooding and described this in detail within	We have responded

Consultee	Comment	Response	How have we addressed and where is our response?
	drought has been detailed in the WRMP we cannot consider the plan is resilient to them. The plan should provide detail of the company's assessment to resilience from events such as freeze-thaw and flooding as outlined specifically in Defra's guiding principles. The company could assess the impacts of past freeze-thaw events to test its current system. Similarly, the company should assess the risks to its assets of flooding. For example it could use the 'Flood extent zones' published by the Environment Agency in 2016.	our revised dWRMP. We have learned from the March 2018 freeze-thaw event but note that when Ofwat publicly wrote to all water companies about the 'Beast from the East' it said that overall Cambridge Water "*performed well and largely met its customers' expectations*…" We also note that our flood risk assessment used EA flood risk zones and resulted in AMP6 investment. We describe our resilience to extreme events like these in more detail in section 11.4 of our rdWRMP.	here and in section 11.4 of our rdWRMP
EA	**I8.1 Current state of the environment** Without a clear future prediction of issues, we cannot be confident that the options the company has selected will be able to meet future requirements. The company should ensure that clear conclusions are made within Appendix C of the Environmental Report in relation to the future baseline, and that key points are drawn through into the Environmental Report.	Appendix C of our Environment Report does identify that an essential part of the SEA process is to identify the current baseline conditions and their likely evolution in the absence of the 2019 WRMP. It also notes that the future baseline is not a 'do nothing' option with respect to water resources planning. Each SEA topic in Appendix C includes a section on the future baseline. We have reviewed this text and clarified the conclusions in Appendix C of the SEA Environment Report. We have included the key points from the updated Appendix C in our SEA Environmental Report.	We will address this in our updated Environ-mental Report.

Consultee	Comment	Response	How have we addressed and where is our response?
EA	**I8.2 How the SEA has influenced the development of the plan** Without a clearly defined pathway for option selection it isn't clear how environmental assessments have influenced the plan. The company should provide details on how the environmental assessment was taken into account and how it has influenced option development and selection. For example, the company could provide some examples of where options were changed/refined as result of the SEA and how this has improved the environmental performance of the plan.	As mentioned in section 2.7.1 of our dWRMP, we used our strategic environmental assessment (SEA) to develop our preferred plan. In section 10.4 of our dWRMP we stated how we developed options using a dual streamed process from unconstrained through to constrained. We used the SEA to screen out options but, as our preferred plan includes a high volume of leakage reduction and demand side schemes, its impact is less obvious than would have been the case if we had a plan with a large number of supply side schemes in the constrained list and/or preferred plan. Section 5 of our Environmental Report describes how we took the environmental assessment into account. It also shows how the SEA influenced option development and selection regarding moving from the unconstrained option set to the constrained list and moving from the constrained list to the feasible list, as per Figure 1.2 of the SEA report. This includes examples of the options removed from the final lists (unconstrained/ constrained). Section 7 of the Environmental Report describes how the SEA influenced the development of the plan in terms of programme appraisal. We have provided further detail, especially to Section 7, to provide a better narrative and more clearly highlight how the SEA has influenced and improved the environmental performance of our WRMP19.	We will address this in our updated SEA.
EA	**I8.3 Cumulative effects** If the methodology used to assess the cumulative effects is not clear and we cannot be certain that they have been adequately calculated. The cumulative effects of the	We agree that the SEA that accompanies our final WRMP should fully and clearly account for any cumulative effects. We are updating the cumulative assessment approach (detailed in Section 4 of the Environmental Report) to	We will address this in our updated

Consultee	Comment	Response	How have we addressed and where is our response?
	dWRMP is also unclear. The SEA should state clearly how cumulative effects were calculated or have been discounted. A table would be useful to show the interactions and describe where cumulative effects occur. The SEA should also outline the cumulative effects of the company's preferred programme For example section 8.1 could be better labelled as a cumulative effects assessment of the preferred programme, with a cross reference to figure 7.2 where the effects of the preferred programme are shown visually. Where cumulative effects are mentioned in section 7, the company should ensure that it is clear as to what the statements are referring to and how they are derived.	make better reference to the methodology adopted in final WRMP19. We will update sections 6, 7 and 8 to state clearly how we considered cumulative effects in our updated Environmental Report. We developed a matrix for inclusion to show the interactions between each option on the feasible list, this helped demonstrate the conclusions made in the Environmental Report. Now that there is a greater level of information available regarding neighbouring water companies plans our SEA includes a review of the cumulative effects of our actions with those of neighbouring water companies using the most up to date information. We reviewed other local plans and projects to ensure updates have been captured in our SEA Environmental Report.	SEA.
EA	**I8.4 Monitoring plan** Ownership of monitoring needs to be clarified in order to ensure remedial actions are taken in a timely manner. Without monitoring targets beneficial or adverse changes cannot be verified. The SEA should state clearly the ownership of the monitoring plan and provide general targets to be achieved whichever emerges as the preferred option route, in addition to the information currently presented. It would also be beneficial to note sources of data.	We have a monitoring plan that relies in part on monitoring that we pay for and also draw on monitoring that the EA funds. We regularly engage with the EA areas to discuss current and future monitoring to ensure that we do not duplicate each other. We are committed to engaging with the EA to ensure that, between us, there is sufficient monitoring to establish a baseline and to detect any potential changes to that. We have improved the monitoring section (Section 10) to better describe this process in our Environment Report. This includes targets, where appropriate, stating clearly the ownership of the monitoring and what steps will be taken if remedial action should be required during the implementation of WRMP19. We will share our updated SEA with the EA once it is ready and, when it is complete we will publish the final	We have addressed this here and also in our updated, final SEA.

Consultee	Comment	Response	How have we addressed and where is our response?
		version alongside our final WRMP.	
EA	**I9.1 Double counting savings** If savings from water efficiency measures (baseline and options), have been double counted this could affect the final plan options savings and impact the supply demand balance. The company should confirm how it has taken into account the expected water efficiency savings of its current policy to ensure that there is no double counting of demand savings.	We have been careful to ensure that there is no double counting in our revised demand forecast. We have included the 'baseline' water efficiency activities in the baseline forecast. This accounts for 'baseline' activities and external influences such as new technology (white goods), changes in WC cistern flush volumes and behaviour change. The baseline activities are limited to customer communication and engagement, and providing access to free water saving devices. In developing demand management options we take account of the baseline activity to ensure no double counting. The example the EA referred to quotes the 'Household WEFF programme company-led plumber install'. This option cannot double count the savings for two main reasons: the baseline activity does not include plumber-led water saving installations, during a plumber-led installation only water devices that are relevant to the property are installed. For example, if a customer already has a save-a-flush installed, then a second save-a-flush will not be installed in the same cistern.	We have responded here as well as incorporating it in our new demand forecast and the associated WRMP tables.
EA	**I10.1 Willingness to pay** The company has not completed its willingness to pay survey in time to inform its plan and has therefore only partially considered its customer views in its decision making. The company should ensure its plan delivers the	We have completed two waves of willingness to pay (WTP). We have described this in detail within our updated appendix E. This updated appendix describes all of the customer engagement work we have done and not just the WTP work. We have also updated section 5 of our rdWRMP and table 8 in our rdWRMP contains our WTP values. Despite this we will not be able to enter them in	We have responded here and also within the updated section 5 of rdWRMP and

Consultee	Comment	Response	How have we addressed and where is our response?
	outcomes its customers want and show how it has considered the views of its customers in developing its preferred strategy. The company should compete its willingness to pay survey in time to inform its revised draft WRMP, and should also complete table 5 in the water resource planning tables with this information.	WRMP table 5 on an option by option basis. This is because we asked our customers about their willingness to pay for outcomes and not specific options. We described how our multi criteria approach (MCA) moves away from using only monetised values and trying to find a least cost plan in section 10 of our dWRMP. So, all of the quantitative and qualitative customer engagement work tells us, for example, how customers value a change in the frequency of drought restrictions but not the monetary value they assign to any specific option. One of many improvements to our engagement was that for this plan we asked customers to critique our definitions before giving their WTP values.	in the new appendix E.
EA	**I11.1 Outage allowance** High outage reduces the company's resilience to drought and non-drought events and may drive options which are not needed. It is not clear what the main causes of outage are for the company. The company should explain why it has a high outage allowance as a % of WAFU. The company should also consider the need for options to reduce outage. The company should provide details of the main causes of outage and how it will mitigate these.	We have derived the outage allowance included in our dWRMP using the approach specified in the Water Resources Planning Guidelines [WRPG] (UKWIR: Outage allowances for water resources planning). We described our approach, which uses failure events data to model the outage, in appendix L. We have historically had a higher than average outage allowance on the basis that the outage was broadly equivalent to the loss of a significant single source. However since moving to a probabilistic model approach, the allowance has progressively reduced as historical events are excluded from our modelling as a result of the investment we have made at different sites. We consider that our approach is robust and appropriate but, before we produce our final WRMP, we will review our outage allowance to ensure it doesn't drive options unnecessarily. Following this review our outage allowance	We have responded here and will edit the tables, narrative and appendices that accompany our final WRMP if necessary.

Consultee	Comment	Response	How have we addressed and where is our response?
		may reduce, which would make it more consistent with the industry average % of WAFU.	
EA	**Issue 12.1 Demand ambition** PCC is high compared to other water companies at the end of the 25 year planning period. However an error in the table may be affecting the company's final PCC value - so we cannot yet be sure what the final PCC is. The company should re-calculate its final PCC in its planning tables after amending the issue described in I13.3, and review its level of ambition to reducing PCC over the planning period based on this new value.	We have commissioned consultants, Artesia, to produce a revised demand forecast (rebased on 2017-18) for our final plan. When this and our headroom modelling are complete we will populate the latest version of the EA tables, which will ensure the issue described in I13.3 is addressed. As we populate the new EA tables we will audit the data and ensure that all parts of the tables are updated correctly. Section 3.12 of our dWRMP describes our WRMP governance and assurance. In addition, we have reviewed our level of ambition on PCC and, as shown in section 11.1.3 of our rdWRMP we are now proposing a more ambitious AMP7 PCC target.	We have responded here in section 11.1.3 and in our final WRMP tables.
EA	**I13.1 Type of Option** It is not possible to compare option costs with other company option costs by type of option. Need to enter Type of Option for all options.	We will provide this information in our final WRMP tables.	We will do this in the tables that accompany our final WRMP19.
EA	**I13.2 Adjustments to final plan Total Water Available for Use** The values for 7FP and 13FP will be less comparable with other water company values. The company should update the Table formula in accordance to the guidance provided.	We will address this in our final WRMP tables, which will use the latest version of the EA tables.	We will do this in the tables that accompany our final WRMP19.

Consultee	Comment	Response	How have we addressed and where is our response?
EA	**I13.3 USPL Option Table error** This error was unfortunately not picked up so there is a 0.1-1.5% error in the company's tables. The company should update the Tables for final plan so USPL options are incorporated into the final supply demand balance. The company should ensure that associated parts of the tables (e.g. Final Plan PCC) are correctly updated also.	As we stated in response to EA point I12.1 we are populating the latest version of the EA tables, which have been corrected. This will address this issue.	We will do this in the tables that accompany our final WRMP19.
EA	**I13.4 More than 3% difference than sum of the micro-components and report PCC values** Where there is a > 3% difference micro-component values are potentially misleading when comparing with other companies and do not reflect the full breakdown of the PCC. The company should review the micro component values to bring the difference down to below 3% for those values affected.	We thank the EA for this comment and, when we have fully updated table 8 of our WRMP tables, we will check whether there are any differences of this magnitude.	We will do this in the tables that accompany our final WRMP19.
EA	**I13.5 Measured Void Property** Total properties value is incorrect, impacting upon leakage (l/prop/d) 41BL. The company should include void properties in calculation of 48BL.	We thank the EA for this comment and, when we have fully updated our WRMP tables, we will ensure that there are no incorrect values.	We will do this in the tables that accompany our final WRMP19.
EA	**I13.6 Option costs method in Table 6** The cost information provided could be incorrect. The company should update the cost calculation to match Table 12.	We have not provided cost information in table 6 within our dWRMP nor within tab 6 of the WRMP tables. Nor are there any costs in table 12, so we are not able to address this point.	We have responded in this SoR.

Consultee	Comment	Response	How have we addressed and where is our response?
EA	**I14.1 difference in climate change headroom component** There is potential that the climate change component of headroom has been assessed incorrectly. The company should review its climate change headroom component in comparison to other water companies.	We have reviewed the climate change component of headroom we have used in comparison with all other water companies. We do not think that our assessment is incorrect but we acknowledge that a comparison of this element of target headroom as a % of DI shows that our values are low nationally for both regions. We are confident in our approach and we note that it is extremely unlikely that comparisons of this sort will not highlight some differences in approach. As we are re-running our headroom model to incorporate some of the new information we have gathered since publishing our dWRMP for consultation it is possible that the climate change component we use in headroom may change. We think our assessment of tis component is robust but we would happily address any further queries that the EA has as part of our ongoing WRMP dialogue.	We have responded in this SoR.
EA	**I15.1 Unmeasured Household consumption** Our analysis suggests that if the company's unmeasured PCC was in line with the industry average this could affect the company's supply demand balance. The company should provide in its revised draft WRMP a clear justification as to why its unmeasured PCC falls as quickly as it does which contradicts the industry average.	We have commissioned consultants, Artesia, to produce a revised demand forecast (rebased on 2017-18) for our final plan. When this and our headroom modelling are complete we will populate the latest version of the EA tables. We expect that this revised PCC forecast will not show any unusual trends (also refer to our response to EA issue 12.1).	We will do this in the tables that accompany our final WRMP19.
EA	Separately to its main response the EA provided us with several comments in what it described as its ‘minor issues report’.	We thank the EA for these and we have addressed them as necessary in our final WRMP.	We have responded here and as relevant in our WRMP.

Consultee	Comment	Response	How have we addressed and where is our response?
Historic England	We welcome reference to our previous consultation response on page 21 and 22. However, we see little evidence that our advice has been incorporated into the Plan as there is almost no reference to the historic environment.	We have considered the historic environment in our strategic environmental assessment (SEA) which supports the plan and assesses the potential environmental impact of our proposals.	We have responded here and in our SEA.
Historic England	The reference to English Heritage on p23 should be changed to Historic England, our new name since 2015.	We have changed this in section 2.3 of our rdWRMP.	We have corrected our rdWRMP.
Historic England	We note that the plan states that it is proposed to invest in new treatment processes at 3 of the groundwater sources at KIPw2, CRPW2 and SIPW. However, we were unable to find reference in the documentation as to where these are located. Without such details, or knowledge of the extent of the proposed works it is difficult to comment in detail as to whether or not this will affect the historic environment. We also note that there are also proposals for HEPW and RIPW. Again the geographical locations of these are unknown and so we are unable to provide detailed comments in this respect.	Our security assessor, acting on Defra advice, has advised that we should not include locations of sources and treatment works in our publicly available WRMP documents. However, we note that KIPw2, CRPW2 and SIPW involve investment at sites that we already own and have previously used for public water supply purposes. As part of our scheme feasibility we would consult Historic England if there is potential to affect the historic environment.	We have responded here and in our SEA.
Historic England	All heritage assets, both designated and undesignated, are vulnerable to being harmed by infrastructure developments. In the course of your operations, we trust that you will consult the historic environment record held at Cambridgeshire County Council and seek the necessary advice from the relevant local authority conservation officers to ensure that impacts on heritage assets are avoided or, where this is not possible, mitigated.	For new proposed options we will undertake appropriate assessment for the detailed scope and planning of any works and consult with Historic England, and/or other bodies as appropriate. We will also consult the historic environment record as part of the preliminary screening of options, and seek the advice of historic England or conservation officers where appropriate.	We have responded in this SoR.

Consultee	Comment	Response	How have we addressed and where is our response?
Historic England	Buried archaeology is especially vulnerable, and specialist advice should be sought, as appropriate, in areas of known, or potential, archaeological significance. Consideration should be given to the most appropriate course of action to protect buried waterlogged archaeology in a drought scenario and through increased water extraction. Waterlogged deposits, such as peat have the potential to preserve organic remains that are relatively rare in the archaeological record. They are of great importance for the information they provide about everyday objects such as drinking and eating vessels (wooden bowls, leather bottles, horn cups), clothing (fabric, shoes), modes of transport (boats, trackways) and equipment of subsistence (fishtraps). To maintain the preservation of organic materials, it is essential that the conditions which contributed to their survival (waterlogged; anoxic) remain the same. While saturated with water, oxygen is excluded which limits the presence/action of most soil fauna (insects, moulds, and micro-organisms) and fungi which feed on organic matter. The lowering of the water-table in an area could result in the remains becoming exposed to oxygen, which can enhance the degradation and loss of any remains that are present. We suggest that a strategy is therefore needed that discusses how these sorts of sites will be managed in the proposed Water Resources Management Plan, which makes reference to the Historic England 'Preserving Archaeological Remains' guidance (2016):	For any works where potential underground archaeology may be present, we would seek specialist advice before disturbing previously undisturbed ground. Our abstractions, even in drought conditions, would not further lower the water table in areas where there is the potential for waterlogged archaeology, as they only affect the saturated zone in the chalk. Our SEA (appendix A to our dWRMP) considered the impacts highlighted here for every option. We note that our assessment framework included the key questions: 'Will it maintain and enhance the historic environment, including palaeo-environmental deposits?' and; 'Will the hydrological setting of water-dependent assets be altered, such as important wetland areas with potential for palaeo-environmental deposits?'). We document this in the full assessment matrices in Appendix D of our SEA Environmental Report. Due to the high-level nature of the SEA we could not review details of buried assets that did not form part of the established baseline. However, we have updated the monitoring section with respect to buried archaeology where relevant in our revised Environment Report. We provide further detail on how we manage our system during droughts in our drought plan.	We have responded here and in our SEA.

Consultee	Comment	Response	How have we addressed and where is our response?
Historic England	Figure 28 on p 153 provides a summary of the Strategic Environmental Assessment. Given that all options would appear to be neutral, it is difficult to tell whether due consideration has been given to the impacts on archaeology and cultural heritage.	Figure 28 provides a summary of how we have considered impacts on archaeology and cultural heritage in the Environment Report. It should be noted that our Environmental Report and in particular Appendix D of our Environmental Report document full details of the assessment. We have added a key for Figure 28 and effective sign posting to enable the reader to find the relevant information in our updated SEA.	We have responded here and in our updated SEA.
Middle level com-missioners	*(Note: these comments were made for the pre-consultation on the dWRMP)* Being within East Anglia, and thus within the driest part of the UK, the Commissioners' catchment is in an area of serious water stress. Some of the key resources of raw water are considered to be close to their abstraction limit and any growth and increase in population will further exacerbate this issue thus adversely affecting ecosystems and other users reliant on these sources.	We have reviewed the CAMS documents in developing supply side options and have not included any surface water options in our preferred plan. None of our proposals have an adverse environmental impact. Our preferred plan shows that we can meet the demand arising from forecast growth with minor additional supplies (which do not pose a risk to the riverine environment) and an ambitious demand management programme. Our demand management proposals seek to increase metering, reduce leakage and encourage the wise use of water use, all at an acceptable cost to our customers. Our WRMP shows how we will meet the demands for water from the expected growth over the next 25 years.	We have responded in this SoR.
Middle level com-missioners	• The water supplied by boreholes does not have an adverse impact on the Commissioners' area. • It is believed that growth and development must consider the whole water cycle, giving serious consideration to providing potable water "at source". • From the perspective of the Commissioners and the relevant Boards within its catchment, water resource is an issue.	We thank the commissioners for this comment.	We have responded in this SoR.

Consultee	Comment	Response	How have we addressed and where is our response?
Middle level commissioners	Pleased with requirements that minimise potable water use. However, given the current financial climate and the view held by most developers, it is considered that funding from an external source will be required.	We have noted this comment.	We have responded in this SoR.
Middle level commissioners	Whilst it is appreciated that the installation of a new pipeline is feasible it can require the consent of many authorities and is often viewed by them as a liability. Therefore, the long term consideration of alternative water supply locations, needs to be given serious consideration.	Our plan does not propose any new pipelines.	We have responded in this SoR.
Middle level commissioners	The Commissioners and associated Boards promote the use of rainwater collection and grey water recycling, particularly if drought conditions become more regular and the impact of climate change becomes a reality, but consider that such systems should be in addition to but not replace or form any part of a surface water disposal system.	We agree that rainwater collection and grey water use could become increasingly valuable in a changing climate. We note that we have collaborated with Cambridge University on the North West Cambridge development at Eddington to install large scale rainwater harvesting. We mentioned this in our dWRMP, for example in section 1.5.	We have responded in this SoR.
Middle level commissioners	Many of the rivers and most of the other watercourses within your area of supply are not natural but man-made, primarily within the last 600 years. Most are open and not piped or culverted, or otherwise 'modified' and, with the exception of those within the towns or villages, not urbanised, therefore, re-naturalisation cannot be undertaken. These requirements do have a place but it must not be at the expense of making our watercourses unmaintainable or at increased flood risk.	We do not propose any channel modifications in our plan	We have responded in this SoR.

Consultee	Comment	Response	How have we addressed and where is our response?
Natural England	**1: Habitats Regulations Assessment** Regulation 9 of the Conservation of Habitats and Species Regulations 2017 (S.I. 2017/1012) requires every competent authority, in the exercise of any of its functions, to have regard to the requirements of the Habitats Directive. Regulation 10 places a duty on a competent authority, in exercising any function, to use all reasonable endeavours to avoid any pollution or deterioration of habitats of wild birds. In addition, regulation 63 places obligations on competent authorities in respect of plans or projects likely to have a significant effect on a protected site. Water Companies have a statutory duty to prepare WRMPs and so they are the Competent Authority for Habitats Regulations Assessment (HRA) of the dWRMP. In England, as a matter of policy, sites listed or proposed under the "Ramsar Convention on Wetlands of International Importance" receive the same level of protection as European sites. We note that the assessment has concluded no Likely Significant effect both alone and in combination with other plans. The company should reconsider this conclusion once they have been able to consider the plans of neighbouring water companies and those that take water from similar sources	We have updated the in-combination assessment in our HRA and reviewed any updates since we produced the HRA for our draft WRMP. We have taken account of the effects of our plan 'in combination' with the plans of neighbouring water companies now that there is greater level of information available regarding those plans. In summary, we have revised the relevant sections of our HRA report and will subsequently share this updated version for our final WRMP19.	We have addressed this in our updated HRA.
Natural England	**2: Strategic Environmental Assessment** The European Commission Directive 2001/42/EC "on the assessment of the effects of certain plans and programmes on the environment" is known as the 'SEA	The schemes selected in our preferred plan are those that have the least environmental impact. In addition to the SEA, all of the schemes evaluated in our Decision Making Framework (DMF) modelling were allocated a	We have addressed this here and in our

Consultee	Comment	Response	How have we addressed and where is our response?
	Directive'. It requires "an environmental assessment is carried out of certain plans and programmes which are likely to have significant effects on the environment" (EC, 2001; Article 1). The provision is explicitly applied to plans made for "water management". The SEA has taken a logical approach to the consideration of impacts although it is not clear how this has affected choices of schemes. The plan should be seeking to ensure that the company achieves a net biodiversity gain over the entire plan programme. It is encouraging to see the company referring to its own Biodiversity Action Plan but we are yet to see this document and are therefore unable to understand how the proposals in the WRMP will contribute to its delivery.	biodiversity/environment score for the selection process. Our WRMP should be considered alongside our PR19 business plan for the delivery of the schemes. We do not currently have a BAP, but instead a Biodiversity Strategy that provides a framework for the delivery of biodiversity improvements to meet both statutory and non-statutory requirements on our own land and elsewhere. The aim of the strategy is to achieve a net biodiversity gain, and we measure our performance in this area with the current Biodiversity Outcome Delivery Incentive (ODI) measure. We are also including a more ambitious environmental Performance Commitment (PC) in our PR19 plans. Section 7 of our Environmental Report describes how the SEA influenced the development of our plan in terms of programme appraisal (as per Figure 1.2). We provided further detail in Section 7 to highlight how our SEA influenced and improved the environmental performance for our WRMP. We have updated our Environmental Report with respect to avoidance/minimisation of biodiversity impacts identified for the options selected in our preferred plan.	updated SEA.
NE	**2.1 Sites of Special Scientific Interest (SSSIs)** Section 28G of the Wildlife and Countryside Act 1981, as inserted by section 75 of and Schedule 9 to the Countryside and Rights of Way Act 2000, places a duty on public authorities, including water companies, to take reasonable steps consistent with the proper exercise of their functions to further the conservation and enhancement of SSSIs. These duties are mirrored in the	Our WRMP includes measures implemented through the WINEP to ensure that our operations and abstractions do not impact on SSSIs in our area. Our proposed Environment Performance Commitment (PC) will allow for further improvements and enhancements to be made to biodiversity and SSSIs in our area of supply as well as future catchment management work.	We have responded in this SoR.

Consultee	Comment	Response	How have we addressed and where is our response?
	general recreational and environmental duties placed on relevant undertakers in the Water Industry Act (1991) as amended. The Water Industry Strategic Environmental Requirements (WISER, page 29) sets out the expectations for delivery of these obligations. Companies are expected "to contribute to maintaining or achieving SSSI favourable condition both on [companies'] own land and in the catchments [companies] manage or impact on". The rate of improvement going forwards is set out in the Defra 25 Year Environment Plan which aims to restore "75% of our one million hectares of terrestrial and freshwater protected sites to favourable condition, securing their wildlife value for the long term".	We own part of an SSSI, Fowlmere Watercress Beds, which is managed by the RSPB, and is currently classified as in Favourable condition. With the EA we have assessed further SSSIs within catchments that we operate in for impacts from abstraction in the previous NEP with the EA and found no issues of concern. As these sites are owned and managed by third parties, we cannot directly influence condition improvements, however we are open to working collaboratively to do so. We wrote to the EA on 14 August 2018 clarifying what we plan to do in relation to our WISER obligations.	
	2.2 Impacts on landscape Relevant Authorities (including water companies as a Statutory Undertaker) are to have regard to the purposes of National Parks (Section 11A (2) of the 1949 Act) and the similar duties towards Areas of Outstanding Natural Beauty (AONBs) (Section 85 of the Countryside and Rights of Way Act 2000) and the Broads (Section 17A of the Norfolk and Suffolk Broads Act 1988). Duties to further the natural beauty and rural amenity are also included within the general recreational and environmental duties placed on relevant undertakers in the Water Industry Act (1991) (as amended). Protected landscapes are central to the delivery of aspirations in the Defra 25 Year Environment Plan to enhance the beauty, heritage and engagement with the	There are no National Parks, Areas of Outstanding Natural Beauty (AONBs) or Broads affected by our operations as a water undertaker in our Cambridge WRZ. Cannock Chase AONB is within our South Staffs region area of supply. We have given additional information in the Environmental Baseline regarding Cannock Chase AONB in our South Staffs assessments. We have updated our Environmental Report with reference to Defra 25-Year Environment Plan. Our SEA (and WRMP) only consider new sources of supply/additional demand side options to meet the supply demand deficit identified.	We have addressed this here and in our updated SEA.

Consultee	Comment	Response	How have we addressed and where is our response?
	natural environment. Your operations include a large part of the Cannock Chase AONB which does not appear to be considered in the plan. The Sea only considers new sources of supply/additional demand side options. There may be potential for existing water resource assets to be improved to reduce their impact on the landscape.		
NE	**2.3 Biodiversity** Under Section 40 of the Natural Environment and Rural Communities Act 2006 every public authority, including water companies, must in the exercise of its functions have regard so far as is consistent with the proper exercise of those functions to the purpose of conserving biodiversity. Conserving biodiversity in this context includes restoring or enhancing a population or habitat. WISER (page 30) states water companies are expected "to develop measures during the price review to contribute to biodiversity priorities and obligations on [companies'] own land or in the catchments [companies] influence and operate in". The Defra 25 Year Environment Plan states "We will achieve a growing and resilient network of land, water and sea that is richer in plants and wildlife this includes: • […] Creating or restoring 500,000 hectares of wildlife-rich habitat outside the protected site network, focusing on priority habitats as part of a wider set of land management changes providing extensive benefits and • […] Taking action to recover threatened, iconic or economically important species of animals, plants and fungi, and where possible to prevent human-induced	As mentioned above, we wrote to the EA on 14 August 2018 clarifying what we plan to do in relation to our WISER obligations. We note that our biodiversity action plan has now been superseded by our biodiversity strategy. This biodiversity strategy provides a framework for the delivery of biodiversity improvements to conserve biodiversity and habitats as well as increasing biodiversity on our own land and elsewhere. Our biodiversity strategy's aim is to achieve a net biodiversity gain, and we measure our performance in this area with our AMP6 Biodiversity Outcome Delivery Incentive (ODI) measure. We note that our bespoke AMP7 performance commitment (PC) for an "area of land that we actively manage to protect wildlife, plants, habitats and catchments" will help us to achieve a net gain on biodiversity. This builds on our strategy as it also brings in the benefits of our catchment and WINEP work.	We have addressed this here and in our updated SEA.

Consultee	Comment	Response	How have we addressed and where is our response?
	extinction or loss of known threatened species in England and the Overseas Territories. The company is in the process of developing its own Biodiversity Action Plan and this should be seeking to deliver Net Gain given the above government targets and Wiser obligations. There are several partners the company should be seeking to work with to develop landscape scale options such as Local Wildlife and River Trusts, RSPB and the Local Environment Partnership.	We have updated section 7 of our SEA Environmental Report to present strategic opportunities for Net Gain of biodiversity for the options selected in our preferred plan. We are already working with a range of partners (Natural England and local Wildlife Trusts included) as part of our AMP6 catchment and biodiversity work. We will continue to take this collaborative approach in AMP7 and expect it to deliver landscape scale benefits.	
NE	**2.4 Protected Species** Natural England Standing Advice for Protected Species is available on our website to help local planning authorities and others including water companies better understand the impact of development on protected or BAP species should they be identified as an issue at particular developments or plans. This also sets out when, following receipt of survey information, the authority (or the undertaker in regards of the exercise of permitted development rights) should undertake further consultation with Natural England.	We thank Natural England for this information and we have noted it for future reference.	We have responded here.

Consultee	Comment	Response	How have we addressed and where is our response?
NE	**2.5 Water Framework Directive** The Water Framework Directive sets specific objectives for the protection of the water environment which include for surface water bodies the prevention of deterioration and achievement of good ecological status/potential. For groundwater bodies the objectives are to prevent deterioration and achieve good chemical and quantitative status. The Defra 25 Year Environment Plan has ambitions to achieve a clean and plentiful water supply including "improving at least three quarters of our waters to be close to their natural state as soon as is practicable by: • Reducing the damaging abstraction of water from rivers and groundwater, ensuring that by 2021 the proportion of water bodies with enough water to support environmental standards increases from 82% to 90% for surface water bodies and from 72% to 77% for groundwater bodies. • Reaching or exceeding objectives for rivers, lakes, coastal and ground waters that are specially protected, whether for biodiversity or drinking water as per our River Basin Management Plans.	We thank Natural England for this information and we note that the need to comply with the Water Framework Directive is one of the largest challenges that we address in this WRMP. We are committed to meeting our responsibilities under the WFD and the primary delivery mechanism for this is through the EA WINEP. This includes investigations to ensure that there is no deterioration as a result of our abstractions and catchment measures for improvements at the local and catchment level. Our draft WRMP includes WFD No Deterioration in the baseline scenario, as sustainability reductions. This is a highly-precautionary level of environmental protection from abstractions. We have used the figures provided by the EA for recent actual abstraction for the 2005-2015 period to derive a potential sustainability change figure, as explained in in section 7.11 of our plan. We have not included any further reductions for groundwater body deterioration that may result from the Groundwater balance test as there is insufficient certainty around the likelihood or magnitude of these changes.	We have responded here.
NE	**2.7 Adaptation to Climate Change** In addition to improving the natural capital including enhancing biodiversity (covered in the SEA and HRA above) the Defra 25 Year Environment Plan aspires to "take all possible action to mitigate climate change, while adapting to reduce its impact". WISER (page 54) states "a priority for all should be to work together to build an	We thank Natural England for this information and we agree that understanding climate change is vital. In section 3.5 of our dWRMP we described how we have assessed the potential impact of climate change. As part of our wider PR19 plans, we are exploring how we can operate in a way that minimises our carbon footprint. We described our understanding of the risks from climate change and how	We have responded here.

Consultee	Comment	Response	How have we addressed and where is our response?
	evidence-based understanding of the likely effects of climate change and identifying and implementing low carbon solutions that address any negative environmental impacts that may arise".	we are addressing them via Adaptation Reporting Power (ARP) in the letter we sent to the EA which set out how we are intending to meet our WISER obligations by 2025.	
NE	**3.1.1 Demand management** Natural England's Conservation 21 seeks to drive a fundamental change in mind-set, to make a healthy natural environment a central part of health, wealth and prosperity. This includes encouraging the public to value the water they use. Ofwat has set ambitious leakage targets for all companies to strive to minimise the amount of water lost through leakage year on year, with water companies expected to reduce leakage by at least an average of 15% by 2025. This target is supported in the Defra 25 Year Environment Plan. Defra's 25 Year Environment Plan aspires to reduce the risks of drought to the public by: • Ensuring interruptions to water supplies are minimised during prolonged dry weather and drought. • Boosting the long-term resilience of our homes, businesses and infrastructure. Section 82 of the Water Act 2003 places an environmental duty on the water undertakers 'to further water conservation', in addition to duties in the Water Industry Act (section 3(2)(a) 1991) to promote efficient use of water by its customers. The plan demonstrates evidence that this duty has been taken into account and that this has been pursued as far as possible through demand management within the plan rather than	We welcome Natural England's view that we have demonstrated that we have met our water conservation duty under the 2003 Water Act. We also welcome NE's support for our proposals to reduce leakage by 15% by 2025. We welcome NE's support for our planned increase of meter optants and the PCC target in our dWRMP. As shown in section 11 of our rdWRMP we have now gone beyond this 'minimum' in terms of planned PCC reduction.	We have responded here and by committing to a more ambitious PCC target as set out in section 11 of our rdWRMP.

Consultee	Comment	Response	How have we addressed and where is our response?
	increasing supply. We strongly support the following demand management options in the dWRMP, leakage reduction of 15% and the increase in speed of metering, we feel the company may want to consider further work on promoting more efficient water use but note its intention to roll out the water sure scheme it is already trailing in the company area. Further we support the aspiration to reduce per capita consumption by 1l over the plan period, we would suggest that this should be a minimum target and the company should, through its PR19 submission seek to out-perform this.		
NE	**3.1.2 Shared Plans for Places** Water companies should ensure that the WRMP is used to influence options in the relevant local plans including those on the quantum of growth and its location. Paragraph 109 of the National Planning Policy Framework (which local plans must be consistent with) requires that local plans should contribute to and enhance the natural environment. The Defra 25 Year Environment Plans sets strong new aspirations for sustainable planning: "New development will happen in the right places, delivering maximum economic benefit while taking into account the need to avoid environmental damage. We will protect ancient woodlands and grasslands, high flood risk areas and our best agricultural land. High environmental standards for all new builds. New homes will be built in a way that reduces demands for water, energy and material resources, improves flood resilience,	On the specific point about our WRMP influencing options in local plans, we note that these plans account for many factors when making decisions on growth. One of these factors is water but there are many other considerations too. We will continue to support sustainable planning in our region through incentivising enhanced water efficiency in buildings beyond the planning requirements, through infrastructure charging mechanisms. This is in addition to supporting and lobbying for higher water efficiency standards to be included in local plans. We are at the forefront of development scale water re-use, having developed a dual pipe water recycling facility at NW Cambridge that reduces reliance on potable water supplies and we welcome similar opportunities.	We have responded here.

Consultee	Comment	Response	How have we addressed and where is our response?
	minimises overheating and encourages walking and cycling. Resilient buildings and infrastructure will more readily adapt to a changing climate." The company should seek to build on the work it has already done with developers in Cambridge and continue to promote water efficient building		
NE	**3.2.1 Natural Capital and Ecosystem services** Conservation 21: Natural England's conservation strategy for the 21st century and Defra's 25 Year Environment Plan encourage growth in natural capital and measurement of ecosystem services. WISER recommends that companies consider how natural capital accounting can inform water industry planning. WISER recommends that companies trial natural capital asset accounts (including quantity and condition) and ecosystem service assessments (including qualitative and quantitative assessments) to help companies better understand the flow of benefits	We thank Natural England for this information and we agree that natural capital and ecosystem services could potentially be of benefit. The decision making framework (DMF) that we described in section 10 of our dWRMP includes an environmental sustainability objective. The DMF we used is an enhancement on the tool we used for WRMP14. We expect that the tool we use for WRMP24 will be improved again and, if applicable, we will incorporate natural capital in that.	We have responded here.
NE	**3.2.2 Enhancing Resilience** Conservation 21: Natural England's conservation strategy for the 21st century focuses on the importance of natural processes to build long term resilience in our wildlife, landscapes and seas. This ecosystem services approach at a landscape scale supports the Defra 25 Year Environment Plan objectives set out in sections for clean and plentiful water and thriving plants and wildlife. This approach also supports aspirations for using resources from nature more sustainably and efficiently set out in the Environment Plan.	We agree that environmental resilience is vital to a healthy environment, for our customers and for a properly functioning water industry. Our 2015-20 biodiversity ODI and our 2020-25 biodiversity/ catchment PC will help to deliver this.	We have responded here.

Consultee	Comment	Response	How have we addressed and where is our response?
NFU	While water companies have an absolute duty to supply domestic customers with water, we recognise that this absolute duty does not extend to commercial customers. However we would like to see Cambridge Water outline the steps that it is taking to safeguard levels of service in water supply to rural businesses. Water supply will be critical for securing growth in the rural economy and we would like to see a focus on rural resilience in Cambridge Water's long term plans, particularly when working with the farming community on wider objectives.	The NFU is correct that the absolute duty to supply does not extend to commercial customers and we are sympathetic to the problems this could cause rural businesses. We note that contacting local MPs and/ or lobbying Government may help to bring about legislative change in this area.	
NFU	This is a particularly important point for livestock businesses which can be at the end of long supply pipes and where low water pressure has sometimes been an issue. When water pipe connections are broken, livestock farms will require quick action from water companies – livestock die quickly of thirst. We would urge you to consider this issue and potential emergency responses as it can be devastating for affected businesses. One of success stories of Cambridgeshire and East Anglia is its thriving fruit and vegetable sectors, these growers would also be adversely affected by reduced water availability in summer months. Irrigated horticultural crops are particularly vulnerable and can die in a matter of days or even hours without access to water.	We agree that if businesses are at the end of a long pipeline this increases the likelihood of low pressure. Unfortunately, we can't guarantee an emergency response to livestock or soft fruit crops but we urge our customers to contact us as soon as they are aware of any issues. We respond to leaks on our network as fast as we can. For example, during the 'beast from the East' freeze thaw event in March 2018 we reacted quickly to an increase in demand of 35%. We did this by repairing all leaks we could and by turning off supplies if we saw leaks in vacant (void) commercial premises. We encourage landowners, who know of leaks on their property, to repair these as quickly as possible. Our responses to interruptions in the 2015-20 period has been in the upper quartile of the industry and we plan to continue this in the future. As we treat all of our customers fairly, we are not planning any preferential focus on resilience to help rural customers in preference to non-rural customers.	We have responded here and in section 11.4 of our rdWRMP.

Consultee	Comment	Response	How have we addressed and where is our response?
NFU	Temporary use bans' were a feature during the 2010-12 drought event, and had an impact on the amenity horticulture sector (such as pot plant and turf growers). It would be helpful for Cambridge Water to outline the steps taken to address the service levels for their customers in the amenity horticulture sector.	TUBs were not a feature in 2011-12 in our region. We have not had restrictions on use since 1991 in the Cambridge Water region. The service levels that we offer to the amenity horticulture sector are in line with those we offer to all commercial customers in that we plan not to impose a non-essential use of water ban more than once every 50 years.	We have responded here and in section 7.1.4.
NFU	The recent opening of the retail market for business customers has made the water resources and supply picture more complex for agricultural and rural businesses. With several water retailers operating in the market there is a risk that farming customers will face additional barriers when trying to communicate about supply issues. We are very concerned about this situation and are working hard to build new relationships with the new retailers.	We acknowledge that this is an important issue. As described in response to the CCWater point 3.11, we have updated section 3.10 of our rdWRMP to describe the current work we are doing with retailers.	We have responded here and in section 3.10 of our rdWRMP.
NFU	We continue to believe that there could be significant opportunities to develop water storage features by working with farmers. We have been grateful for the opportunity to work with Cambridge Water during the development of a draft strategy as part of 'Water Resources East' Although we recognise that Cambridge Water is hugely dependent on groundwater sources, we wonder whether any steps could be taken to work with farmers to identify opportunities for the construction of multi-use storage reservoirs or on rainwater harvesting projects. There may be opportunities to work together on these projects, particularly in locations where summer supplies and availability pose a potential problem.	We have actively engaged with farmers and other sectors in our region for mutually beneficial water storage. We are open to multi-sector and multi-use storage solutions. For example, we actively engage with groups such as Water Resources in the East (WRE) as well as groups looking to make the best use of water resources on the River Trent. We are considering further collaborative opportunities that manage water use and storage in our region, though we are mindful of the variance in raw water quality needs of our respective sectors. We believe there are opportunities for rainwater harvesting and storage which could be mutually beneficial in the summer when demands can be higher for both sectors.	We have responded here and in section 4.3.6.1 of our rdWRMP.

Consultee	Comment	Response	How have we addressed and where is our response?
NFU	In our view it should be of the highest priority for Cambridge Water to meet its responsibilities under Water Framework Directive. We would like to see continued activity on protecting the water environment. Our members are very aware of the impacts of the water industry's activities on the water environment. Smaller rural systems must not be forgotten and we must all continue to work together at the catchment level to deliver continual improvements together. It is also important that these joint improvements are communicated to local communities.	We are committed to ensuring we meet our responsibilities under the WFD and the primary delivery mechanism for this is through the WINEP. This includes investigations to ensure that there is no deterioration as a result of our abstractions, and catchment measures for improvements at the local and catchment level. We will work together with farmers to implement catchment measures and any other environmental improvements that we identify.	We have responded here.
NFU	In summary, our ambitions for Cambridge Water's WRMP are that it should: 1. Demonstrate an appetite for effective engagement between farmers and companies (together with regulators) to understand how to better work together to make water use more sustainable 2. Recognise the importance of climate change and its potential impact on water resources during drought events. Further research may be needed to better understand how to reduce uncertainty in water resources planning for the benefit of farmers 3. Contribute to improvements in resilience which underpin water company operations, including prevention of abstraction that has (or is likely to have) a damaging effect on the environment. Moreover, explain how quickly any necessary remedial action will be taken 4. Commit Cambridge Water to a twin-track approach	1. We engage with farmers effectively and we expect this to continue as part of our catchment management programme, and through collaborative work via groups, such as WRE 2. We incorporated a robust analysis of climate change and extreme drought in our plan. Section 3.5, 7.4 and 7.6 describe both impacts and sensitivity analysis. We will incorporate the updates from UKCIP18 in later WRMPs 3. Our preferred plan includes reductions in abstraction to prevent the deterioration of the environment and we have set out when we expect these reductions to occur 4. Our preferred plan goes beyond economic assessment of demand management and has mandated many demand management options over supply options. Our plan has a twin track approach to supply and demand. We have accounted for environmental and social costs using a non-monetised approach. The WRMP	We have responded here and in sections 3.5, 4.3.6.1, 7.4 and 7.6 of our rdWRMP.

Consultee	Comment	Response	How have we addressed and where is our response?
	that assesses demand management and new resource options on an equal long-term economic basis, taking full cost and benefit account of environmental and social effects 5. Favour the introduction of compulsory household metering in areas where water resources are under stress to the point of full cost/benefit justification, and as soon as practical, alongside improved tariffs and measures to protect those on low incomes 6. Contain water efficiency plans to encourage and incentivise engagement and action between the water company and customers on water usage 7. Recognise the importance of leakage reduction plans that take full account of environmental costs and benefits, and fully achieve sustainable economic levels as quickly as possible 8. Explore opportunities for the water company to further investigate sharing water resources and developing new resources in partnership with other companies, and with other sectors (like farming) 9. Acknowledge government commitment to see water use fall, as stated in its 25 year environment plan. 10. Look beyond its current focus on public water supplies, mainly for domestic consumption. There is a need for increased awareness of the needs of other water users such as farming, and how best we can drive forward efficiency and optimise water use Other points made not covered above;	guidelines state that we should either provide a monetised assessment or a non-monetised assessment of these costs. Our decision-making approach used extensive qualitative information. We also note that our dWRMP selected programme was not a least cost programme. Our preferred programme delivers greater resilience, environmental sustainability and better meets customer preferences than a purely least cost plan would have done 5. We discussed compulsory metering in our response to the Beds, Cambs and Northants Wildlife Trust but we note that we would not use this option unless it is supported by our customers 6. We have now included more ambitious water efficiency plans than we had in our dWRMP 7. We recognise the importance of leakage reduction as shown by our plan to reduce it by over 40% over the 25-year period 8. We discuss our work on sharing water resources in section 4.3.6.1 9. We acknowledge that Government is committed to seeing water use fall and we share this commitment 10. Our work with groups such as WRE shows we focus on issues beyond public water supply. We intend to reduce leakage by 15% by 2025 and by over	

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	Leakage Whilst the NFU recognises that it is not technically viable (nor economically sound) to achieve zero leakage, more needs to be done by water companies to understand the full benefits as well as costs of leakage reduction, and to achieve economic leakage levels as quickly as possible. **Household metering** We welcome the commitment to water efficiency and smart metering, particularly in in view of the risk of more frequent and longer droughts. More research to improve our understanding of the most effective approaches to metering, tariffs and customer behaviour are required. **Water efficiency** It is difficult for us to assess whether efficiency targets are sufficiently ambitious, but we welcome commitments contained in the draft WRMP. **Water supply and resilience** We are pleased to note that the draft WRMP demonstrates a commitment to investigating the potential for sharing water resources and developing new resources in partnership with others, through the Water Resources East (WRE) initiative. **Environmental and sustainability** Given local pressures on the environment, and the 'no deterioration' obligations of the Water Framework Directive (WFD), further action may need to be taken where water use from existing water resources has, or is likely in the future, to have a detrimental impact on the water environment because of abstraction.	40% by 2045. This will reduce leakage levels well below the economic level. We are pleased that the NFU welcome our smart metering and water efficiency commitment. Innovative research projects e.g. Water Smart will improve industry knowledge of metering, tariffs and customer behaviour. We have actively engaged with farmers in our region for mutually beneficial water storage, however there are significant challenges of scale, in order for this to be relevant at the water resources scale. We are committed to investigating collaborative opportunities with WRE and others to provide resilience to water supplies and assist with meeting future agricultural demands. We are committed to ensuring our responsibilities under the WFD are met, and the primary delivery mechanism for this is through the EA WINEP. This includes investigations to ensure that there is no deterioration as a result of our abstractions and catchment measures for improvements at the local and catchment level. Our draft WRMP includes WFD No Deterioration in the baseline scenario, as sustainability reductions, which is a highly precautionary level of environmental protection from abstractions. We have used the figures provided by the EA	

Consultee	Comment	Response	How have we addressed and where is our response?
	Most of the water resources zones that Cambridge Water operates in are already water-stressed areas where abstractions for agricultural use are under threat of revocation or variation. In particular, farm irrigation is threatened because of its 'in-combination' environmental impact due to local dominant water company abstractions. We would like to see proposals contained in the WRMP that could relieve some pressure on local habitats and, with luck and by implication, reduce threats to abstraction by farmers as minor users. We support Defra's water abstraction plan that sets out how the government will reform water abstraction management in future years by introducing more catchment focus for sharing resources (enabled by a digital abstraction service) and we look forward to engaging with Cambridge Water on achieving innovative and sustainable water use in the Cam & Ely Ouse priority catchment.	for recent actual abstraction for the 2005-2015 period to derive a potential sustainability change figure, as explained in in section 7.11 of our WRMP. By assuming this, we comply with the guidance. We have not included any further reductions for groundwater body deterioration that may result from the groundwater balance test as there is insufficient certainty around the likelihood or magnitude of these changes. We also look forward to working with the NFU and the agricultural sector as a whole. For example, we also hope that we can achieve innovative and sustainable water use in the Cam & Ely Ouse priority catchment.	
Ofwat	In summary, we welcome Cambridge Water's approach to customer participation and its ambitious short and long term leakage reduction targets. While much of Cambridge Water's draft plan is in line with our expectations and good practice, there are areas of the plan where insufficient evidence is provided to convince us that the plan delivers in the best interests of customers	We are pleased that Ofwat has recognised our approach to customer participation and the ambition of our leakage reduction plans. We respond to the areas where Ofwat thinks we have provided insufficient evidence below.	We have responded here.

Consultee	Comment	Response	How have we addressed and where is our response?
Ofwat	The company should better explain the link between the assessment of available supplies and the levels of service. For example the figures in the plan relating to the levels of service during droughts of differing return periods appear to have similar available supply forecasts and it is unclear how they have been derived. This lack of transparency significantly reduces the clarity and our confidence in the draft plan.	In response to the request to clarify our levels of service and how they relate to supply availability, we have edited section 7.4 of our rdWRMP. In summary, our levels of service are based on the design drought and are better than the reference levels of service we are required to assess level of service against. We calculated our deployable output for the design drought in accordance with the UKWIR guidance and water resources planning tools. The constraint on deployable output from individual sources is in many cases, not hydrological, but a function of licence conditions, or of WFD No Deterioration limits or Hands off flow conditions. We have revised our WRMP table 10, with additional commentary to further explain this.	We have responded here, in section 7.4 of our rdWRMP and in our updated WRMP tables that we will publish alongside our final WRMP.
Ofwat	Water trading options have not been selected in the preferred options within the draft plan, though the company intends to identify further trading options during the consultation period. In the final plan we expect the company to have considered whether earlier trading options could be beneficial. We note that Anglian Water have included an export to Cambridge Water within its adaptive planning scenario in the period 2025-30. Cambridge Water should clearly reference the evaluation of this option within its final plan.	We have discussed the Anglian Water Services (AWS) adaptive planning scenario, and understand that AWS do not intend to present this scenario in their final plan. Therefore, the export to Cambridge Water mentioned will not be in our preferred plan, nor will it be in their final plan We have clearly referenced this in section 3.7 of our rdWRMP.	We have responded here, in section 3.7 of our rdWRMP
Ofwat	**1. Plan building blocks -** Cambridge Water has generally used methods and data appropriate to the scale and complexity of the problem that it needs to address. However, we have concerns regarding the clarity of the level of service stated in the plan and the approach to non-drought resilience. In particular:	We are pleased that the regulator thinks our methods and data are generally appropriate. We have responded to the requests for clarity about levels of service and non-drought resilience below.	We have responded here.

Consultee	Comment	Response	How have we addressed and where is our response?
Ofwat	The company should provide further explanation linking the assessment of available supplies (deployable output) to the stated levels of service as droughts of differing return periods appear to have similar deployable outputs. Cambridge Water needs to provide further clarity on the figures presented in the plan relating to the levels of service and associated levels of deployable outputs. We discuss this issue further in section 4 below.	We have provided details and clarifications to the links between our drought modelling and our levels of service in response to the EA issues I1.1, I2.1 and I2.2. We have amended section 7.4 of our rdWRMP to add clarity as well as technical detail. In addition, we have edited table 10, which we will publish alongside our final WRMP.	We have responded here, in section 7.4 of our rdWRMP and in our revised WRMP tables.
Ofwat	There is limited evidence of non-drought resilience to the full range of potential hazards and threats, like flood risk or freeze-thaw events, being assessed in the draft plan. Figure 17 titled 'Resilience lens segments' which is intended to provide further insight into this is not readable and should be amended in the final plan.	We provided evidence of the non-drought resilience work we have done in response to the EA point I7.1. We described the assessment we have carried out on flood risk and freeze-thaw events in section 11.4 of our rdWRMP. Regarding figure 17 (in our dWRMP) we have emailed Ofwat with a copy of this figure at a higher resolution and are exploring ways of making it more easily readable in our fWRMP.	We have responded in this SoR, in section 11.4 of our rdWRMP and via an email sent to Ofwat on 12 July 2018.
Ofwat	**2. Customer Participation** - There is good evidence of customer participation in the development of the plan through a wide range of approaches, including workshops and online surveys. However, there appears to have been limited engagement on the proposed level of service and associated bill impacts of the programme. We would expect to see further clarity on this and potentially further work reflected in the final plan…. While evidence is provided on engagement on level of	We agree that we have demonstrated good evidence of wide ranging customer participation. Since publishing our dWRMP we have now provided more information on our engagement work in section 5 of our rdWRMP and in the updated appendix E. On the specific point about levels of service and bill impacts, we have confirmed in section 5 of our rdWRMP, that our customer engagement activities included material that showed bill impacts. Our engagement showed that our customers are generally satisfied with the current frequency of temporary use/ non-	We have responded here, in section 5 of our rdWRMP and in our revised appendix E.

Consultee	Comment	Response	How have we addressed and where is our response?
	service, the conclusions appear to focus upon temporary use and non-essential use bans. Cambridge Water should clarify whether there have been discussions with customers regarding more severe restrictions, such as standpipes, including the consideration of costs and the relative level of resilience of other companies….	essential use bans. We can confirm that we asked our customers for their views on more severe restrictions such as standpipes as well as providing them with comparative information so they could see how our levels of drought resilience sit in comparison to those offered by other water companies.	
Ofwat	The company intended to complete its willingness to pay research prior to the final plan. We would therefore expect the outcomes of this to be included in the final plan with clear explanation of how this has influenced the selection of preferred options.	Ofwat is correct to say that we intended to complete our willingness to pay" (wtp) research prior to final plan. We have completed this work and included the outcomes in section 5 of our rdWRMP and in the updated appendix E. We note that the plot showing our preferred and alternative portfolios we have added into section 10.7.1.4 helps to show how customer preference influenced our preferred portfolio of options.	We have responded here and in section 5 of our rdWRMP.
Ofwat	Cambridge Water has engaged with its Customer Challenge Group (CCG) although it is not clear how this engagement has shaped the draft plan and this should be clarified in the final plan.	On Ofwat's observation about the influence of our CCG, we can confirm that the CCG has influenced our plan strongly. We have clarified this by adding section 5.5.1 to our rdWRMP. Our CCG will provide their views on our approach to PR19 in the report it submits to Ofwat on 3rd September 2018.	We have responded here and in section 5.5 of our rdWRMP.
Ofwat	**3. Demand Forecast -** …. Further specific comments: Cambridge Water have followed the guidelines through development of a population forecast based on local authority plan projections. The company needs to provide further explanation of the baseline and final plan PCC trends. We are unsure of the reasons for the observed small increase in measured PCC and corresponding decrease in unmeasured PCC across the planning period, in both	We have commissioned consultants, Artesia, to produce a revised demand forecast (rebased on 2017-18) for our final plan. We will include the PCC trends from this revised forecast in our final WRMP and the associated tables. On the point about the small changes in PCC in our baseline and preferred plan, we note that we will provide an explanation of any unusual trends (if there are any) in the narrative of our final WRMP. However, we think that the revised forecast is unlikely to demonstrate the unexpected	We have responded here and will address this in our final WRMP tables.

Consultee	Comment	Response	How have we addressed and where is our response?
	the baseline and preferred plan.	trends that Ofwat has highlighted.	
Ofwat	Non-household demand is forecast based on statistical analysis of past trends and will remain broadly flat across the planning period. The draft plan does present evidence that Cambridge Water has attempted to engage with retailers but that the information available from them was limited. The company should consider how it could continue to engage more effectively with large users or retailers to enhance and validate this forecast.	We acknowledge it is important that we continue to engage effectively with retailers to enhance the accuracy of our non-household demand forecast. As described in response to the CCWater point 3.11 and the NFU point on retailers, we have updated section 3.10 of our rdWRMP to describe the current work we are doing with retailers.	We have responded here and in section 3.10 of our rdWRMP.
Ofwat	**4. Supply Forecast -** Abstraction licence changes have been integrated into the forecast appropriately, however, we have significant concern over the transparency of the calculation of supply (deployable output) and how it interacts with the level of service. Greater clarity is also required on the level of outage over the planning period.	We have calculated levels of service and the annual probability by using our historic design drought and our intention to meet, or exceed, these levels of service in the future. We discuss this further later. See later response on outage.	
Ofwat	Abstraction licence changes reduce the supply forecast by approximately 9 Ml/d by 2020. The draft plan incorporated the available information contained in Water Industry National Environment Programme 2 and the final plan should use the next data release (WINEP3). We expect the final plan to explain any changes between these two releases and how the programme has changed as a consequence.	We have amended the table in section 7.9.1.2 and edited the narrative in our revised draft WRMP to take account of the WINEP3 release. This has not changed the planned reductions to our supply forecast.	We have responded here and in section 7 of our rdWRMP.

Consultee	Comment	Response	How have we addressed and where is our response?
Ofwat	The derivation of supply forecasts used in Cambridge Water's baseline plan is not presented transparently and needs to be clarified for the final plan. It is unclear how the supply forecast associated with the reference level of service is calculated and whether there is any dependence on drought orders or measures. The plan narrative and planning tables appear to indicate a severe drought, or the worst historic drought, would result in a supply of 89 Ml/d. It is then unclear how the available supply of 99 Ml/d, used for the dry year annual average, is derived and therefore how the deficit in this scenarios is addressed.	We calculated levels of service and the annual probability by using our historic design drought and our intention to meet, or exceed, these levels of service in the future. Should any of these risks change during the 25-year planning horizon, for example as a result of a changing climate, we will bring in timely demand or supply side options that mean that we can still maintain our customers levels of service. Our design drought is based on historically-observed data but we have also modelled more extreme/ severe events as described in section 7.4 of our rdWRMP. This analysis has not changed our levels of service. We have calculated our DO using the design drought as stated in section 7 of our rdWRMP. Our Design Drought is based on actual-observed data of the worst groundwater conditions observed in the historical groundwater record. This includes the 1991-92 drought sequence, the only occasion when we had to impose a temporary use ban (TUB) and all sources have been evaluated for worst case historical yield conditions. More than half of our available resource is constrained by licence and not hydrological yield, and is therefore unaffected in drought conditions. To clarify our approach we have added significantly more detail of section 7 of our rdWRMP, in the newly produced appendix U and we have also revised our WRMP table 10.	We have responded here and in the revised sections of our rdWRMP. We also note that appendix K and the new appendix U will provide more information on supply, our extreme drought analysis and the links to our levels of service.

Consultee	Comment	Response	How have we addressed and where is our response?
Ofwat	Cambridge Water should clarify how it has assigned return periods to its historical drought events as, in table 10 of the planning tables the reported supply forecasts appear identical for droughts of differing return periods (for example 1-in-200 and 1-in-500 years).	The identical supply forecasts are a result of the fact that most of our sources are constrained by licence, rather than aquifer levels, and the licence conditions do not change between a 1 in 200 and a 1 in 500 event. We have provided further detail on our drought generation approach and table 10 in section 7 of our rdWRMP and in an additional Appendix (Appendix U).	We have responded here and in section 7.4.3 of our rdWRMP.
Ofwat	The reported outage of 9% of supply across the planning period is above the industry average of 6%. Cambridge Water state it has an ongoing programme to refurbish works and minimise outages, which should reduce this, however, this reduction does not appear to be reflected in the plan. Greater clarity regarding the forecast levels of outage is required in the final plan.	As described in our response to the EA comment I11.1, we have derived the outage allowance using the approach specified in the guidelines and described in appendix L. We have historically had a higher than average outage allowance on the basis that our outage was broadly equivalent to the loss of a significant single source. However, since moving to a model based approach, our outage allowance has progressively reduced as we exclude historical events from our modelling as a result of the investment we have made. We consider that our approach is robust but, before we produce our final WRMP, we will review our outage allowance to ensure it is appropriate. Following this review, our outage allowance may reduce to a level closer to the industry average % of WAFU. We have edited section 7.5.2 of our rdWRMP to discuss forecast levels of outage.	We have responded here and in section 7.5.2 of our rdWRMP.
Ofwat	**5. Forecast uncertainty-** Uncertainty is not a significant driver of the plan and the overall approach is in accordance with guidelines. The key forecast uncertainty is the rate of housing growth in Cambridge.	We have noted this comment.	We have responded in this SoR.

Consultee	Comment	Response	How have we addressed and where is our response?
Ofwat	**6. Supply demand balance –** The supply-demand balance profile is in line with the assumptions of the individual supply and demand components and appears to be consistent with the relevant guidance. It is noted that the balance moves from a surplus at the previous plan to a deficit due to sustainability reductions and higher than forecast population growth in Cambridge.	This is an accurate summary of our supply demand balance.	We have responded in this SoR.
Ofwat	**7. Options -** Cambridge Water have presented a range of supply and demand options, including ambitious short and long term leakage reduction targets. However, there is a lack of clarity on how options were assessed, the approach to water trading and third party options and the range of supply options considered.	The majority of our selected options (leakage reduction by 15% and increased meter optants with a more ambitious PCC reduction) have been driven by the customer and stakeholder engagement. As a result, we only required a modest number of other options to make up the residual supply demand deficit. We have added a plot showing our preferred and alternative portfolios to section 10.7.1.4 of our rdWRMP to give more clarity on our option appraisal. In addition, we have edited section 3 of our rdWRMP and have now included a log in section 10.4 that describes how third party options perform against alternative options. This log shows our reasons for not selecting these options in our preferred plan. We describe the range of supply options we considered in appendix S.	We have responded here and in sections 3, 10.4 and 10.7 of our rdWRMP and in appendix S.
Ofwat	The screening criteria used to develop the feasible list of options appear to be appropriate, however, an unconstrained options list and rejections log was not provided and should be included for the final plan.	We will include an unconstrained list in our final WRMP appendix P. We have included a log in section 10.4 of our rdWRMP that describes how we have considered third party options and why we did not select these in our preferred plan.	We have responded here and in section 10.4 of our rdWRMP.

Consultee	Comment	Response	How have we addressed and where is our response?
Ofwat	The draft plan appears to have identified a single third party supply option. Limited information is provided on the approach to third party engagement and the company should provide clarity on its approach and consider what it could do in order to promote these options.	As shown in the third party log that we have included in section 10.4 of our rdWRMP, we have 16 third party supply options rather than one. However, we note that these options almost all rely on future supply options that the WRE group have considered but are currently at a very early pre-feasibility stage. In response to the comment about there being limited information on third party engagement we have added to section 3.7, 3.9 (which covers general third party engagement as well as our Water Resources Market Information and our Bid Assessment Framework (BAF) as well as to section 4.3.6.1 of our rdWRMP to give more details on our third party engagement with the Water Resources in the East (WRE) group.	We have responded here and in sections 3.7, 3.9 and 4.3.6.1 of our rdWRMP.
Ofwat	Water trades are not selected as preferred options for the draft plan, though it is acknowledged these may be a longer term option. However, opportunities for trading with Cambridge Water have been considered in the short to medium term by other companies. Further considerations:	As mentioned we have described our approach to trading and collaboration with other companies and sectors in sections 3.7, 3.9, 4.3.6.1, 10.4 and 10.5.2.3 of our rdWRMP.	We have responded here and in sections 3, 4 and 10 of our rdWRMP.

Consultee	Comment	Response	How have we addressed and where is our response?
Ofwat	The plan states trading may be required after 2045. In the final plan Cambridge Water should clarify its approach to trading and fully evaluate whether earlier trading options could have the potential to reduce costs, reduce environmental impact and improve resilience.	We addressed the point about our approach to trading above. However, as part of our evaluation of options including trades, we have considered the potential of earlier trading options. We want to embrace and implement trading options as soon as we can but we accept that there are complex regulatory issues, many stakeholders to engage with and best-practice guidance that must be incorporated. For example, as mentioned in section 4.3.6.1 of our rdWRMP, the reason why there are no WRE options available in the short to medium term is that there are no surpluses to trade. Given the weight of evidence needed to demonstrate that new supplies do not present a risk of WFD deterioration this is unlikely to change in the near term. In addition, before we can rely on a new trading option we need to be satisfied that any raw water transfer does not contravene our invasive non-native species (INNS) obligations. When we evaluate any new potable transfers we have to be certain that they will not threaten our ability to provide wholesome water and that the effects are accepted and endorsed by the Drinking Water Inspectorate (DWI). We are committed to trading when it delivers benefits in terms of lower costs or more sustainable abstraction without causing negative impacts in these other areas.	We have responded here and in sections 3, 4 and 10 of our rdWRMP.

Consultee	Comment	Response	How have we addressed and where is our response?
Ofwat	Linked to this point the company should reference trades that are included in other companies' plans. For example the proposed import by Cambridge Water which is included in Anglian Water's adaptive plan. The companies should discuss such trades to ensure they are consistently represented across plans.	We have covered this point in response to one of Ofwat's earlier general points. We are now consistently representing this trade.	We have responded here and in section 3.7.
Ofwat	The company intends to undertake a process to identify further trading opportunities during the consultation period of the draft plan. We would expect detail of this process and the impact on the preferred options to be included in the final plan.	We have given details of this work in section 3.9 of our rdWRMP.	We have responded here and in section 3.9.
Ofwat	Cambridge Water propose to reduce leakage by 15% by 2025 which shows a good level of ambition and appears aligned with customer preferences. After 2025 it proposes further reductions to leakage of 41% by 2045.	We have noted this comment.	We have responded in this SoR.
Ofwat	The company should clarify why it has decided to maintain leakage at a constant level during 2025-34 before achieving further reductions. Linked to the above point leakage reductions after 2034 appear to rely on Cambridge Water's development of an innovative 'live network' options. Although the option is likely to require considerable development, we would expect consideration of earlier delivery and include trials to ensure the option is deliverable….	As we described in our responses to the NFU, the Beds, Cams and Northants Wildlife Trust and CCWater's point 3.5, we have altered our proposed leakage profile. Whereas, in our dWRMP, it was constant between 2025 and 2034, we now propose a liner reduction from 2020 to 2045. We will incorporate this in the WRMP tables that will accompany our final WRMP.	We have responded here and by adjusting our post 2025 leakage profile.
Ofwat	There are only small changes in average PCC, derived from increased metering, delivered as part of water efficiency measures. It is unclear how this reflects results of customer engagement where customers indicated they wanted further assistance in both understanding and	We have provided details on the results of our customer engagement in section 5 of our rdWRMP and in appendix E. In response to the request to further consider more ambitious PCC reductions we have increased the ambition of our PCC reduction in AMP7. As described in section	We have responded here and in section 11 of our rdWRMP.

Consultee	Comment	Response	How have we addressed and where is our response?
	reducing their usage. For the final plan we expect Cambridge Water to further consider water efficiency options and the potential for more ambitious PCC reductions.	11.1.3 of our rdWRMP we now intend to reduce our average PCC to 137 l/p/d by 2025.	
Ofwat	The draft plan considered a range of supply options, however, it does not provide sufficient evidence that the proposed supply-side options are appropriate. We expect to see greater clarity on this provided in the final plan. In particular: - It does not appear that an option to resolve operational restrictions at two sites, which impose significant supply constraints, has been considered. Cambridge Water should clarify this and explain in the final plan how it seeks to reduce operational restrictions which impact available supply. - Two groundwater sources (HEPW and RIPW) have been included within the preferred plan to improve local resilience. They are not included in all scenarios, however, they are present in the planning tables (baseline deployable output) for the preferred plan. The status of these options, and how they have been analysed against other options, is unclear and the company should provide further explanation of the scope, cost and the selection process followed for them. - As stated in section 4, Cambridge Water has an ongoing programme to refurbish works and minimise outages. However, it is unclear how this is represented in the plan options. The outage level remains constant, and	- Where we have sites with operational restrictions constraining supply we are addressing this in AMP6. We are doing this for resilience/ flexibility/ peak demand purposes but due to WFD deterioration concern we will not take these sources above their recent actual abstraction. So we are addressing the issues but this will not increase our available supply. - Both HEPW and RIPW are part of our current baseline deployable output (DO). Our multi-criteria analysis (MCA) modelling approach includes the continued maintenance of existing groundwater sources as well as potential development of new sources in various scenarios. Certain least cost scenarios 'de-select' these 2 existing sites, before sustainability changes are taken into account. However, with reductions for sustainability changes included, both these sources, plus additional options are required to maintain our supply demand balance and both are also important for local resilience. In response to this Ofwat query about outage we consider	We have responded within this SoR.

Consultee	Comment	Response	How have we addressed and where is our response?
	at a high level, throughout the planning period.	that our response to the earlier Ofwat comment on outage and our response to the EA point I11 address this.	
Ofwat	**8. Decision making -** An economics of balancing supply and demand (EBSD) approach to decision making adapted to include multi-criteria analysis has been adopted. This is appropriate to the scale and complexity of the problem. However, we have concerns about the transparency on how the preferred programme was selected. Further specific comments: - Cambridge Water has considered a number of alternative scenarios and also used multi-criteria analysis in its decision making. While complex methods may be appropriate for developing more robust programmes, there is a risk of reduced transparency. In particular: – For clarity, for each scenario considered, and the portfolio presented, the company should provide a clear indication of the severity of drought considered, the supply-demand challenge faced, and the cost of the resulting programme to provide context. – It appears options selected for resilience in the preferred plan are in fact essential for maintaining a supply-demand balance. For example the groundwater supply options, SIPW, KIPW2 and CRPW2 are identified as supporting local resilience, and are not included in the least cost plan, but they appear to be essential to maintaining supplies. Greater clarity is required regarding what is driving the preferred plan and how the options	As referenced earlier we have added a plot showing our preferred and alternative portfolios into section 10.7.1.4 of our rdWRMP. This helps provide transparency for the difference between our least cost, our preferred portfolio of options and some alternative portfolios. - Ofwat is correct to say that we have used a multi-criteria approach. - For clarity we would like to confirm that the drought severity we used was the design drought (which we describe in section 7 of our rdWRMP). We have set out the supply-demand challenge faced in the '4. BL SDB' tab of our WRMP tables. The plot in section 10.7.1.4 mentioned above provides the context of how the cost of our preferred programme compares to a purely least cost programme. We give the costs of individual schemes within tab 5 of the WRMP tables. - Ofwat is correct to say that SIPW, KIPW and CRPW all support local resilience. They are sources which we have not used for several years but intend to bring back into supply. So, they do not support our baseline supply-demand balance but they will have future supply demand benefits.	We have responded here and in sections 3.12 and 10 of our rdWRMP, appendix P and in the tables that will accompany our final WRMP.

Consultee	Comment	Response	How have we addressed and where is our response?
	contribute to resolving the deficit in the various alternative scenarios. – It is unclear how the multi-criteria analysis has influenced the plan. Cambridge Water should provide further quantification of the results and summarise the impact. – There is no summary in the plan that provides a concise and transparent overview of the decision making process. In the final plan, for clarity, we would expect to see a clear summary that concisely explains how and by whom the preferred portfolio was decided on.	- In response to the request for clarity on how our multi-criteria approach has influenced our plan we think that this is covered in section 10 of our rdWRMP (specifically the plot in 10.7.1.4) and, in greater detail, within appendix P. Section 10.3 of our dWRMP summarises the way the analysis influenced the plan. In addition, as part of our draft WRMP engagement we presented slides to Ofwat in July 2017 which set out our approach. - To give a transparent overview of our decision making we have included a plot in section 10.7.1.4, we refer to figure 24 in our rdWRMP and also to figure 1 in appendix P. Ultimately, as described in section 3.12 of our rdWRMP, our Board sign off our WRMP and our wider PR19 preferred portfolio.	
Ofwat	There is evidence of independent assurance of the draft plan and of engagement with the Cambridge Water executive team and the Board during the plan development and its approval.	We have noted this comment.	We have responded in this SoR.
Ofwat	**9. National and regional considerations**- Cambridge Water is part of Water Resources East (WRE) regional group, however, the draft plan only provides limited information on interactions with this group. It suggests that because the strategy is long term and beyond the planning horizon it is not relevant for the draft plan. Further specific comments: · The company should clarify how the Water UK national project has informed the development of its plan. · Additional information should be provided to explain the	We will continue to be active members of the River Trent group and the Water Resources East (WRE) group. We engage with WRE not just because of our CAM region but also because we have an abstraction on the River Trent in our Staffs WRZ. - We mentioned the Water UK national project timeline in our response to CCWater's point 3.3. In response to Ofwat's request for clarity on how it has informed our plan we note that the project gives a useful, high level and indicative view of the national direction of travel. However,	We have responded in this SoR.

Consultee	Comment	Response	How have we addressed and where is our response?
	relationship between the draft plan and WRE outputs. This could include the identification of options or longer term planning outcomes.	we do not consider that national study was detailed enough to directly drive investments (nor was it intended to do so). So we have instead relied upon our detailed, assured and robust, company specific analysis to produce our WRMP19. - We have expanded sections 4.3.6.1 and 10.4 of our rdWRMP to cover the relationship between our plan and WRE. We also consider our response to Ofwat's earlier suggestion to evaluate earlier trading options gives relevant information on this topic.	

(Where we have excluded sections of the comments in the interests of making this document more concise, we have indicated this with four full stops.)