South Staffs Water – Cambridge region

Draft Drought Plan 2017

Statement of Response

Introduction

We have prepared a revised draft drought plan for our Cambridge Water region in accordance with the requirements of the Water Industry act 1991 (as amended 2003), the Drought Plan Regulations 2005, the Flood & Water Management Act 2010 and the Drought Plan Direction 2016. The plan has been prepared with the Environment Agency's Drought Plan Guidance, 2015 and identifies drought management triggers, measures and communications that we will employ in the event of a drought.

The Secretary of State confirmed that we publish and consult on our plan on 3 April 2017, and the consultation period commenced on 11 August 2017 and ran for a period of 6 weeks until the 6 October 2017

Consultation on the Plan

In accordance with the statutory process we engaged with statutory consultees prior to producing our draft plan, in order to seek views on the revised plan. As part of our pre consultation we received comments from the Environment Agency, the independent customer panel for our region, and engaged extensively with CCWater on the presentation of our non-technical summary to support the plan. We thank all the stakeholders and other interested parties that have provided comments in the development of this plan.

Following general publication of the draft plan, we received responses from a range of stakeholders:

Affinity Water	**CCWater**
Historic England	**Friends of Cherry Hinton Brook**
Cam Valley Forum	**A private individual**
Customer panel	**Environment Agency**

We have carefully considered all the representations and, where appropriate, have amended the plan as explained in the table at the end of this document.

Overview of comments

We received a number of supportive comments commending us on the detail contained in the plan and also the accessibility of the non-technical summary.

The majority of the detailed technical comments were raised by the Environment Agency and fall into the following categories;

- Testing our plan against drought scenarios
- Development of drought triggers
- Our environmental assessment and monitoring and mitigation plans
- Permits required for drought measures

We have discussed these comments in detail with the Environment Agency to better understand the specific points they have raised. We will be following up on these by providing further technical detail on our drought triggers, and by undertaking further work following publication.

Other respondents also commented on the presentation of the drought scenarios and we will be looking carefully at how this can be improved for future plans.

The customer panel made a number of minor comments on areas of the plan that could be improved.

We received comments from a number of respondents relating to abstraction effects on the environment and the impact of growth in the area creating more demand for water. These issues will be covered in more detail in our forthcoming Water Resources Management Plan, a draft of which will be published for consultation in 2018.

Overview of changes for the final Drought Plan

In reviewing the responses received there are a number of improvements included in the revised draft Drought Plan, and we have committed to undertake further on-going supporting work following publication.

In many cases a change to the plan is not necessary. However, we have made a number of minor wording changes to the plan to improve understanding and have amended or improved a number of tables and figures.

The most significant outcome from the consultation is that we have committed to publish within 3 months of publication of the final Drought Plan a detailed appendix relating to our environmental assessment, and another appendix outlining our approach to being permit ready for Ordinary Drought Orders.

We have identified a number of areas for review and consideration in any future drought plan revisions.

With amendments in place, we believe that our Drought Plan is fully compliant with the latest guidance and meets the requirements of the Water Industry Act 1991 (as amended 2003), the Flood & Water Management Act 2010, and the Drought Plan Direction 2016.

We would like to thank all of the respondents to the draft plan consultation for the comments they have made, and for helping to shape our drought plan.

Draft Drought Plan 2016 – Schedule of Responses

ENVIRONMENT AGENCY

EA- Direction Compliance

Direction not complied with	Recommended changes to ensure compliance with Direction	Company Response	Change to plan
(b) the magnitude and duration of droughts for which the drought plan has been tested	Linked to recommendation 1, the company has not included sufficient detail about the magnitude and duration of the droughts for which it has been tested. The company should include further details of the duration and rainfall deficits it has used in its scenarios. (see Appendix 1, Issue 1.2)	See Issue 1.2 below for detail	Minor text amendments to Sections 4.1.1, 4.1.2 and 4.1.3for clarification Added Figure 8.
(e) the measures that may be needed to mitigate any adverse effect on the environment resulting from the implementation of a drought management measure	Linked to recommendation 2, the company has not provided sufficient detail to demonstrate that it will effectively mitigate environmental impacts in a drought. The company must include further detail in its approach to mitigation, including detail on the actions, sites, timings and links to its monitoring plan. (see Appendix 1, Issue 2.3)	See Issue 2.3 and 2.1 below for detail	None for publication with the Drought Plan. An appendix to be published within 3 months of the publication of the main plan.
(f) the permits and approvals that the water undertaker expects to need in order to implement those mitigation measures;	The company has not set out enough detail on its mitigation actions and it is not clear whether additional permits and approvals are needed. Once it has improved its mitigation plan, we recommend that the company includes information on any permits or approvals that it needs to implement mitigation measures. (related to appendix 1, issue 2.3)	See Issue 2.3 and 2.1 below for detail	None for publication with the Drought Plan. An appendix to be published within 3 months of the publication of the main plan.
(g) The compensation that may need to be made as a result of the implementation of a drought management measure.	Linked to recommendation 2, it is not sufficiently clear from the mitigation plan whether additional compensation is required. (related to Appendix 1, Issue 2.3)	See Issue 2.3and 2.1 below for detail	None for publication with the Drought Plan. An appendix to be published within 3 months of the publication of the main plan.

EA - RECOMMENDATIONS					
Recommendation 1 – Improve Drought Scenarios					
Area of issue	**Issue and evidence**	**Implications**	**Information or changes required**	**Company Response**	**Change to plan**
Issue 1.1 Testing drought triggers	The company's chosen drought triggers and indicators consist of borehole rest water levels together with cumulative recharge deficit in section 5.2 and 5.3. The scenarios used in section 4.2 do not specifically state when the company's current drought triggers would be reached for the short term and medium term drought scenarios.	The plan does not prove that the chosen triggers are appropriate for these scenarios. There is a potential risk to customer's security of supply in a drought without evidence the drought plan triggers have been tested and work.	The company should show in its short and medium term drought scenarios that its chosen drought triggers are appropriate, a time line leading up to the scenarios (including when the drought triggers were triggered) should be included.	The chosen drought triggers have been developed using experiences from historic drought sequences that can be regarded as short to medium term droughts together with statistical analysis of the performance of key indicator sources under drought conditions. These were developed for previous drought plans following recommendations from the EA to improve our indicators, and the resulting triggers and indicators accepted by the EA as appropriate. The technical reports and analysis for the development of the drought triggers and actions remain available for examination by the EA if required. Amendments to Figure 18, Figure 11, and table 2 show the timeline of drought triggers in relation to drought scenarios	Amendments to Figure 18, Figure 11, and table 2
Issue 1.2 Details of the duration and rainfall deficits of the scenarios used	The draft drought plan lacks sufficient details of the duration and rainfall deficits used in the three drought scenarios the company have used. No Magnitude of the droughts tested against.	Linked to direction 3 (b) The magnitude and duration of droughts for which the drought plan has been tested. The draft plan should demonstrate the range of droughts under which the company can maintain security of supply without using emergency measures.	The company should include details of the duration and rainfall deficits of the scenarios used.	Rainfall deficit and duration is presented for 6 historical drought sequences in Figure 4: Rainfall deficit through Historical Droughts. Our plan has been tested against typical drought scenarios of varied durations as set out in section 4.2. Each drought scenario in this section references the historical drought events that were of a similar duration and magnitude. We have added text to sections of 4.1 in the plan explicitly stating which of the short, medium or long term drought scenarios each sequence would be equivalent to, and added in a new figure (Fig.7a) to show deficits.	Minor text amendments to Sections 4.1.1, 4.1.2 and 4.1.3for clarification Added Figure 7a.
Issue 1.3 Scenarios and drought management	The company's draft drought plan does not specifically state which	It is not clear that the drought plan has been tested if the company	The company should explain what drought actions it would implement	Figure 10 (revised to Figure 11) indicates a typical drought trigger curve and when drought actions would be expected for one, two and three dry winter drought sequences. These equate to short medium and long	Figure 18 has been amended Figure 11 has been

actions	supply-and demand-side options would be implemented (section 4.1 and section 4.2) if the short and medium term scenarios happened again. For example section 4.1.4 the 1995-98 drought sequence includes the progression of an additional source – would this be feasible now if this drought was to happen again?	does not set out which actions it will use in each scenario tested. There is a potential risk to customer's security of supply in a drought without evidence the drought plan has been tested and works.	in each scenario used. The scenarios should show how the triggers prompt the drought management actions.	term droughts against which the plan has been tested. Table 2 also describes which drought triggers and related actions would be implemented through the same 1-3 dry winter sequence, and hence short to long term drought. Figure 18, and Figure 11 have been amended to indicate drought scenarios in relation to drought options, and drought triggers.	amended
Issue 1.4 Sequencing of long term drought management actions	It isn't clear from table 2 when the drought management actions are triggered in the long-term drought scenario. It appears to be listed sequentially until 'Recommission Kingston' is triggered in March of a 3rd dry winter, but triggers in spring and November following a 3rd dry winter have already been crossed, so would this be the spring following a 4th winter (is this a dry, average or wet winter?). The non-essential use drought order is triggered in August with a 3 month lead in time but the Non-Essential Use Ban (NEUB) is not implemented until January which is 5 months	There is a potential risk to customer's security of supply in a drought without evidence the drought plan triggers have been tested and work.	The company should amend the table to clarify when the triggers are reached and what actions this prompts. The sequence could also be presented in a graph, showing when the triggers initiate the drought management actions through a drought scenario.	Table 2 illustrates progressive drought actions and drought management activities that would be undertaken through a long term drought sequence to demonstrate a maintained ability to meet demands. It is indicative only. Corrections have been made to table 2 for Kingston, and for clarity an additional summary table of drought triggers and actions only included – the implementation is following a fourth winter. Once initiated this option would progress regardless of a fourth winter being dry, average or wet to ensure available supplies until full recovery from drought. Timings for a NEUB have been amended in table 2. November is the earliest that a NEUB could be implemented, however we consider that it would be most effective at the end of the winter period into spring, and would as a preference ensure that extensive communications were undertaken to ensure that the implications were fully understood by all stakeholders affected. We also recognise that the process to obtain a drought order could take longer than the 3 months lead time, therefore are not including the savings from the NEUB earlier than necessary.	Table 2 revised, and summary table included.

	later.				
Issue 1.5 Resilience	In its long-term drought scenario section 4.2.3 the company over-estimated the cutbacks (a reduction in the amount of water abstracted) in this scenario to show its ability to cope with a drought of this magnitude (historic drought similar to 1920, 1 in 100 year event), this is the minimum recommended from the guidance. The company has not explained why it has chosen not to plan for drought events of longer duration and lower rainfall than those on historic record.	It is not demonstrated that the company is resilient to more than historic droughts on record, there could be a potential risk to security of supplies if the company experienced a drought or different severity – longer, lower rainfall.	We encourage the company to plan for drought events of longer duration and lower rainfall than those on historic record. As the company has demonstrated it can securely meet demand in this drought scenario it would be beneficial to test its system against a more severe drought. The company could use data/models from WRE to develop a worse than historic record scenario. If the company chooses not to it should be explained why.	We have demonstrated that we are resilient to a 1in 100 year drought, and as part of this analysis have improved our understanding of source yields in such droughts. This has indicated that our overestimated cutbacks at vulnerable sources are very conservative, and that in practice these sources would be more robust in a drought, thus increasing available supplies. We are undertaking additional work to improve our understanding of the performance of our supply system against more severe droughts than those in the historic record for inclusion in our draft WRMP. We will incorporate any relevant changes to future drought plan revisions as appropriate.	None
Recommendation 2 – Improve environmental assessment, monitoring and mitigation					
Area of issue	**Issue and evidence**	**Implications**	**Information or changes required**	**Company Response**	**Change to plan**
Issue – 2.1 Environmental Assessment	Section 7, Environmental impacts - insufficient detail provided on potential deterioration of WFD elements as a result of implementation of the supply side options. Should also include an assessment of the other licences which will be increased as part of the drought plan.	There is potential risk of deterioration from insufficient environmental assessment of the company's supply side options and lack of pre-drought monitoring information. The plan does not show how the company will meet the requirements of	The company should include sufficient detail on potential deterioration of WFD elements on all licences which will be used/increased as part of its drought plan. Where potential deterioration is identified appropriate monitoring and/or mitigation should be	We have discussed these issues with the Environment Agency and propose to further develop our environmental assessment. This will be provided as an additional appendix to the drought plan within 3 months of publication. The amendments that we will include are; • Further detail on the ecological components to be monitored, such as fish invertebrates and the changes to hydrological regimes supporting the ecology of WFD elements. • Assessments of the baseline conditions and proposed monitoring plans that will monitor the hydrological impact and sensitivity of risks to WFD features, and the likelihood and severity of ecological impact as a consequence of the increased licence use in the plan.	None for publication with the Drought Plan. An appendix to be published within 3 months of the publication of the main plan.

	Section 7.2 - insufficient detail on how deterioration risks will be assessed. Recognised that supply side options may have potential impact on WFD classification but no link to monitoring activities which would be carried out pre-drought to develop baseline (as per Fig 13 , page 64). Section 7.2 - no consideration of eel passage is given. Environmental assessment does not show how the company will meet all relevant legislation. Section 7.2 has no reference to fish populations, fisheries legislation and likely impacts on them.	The Eel (England and Wales) Regulations 2009. The plan does not show how the company will meet the requirements of the fisheries legislation: the Salmon and Freshwater Fisheries Act 1975	outlined. The company should include more details of the pre-drought monitoring plan. The company should also liaise with the Environment Agency to ascertain that the pre-drought monitoring data is appropriate and, in regards to EA monitoring sites, is still available (some sites will be decommissioned in 2019). The company must consider if the implementation of drought management actions (recommissoned sources) could have an impact on eel passage, the Eel (England and Wales) Regulations 2009. The company should show how its environmental assessment for its drought plan meets all the relevant legislation.	• Details on the current assessment of WFD elements that may be impacted in the plan • A pre drought monitoring review to ensure that there is sufficient baseline monitoring data to inform the drought monitoring regime. • Justified and detailed monitoring plans, explaining annual frequency of monitoring, locations of monitoring, and the parameters to be monitored; such as flows, levels, ecology, fish. • Identification of appropriate and feasible mitigation and measures where drought actions could have an impact on WFD elements. Include evidence where flows during droughts might already be beyond mitigation and due to naturally dry conditions. As part of preparing this additional detail we will liaise with the EA, and where applicable other parties to determine the current monitoring network and available data and devise an agreed programme of future monitoring locations, parameters and responsibilities. This will require significant input from the EA with respect to WFD compliance points and the determination of WFD status and deterioration thresholds. We have considered the Eel (England and Wales) Regulations 2009 and our drought options would not impact on eel passage as they do not include any direct intakes from surface water features. We have considered the Salmon and Freshwater Fisheries Act 1975, and the measures in our drought plan would not pose a risk to fish (salmon and trout) mortality, migration barriers or habitats.	
Issue – 2.2 Environmental Monitoring plan	There is a lack of information and detail in the plan over what monitoring will be undertaken There is a lack of detail on how monitoring data will be analysed and how the outputs of analysis will be	There is a potential risk to the environment as there could be unforeseen impacts on the environment as a result of inappropriate/limited monitoring. There is potentially a risk of implementing mitigation measures with little	The company should provide more detail on what baseline, in-drought and pre-drought monitoring it will undertake, including; which elements will be monitored, the locations of monitoring, the frequency of monitoring for each	The development of our environmental assessment described in the previous issue (2.1) will include a detailed programme and plan for pre drought, in drought and post drought monitoring requirements at specific site level. Clarity on who will undertake monitoring will be available when the review of existing programmes versus the proposed programme described in 2.1 above has been completed. The EA flow gauge at Linton on the River Granta has been added.	Table 5 amended

	used to inform drought plan updates. No control sites have been detailed in the plan. Need to provide clarity on who will undertake monitoring. P.65 Section 7.2.1, the company propose monitoring during the extended use of Fleam Dyke during drought but, of course, this would need to be agreed with the Environment Agency.	monitoring to understand their effectiveness.	element and duration of monitoring. The company should include and detail which control sites it will use. The company should provide clarity on who will undertake monitoring. If this is a combination of using existing EA data and collecting additional data then it should be clearly stated who is responsible for what. Checks should also be made to ensure data which will be supplied from the EA is in the current monitoring programme. It is recommended that the EA flow gauge of Linton on the River Granta is added to the list for S1 Table 5.		
Issue 2.3 – Mitigation measures	Insufficient detail has been provided on which sites require mitigation and what that mitigation/compensation will be. It is not clear how the mitigation measures will aim to prevent deterioration. Lack of certainty around mitigation measures for future years and current	There is a potential risk to the environment as the mitigation measures do not provide sufficient details on which sites require mitigation. The mitigation measures do not detail how the measures will aim to prevent deterioration.	The company should detail what options are available for all potentially affected watercourses, and how these mitigation measures are triggered and monitored. The company should also show how the mitigation measure should aim to prevent deterioration. The mitigation measures should be designed to protect against supply-side	We have identified water bodies that may require mitigation, both for supply side options and with the Environmental Impact Assessment in Appendices D and E. Details on appropriate mitigation measures to prevent deterioration are not available at the time of publication; currently only the risk of deterioration has been identified. Proposed investigations into deterioration will identify where mitigation is appropriate and the details of the measures available. The identification of standard mitigation options will be commenced as part of the programme of commitments outlined in 2.1 above, however a complete understanding of deterioration risk, appropriate assessment and mitigation will be an outcome of proposed AMP7 investigations into deterioration following publication of the EA framework for No deterioration assessments. The	None

	mitigation is not designed to protect against supply-side activities Section 8.4 the EA support schemes of the rivers Rhee and Granta are not very efficient during droughts. The purpose of the Great Ouse Groundwater Scheme support scheme is not to mitigate against PWS abstraction. Only 10% is for the environment the rest of the licence is to supply water to Essex and Suffolk Water. It might not be appropriate to mention the GOGs in the mitigation measures section for Euston and Brettenham licences.		activities. The company should provide more clarity on the EA support schemes and where necessary work with the EA to understand the support schemes and their effectiveness during drought.	aim will be to minimise damage and to prevent permanent deterioration, and where possible mitigate temporary deterioration. We will discuss with the EA the details of support schemes and their operation and effectiveness during a drought, following review of their licences to operate these schemes in 2018. The Great Ouse Groundwater scheme is mentioned as it does support flows in rivers that have been identified at risk of impacts from our abstractions, therefore reducing the risk of deterioration due to flow reductions. Whilst not in place to mitigate abstraction impact it may be the most appropriate mitigation measure in certain drought situations and as such should be considered. No compensation has been identified as required in the assessments to date, but will be reviewed as part of the additional work proposed in 2.1 above.	

EA - IMPROVEMENTS					
Area of issue	**Issue and evidence**	**Implication**	**Recommended improvement**	**Company Response**	**Change to plan**
Issue 3.1 – Supply options St Ives	The St Ives source will only be activated when 3 or more indicator sites are at their RWL5 trigger level (appendix D). The St Ives source is from a shallow sands and gravel aquifer, in a severe drought (which trigger level 5 is) would the company be able to get the yield from the boreholes when groundwater levels are likely to be very low? Our records don't indicate the source having been used in the last 20 years. (It is appreciated that the boreholes have an underground adit system which draws water from further away within the sands and gravels meaning the yield may be possible.)	There is a potential risk to security of supply if the savings volumes given are not achievable.	The company should provide further details that the yield given in appendix D for option S4 is achievable and the trigger appropriate. The company could also conduct tests outside of drought to try and assess what scale of effect its abstraction might have and whether there's any effective mitigation.	The yields included for option S4 are based on licenced quantities, and are in line with historic abstraction and pump test volumes. However as the source has been disused for some years and is a shallow aquifer source in an area with multiple water features and beneficiaries we have commissioned a localised hydrology model in order to improve our current understanding of the yields and any effects of taking the licenced volumes in times of drought. Once complete, in early 2018, we will share these findings with the EA, and if appropriate amend the drought plan accordingly.	None
Issue 3.2 – Ordinary Drought Order	The company does not prepare (as much as possible), a case for the 'exceptional shortage of rain'. The plan does not provide a plan or programme to show how it will do the necessary work to complete the ordinary drought order application.	Potential to cause a delay in the application process. Without adequate information applications for drought orders may be delayed or rejected. This could put public supplies at risk of failure or the environment at	The company should provide details for: The case for the 'exceptional shortage of rain', and a plan or programme to show how it will do the necessary work to complete the ordinary drought order application.	The trigger in our drought plan for application of an ordinary drought order is following a typical 3 dry winter drought sequence allowing sufficient lead time to fully prepare an ordinary drought order application. Hence we have not included the case for exceptional shortage of rain in our plan. We have however identified that we have the available data to demonstrate the case for exceptional shortage of rain, which would be to use the long term rainfall record from a key location in our supply area (also a registered EA gauge), to provide Tabony table analysis demonstrating which rainfall sequences are exceptional over the long	None at this time. Supplementary appendix will be issued within 3 months of published final Drought Plan

EA - IMPROVEMENTS					
Area of issue	**Issue and evidence**	**Implication**	**Recommended improvement**	**Company Response**	**Change to plan**
		risk of unnecessary damage.		term record as far back as 1920. This length of data series includes the most severe historical drought on record for the region. We also collect data on the impacts of reduced seasonal rainfall on aquifer recharge, and deficits in recharge which is particularly relevant to our supply system and understanding the severity of a drought sequence. Previous analysis has shown that rainfall deficit alone can underestimate the impact or severity of a drought when seasonal patterns are excluded. We will be developing a programme to demonstrate that we are permit ready, with the required tabony table analysis and a description of the process for inclusion in the plan as an appendix within three months of publication.	

Affinity Water			
Issue	**Comments**	**Company Response**	**Change to plan**
1.Bulk transfers volumes	We note that some of the bulk transfer volumes quoted within your plan are not wholly consistent with those quoted in both our own draft DMP, and our Water Resource Management Plan 2014 (WRMP14). We would welcome further dialogue to ensure that our plans are aligned in this respect.	The difference in volumes is immaterial at less than 0.05Ml/d, however we have discussed this issue with Affinity Water and will align the drought and water resources plans.	None
Historic England			
Issue	**Comments**	**Company Response**	**Change to plan**
1.Infrastructure development and operations	If a change of approach should be required and one of the options to re-introduce different supply sources (Section 7.2), perhaps requiring investment in infrastructure is followed, we would like to be consulted again. All heritage assets, both designated and undesignated, are vulnerable to being harmed by infrastructure developments. Buried archaeology is especially vulnerable, and specialist advice should be sought, as appropriate, in areas of known, or potential, archaeological significance.	We undertake archaeological assessments, surveys and obtain specialist advice where necessary prior to commencing any planned new infrastructure. None of our drought options presently include a requirement for this type of works.	None applicable
2. Buried waterlogged archaeology	Buried waterlogged archaeology may be at particular risk in times of drought. Consideration should be given to the most appropriate course of action to protect buried waterlogged archaeology in a drought scenario. Waterlogged deposits, such as peat have the potential to preserve organic remains that are relatively rare in the archaeological record. 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 Drought Management Plan, which makes reference to the Historic England 'Preserving Archaeological Remains' guidance (2016)	Most of our abstractions would not lower the water levels in the shallow waterlogged deposits such as peat even during drought conditions. We only have the potential to affect these areas where they overlay the chalk aquifer. These have been identified as Groundwater dependent ecosystems or wetlands and investigated extensively through the NEP programme, and all impacts of the magnitude that are likely to impact buried archaeology have been mitigated – i.e. natural wetting conditions maintained. A review of Preserving Archaeological Remains' guidance (2016) Appendix 3 - Water Environment Assessment Techniques, has confirmed that the measures in our plan do not pose a risk to buried archaeology,	None applicable

Cam Valley Forum			
Issue	**Comments**	**Company Response**	**Change to plan**
1. Drought scenarios	The scenarios surrounding water levels in historical droughts in the past half century are well graphed. Figure 3 usefully illustrates the periodicity of drought phenomena and recovery. On Figure 23 the annual mean oscillation is superimposed in a way that gives a somewhat misleading impression of fluctuation in non-drought years! What is impressive is that the potential reservoir in the chalk is an initial buffer but one whose resilience is quickly tested by any brief drought. We were surprised to read that for the brief 2011-12 drought (p 32) CWC stated that *"Whilst other companies in the south east imposed temporary water use bans, our trigger thresholds for this action were not reached, and we did not do the same"*. This smacks of some complacency, as during this drought the flow on the Granta virtually ceased in summer 2011 although the groundwater support scheme was presumably in operation. If anything flow was sustained only by river's receiving a flow of treated sewage. This gives us the impression that the degree of resilience considered adequate is set at a lower threshold for the natural environment than that which is set for human needs! (We would remind you that the water quality assessment for the upper Cam has been 'poor'. Although this is certainly not a CWC responsibility having reduced spring water flows is no help to its mitigation.	There is no Figure 23 in the plan The imposition of temporary use bans is informed by our drought triggers, which have been developed based on the response of our sources and supply system to dry conditions and the need for such restrictions. We did not breach the trigger for temporary use bans in the 2011-12 drought sequence. River flows can be impacted by drought conditions independently of any groundwater abstraction pressure. We work closely with the Environment Agency to understand the impact of our operations on the environment under normal operating conditions. The AMP6 NEP and AMP7 WINEP (National Environment Programmes for each five year period detailing water bodies thought to be at risk of deterioration or actual damage) list those water bodies we have worked to better understand and those that we will be further investigating. Our environmental monitoring plan included in the draft Drought Plan is based on known sensitive sites which might be further impacted during droughts.	None applicable
2.Water Resources & environmental impacts of abstraction	Over abstraction certainly does have environmental harm. The Nine Wells springs in the 1972-77 Drought Sequence lost the invertebrate fauna for which this site had been designated an SSSI. This post ice-age fauna was lost (after 9,000 years !) only because the aquifer water table was dropped as a result of abstraction early in that drought. If it was not for this reason that the 1972-77 Drought Sequence was the worst drought in all those thousands of years seems improbable. We hope that water companies will not be using 'climate change induced drought' as a fig leaf behind which to hide in the future. <u>We are essentially unable to comment on the CWC's preparedness for long term drought but it is clear that they have been very concerned with their planning to an impressive degree of attention and care, for which we are all appreciative.</u>	Section 7.6.3 describes the mitigation for abstraction impacts available for Nine Wells in a drought, however the evidence suggests that the springs may naturally dry out in serious droughts without the influence of groundwater abstraction.	None applicable
3.Drought control rules, triggers and actions	It is clear that rainfall monitoring is well covered and that effective winter rainfall is now the best basis of measurement of aquifer recharge. We are assured that pumping programmes will be well monitored. Cumulative recharge deficit is clearly well tested as a drought indicator. <u>This is all good</u>.	We thank you for your appreciation of these measurements	None applicable

Consumer Council for Water

Issue	Comments	Company Response	Change to plan
1.Engagement with stakeholders	The Plan demonstrates a good level of engagement with stakeholders and also recognises the different engagement strategies that will be required for different customer groups	We thank you for your comments	None applicable
2.Engagement with business customers	The draft plan includes strategies for reaching business customers since the retail market opened in April 2017. However, we would like to understand if engagement will be tailored to the different sizes of business customers from micro through to large.	We would expect the engagement of business customers during a drought to be tailored by size and sector, both direct and through other retailers operating in our area. Specific engagement plans are developed as part of our early actions in a drought to supplement our normal water efficiency engagement activities.	None applicable
3. Promotion of water efficiency	The draft plan also recognises the different needs of vulnerable customers and seeks to influence water efficiency behaviour through the company's on-going school engagement programme, which we welcome.	We thank you for your comments	None applicable
4.Communication with customers	We consider the non-technical summary on the company's website to be a clear way of communicating with customers in what is a complex issue. We welcome visibility of a sample leaflet on what a hosepipe ban would mean to a customer as an annex to the non-technical summary. It is essential for this to be clear, engaging and informative.	We thank you for your comments	None applicable

Customer Panel

Issue	Comments	Company Response	Change to plan
1. Pre Consultation comments	The Panel appreciates the opportunity to comment on the draft Plans. We are pleased to see that in the new draft, account has been taken of much of what we said at pre-consultation stage.	Not applicable	None
2. Levels of service	As we said in the pre-consultation, we think it unlikely that customers would find fault with the levels of service proposed, or the expected frequency of restrictions, both of which are unchanged from the current policy.	Not applicable	None
3. Resilience to growth and climate change	We are still concerned whether the assumptions underlying the Plans are sufficiently robust to ensure resilience. Key assumptions are those relating to the effect of climate change on weather patterns, the likely growth of population and therefore demand in the CAM area, the future availability of water for abstraction in the CAM region	These matters are considered in our forthcoming draft water resources management plan (WRMP) to be published for consultation in early 2018. The WRMP includes clear links to our drought plan and our resilience to droughts of different severities.	None

4. Glossary	We welcome the addition of a glossary to the technical report.	Not applicable	None
5. Non-technical Summary	We consider that the changes made since pre-consultation render the non-technical summary much clearer, but have two recommendations: •the paragraph on recharge deficit needs simplification, preferably with the term recharge deficit removed •the paragraph and diagram on the level of risk attached to drought management options is hard to understand.	We have included an explanation of recharge deficit in the glossary to aid understanding We have amended the text on page 12 to make this section clearer	Changes made to Non technical summary and
6. Description of historic droughts	6. The descriptions of past droughts in the CAM Plan remain difficult to follow. We recommend following the model adopted in the SSW Plan where the impact of drought on ground water levels is shown. Alternatively a comparison of current demand with demand at the time of past droughts would help readers to interpret the significance of this data.	The impact of droughts on groundwater levels is shown in figure 3, and the impact of rainfall deficit in Figure 4. We have also included a figure for selected drought sequences to show the progression of the drought triggers (rest water level and recharge deficit) through the sequence. Due to changes in population, metering penetration and distribution losses, we believe that demand comparisons with past droughts are not appropriate.	We have made minor changes to descriptions of drought scenarios in response to EA comments – recommendation 1. Included figures of impact on water levels and recharge for selected drought sequences.
7. Error in text	7. In Table 2 of the technical report, the baseline average net surplus is shown as 9 Ml/day, but the text at the bottom of page 34 says the surplus is 28 Ml/day. Is there an error?	This has been corrected, the initial surplus is 9Ml/d	Section 4.2.3, p34 revised
8. Temporary Use Bans	8. We welcome the reduction in the time to be taken to implement a TUB in SSW from 9 weeks to 5.	Not applicable	None
9. Communication plan	9. The communications proposals are much improved. We support the intention to use social media, but point out that the Company website doesn't show on the Home Page or the Contact Page that the Company has a Twitter Account or a presence in Facebook and LinkedIn. Has the Company asked permission of customers for use of their mobile numbers and email addresses for giving warning of drought measures?	Our Communications team are developing our Cambridge twitter account, which is available for messaging, but not yet fully integrated with the Cambridge website. https://twitter.com/cambswater. This together with our Facebook presence is under development as part of our digital strategy. Since publication we have decided not to use LinkedIn for communications purposes as it largely used for recruitment by our Human Resources Department. We will only use customer's details for messaging if they have agreed to this which is recorded on our billing system.	None
5. Consultation	10. The consultation dates shown in Section 2.2 of the CAM Plan seem to be incorrect.	This will be updated as per the revised publication dates	Section 2.2 revised

dates			
11. SSW plan	11. There is a typo on page 13 of the SSW Plan: “linked it telemetry”.	Not applicable	None
12. Daily consumption	12. On page 22 of the non technical summary typical daily usage is given as 150 litres, whereas on Discover Water it is 141 litres a day.	The figure for consumption of 150 litres per head per day has been a reference value in water efficiency literature across the water industry for a number of years. This has been higher than average consumption in our supply area for a number of years but it is only recently that average UK consumption has fallen below 150 litres per day. Because it is a figure commonly recognised we intend to continue to use it for now but will look to develop a common position with other companies in future.	None

Friends of Cherry Hinton Brook

Issue	Comments	Company Response	Change to plan
1. Water Resources & environmental impacts of abstraction	We would however like to be reassured that the Drought Management Plan takes the long-term sustainability of the brook and its wildlife into account. We are concerned by the statement in paragraph 7.6.4 that “Investigations were undertaken over a 12 month period and have concluded that abstraction does not impact on flows in the upper reaches”. Our general understanding is that abstraction does have an impact, and we wonder if, given annual fluctuations, the investigations have been undertaken over a significantly long period. We understand the importance of the drought planning actions but, given that Cam Water is supporting the management of the brook, we think it vital that the work we are currently involved with is not compromised.	We have undertaken investigations into current abstractions which have shown these have no impact on flows in Cherry Hinton Brook. In recognition that there is a risk of impact due to the increased abstraction at some sources during a drought, we have identified the Brook for monitoring before, during, and after a drought to determine if increased abstraction has an impact, and will mitigate any impacts. It should be noted that drought conditions will have an impact on river flows regardless of abstraction effects.	None applicable

Private individual

Issue	Comments	Company Response	Change to plan
1. Growth and water consumption	I have considered the draft report and I am concerned that, in view of the rapid expansion of Cambridgeshire, the proposals and strategy will be inadequate if the area suffers a sustained drought. This may have devastating consequences to the fish and flora and fauna in our rivers. I am surprised that the draft states that 'temporary bans on water use' should not need to be implemented more often than once in 20 years. The process for these bans does seem convoluted and the implementation of them is likely to be costly and cause grievances. I suggest there is a better way to alert consumers to the need to reduce water consumption at times of impending	We are trialling new ways to engage with customers about their water use in general. The outcomes from this may have added benefits during drought periods. We have just commenced a trial of Watersmart with 15000 customers. This trial will see bespoke water use reports being sent to customers with water saving advice tailored to their circumstances. We are also keen to explore how we can provide smart meters to customers in their homes so they can see how much water they	None applicable

	drought. This would be by introducing incremental water charges. Consumers would pay a higher charge for water used above what would be deemed a reasonable volume for their circumstances/house band. Smart water meters could be programmed to read weekly consumption. The dates from when the higher charges would be enforced would be widely publicised. This would alert everyone to the need to conserve water, and the extra revenue from consumers who exceed water usage allowances would help fund drought mitigation measures.	use directly. Our draft WRMP due for publication in early 2018 includes proposals to engage with customers to help them save water. Whilst we hope to develop our engagement with customers around their water use we believe that temporary use bans will remain an important part of a drought management strategy.	