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Consultation Response to Cambridge Water on their Draft Water Resources Management Plan for 2024

This is the consultation response from the Cam Valley Forum to the Cambridge Water Company on their Draft Water Resources Management Plan for 2024.

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Our WRMP Response: Contents & Response Summary

1.	The Challenges facing Cambridge Water	page 1.
2.	Points on the presented Plan itself	page 3.
3.	The National Chalk Stream Restoration Strategy	page 4.
4.	Climate Change	page 6.
5.	Customer Engagement	page 7.
6.	Demand and better Demand/Supply options	page 8.
7.	The Future	page 10.
	References	page 11.

Cam Valley Forum welcomes participation in this WRMP, but recognise fully how far distant Cambridge Water still is in recognising the longstanding abuse that the Chalk streams here have suffered. We do not attribute blame but do demand that our whole County put this problem to rights and do so now the more quickly. The aquifer alone is an unsustainable resource for the great bulk of our water supplies. Behind the show of consultation, and through the fog of water industry jargon there is encouraging evidence of better management by Cambridge Water seeking new and alternative sources, new investment, fixing leakage problems, saving water and changing approaches. Unfortunately climate change, past erosion of Natural Capital, a fast growing population and great pressure for development are all militating against a successful company plan being possible. In many ways we are well served, but Cambridge Water needs to fully reconsider the inadequacy of the pace of this draft plan, as presented, and follow the advices given by the Government and local communities whose help they should now engage with to put the plan more on track for a genuinely sustainable and more healthy future water environment.

1. Introduction: The Challenges facing Cambridge Water

We, in the **Cam Valley Forum**, focus most specifically on the health of our River Cam, for this is our principal concern. What we long for is a Water Company that will put environmental well being at the heart of its business. That concerned focus requires us to join with you in managing our common water resources better through the agency of your WRMP planning. Water is central to all life: it is a shared common resource between all the parts of the natural environment. As our ecosystems are hugely altered by our own human operations (from anthropogenic climate change, to abstraction of aquifers or our pollution of water) we are going to be managers of that system to a very large extent. You are not alone! Two points that we would make initially are important:-

First, in running any enterprise it is normal to feel the tension between ‘where we are’ in this planning and management process and ‘where we would want to be’. We all share that tension. We do welcome the opportunity therefore, that this consultation gives, to share in the strategic planning process. *Please recognise that we value that greatly.*

Second, it is very clear to us that a hostile adversarial approach between us is deeply unhelpful, but at the same time there is much, as you know, that excites another deep felt tension. This one lies in our *disparate views* of the ‘where we are’ and the ‘where we ought to be’. These are harder to reconcile. As was said by one WRE member recently “**Cambridge Water Company just do not seem to get it!**” In this introduction we therefore set our own general view and then clarify points and perceptions of the WRMP thereafter.

Our general view. The Cam Valley Forum and its members, as a major River group in the Cam Valley (we were established in 2001) have been cognisant of what, - in the water environment - has pertained and changed over much longer than the two decades since 2001. The problems of **over-abstraction of water** from the Cambridge Chalk aquifer *is therefore not new*. Your company has been abstracting from the aquifer since 1855. What was once an easily renewable resource, in our perception, is no longer nearly so sustainable. **Quite simply, the Chalk aquifer is now the wrong source for the great bulk of public water supply.** You never seem to acknowledge this enough:- low rainfall in this region of England is unchanged, but longer hotter summers prevail now; there are higher consequent soil moisture deficits to be made up. When the rains do come lowered soil carbon and higher soil compaction often result in higher rates of winter run-off to our rivers. We therefore have a lower degree of effective percolation into the soil and the aquifer. The result is increasingly dire for the streams, wetlands and river environments. We are taking far too much water for domestic supplies relative to that which the Chalk springs had a century ago. This results principally in us being in ‘a water stressed region’, not because of rainfall water shortage *per se* but mostly because we just desire too much of it and from **the wrong places**. The Chalk was and should be the reservoir that gives a Chalk streams its resilience. Over abstraction takes that away. Please therefore **embrace the challenge** to put it right! You should welcome not resist the change.

We (users) are all to blame for this present situation, but these anthropogenic changes have impacted on wetlands and Chalk streams very seriously and been apparent to many of us since the 1970s or indeed well before that. Some of us remember the institution of the Environment Agency’s river Support Schemes in the late 1980s and 90s - for the augmentation of the Lodes & Granta and the Rhee. These were put in place then to fix one problem (of Chalk streams clearly failing), but **it is very clear now that that is in itself no longer enough**, though its remedial effects were welcomed at the time and as they have been since. There is just not enough water. We need immensely more environmental ambition from you. **Your job is not just water supply if the cost is harm to the environment.** Environmental benefits, like having healthy streams and rivers, need to be counted as credits for the health and well-being they bring.

This region is **experiencing a worsening of environmental condition**, an erosion of Natural Capital - manifesting itself in both failing ecosystem services (like ground water!) and in bio-diversity loss. The despair that we experience, at this state of affairs, is not helped by the huge pressure from local building development and human population growth. In short, **we people are out of ecological balance with our environment**, and time is not on our side to correct it. The water you supply is not used sparingly and it is certainly too cheap for its value: your **superb treated drinking water is invariably ‘wasted’**. Restraint, in water use, is called for. But it is not yet in the public’s perception to change our ways. You know that. Some things need to change and change quickly: that is the urgency. The responsibility for this is not yours alone. **It is for all of us to fix it.**

The good news is that some of the bad changes are still reversible but when will they ever happen? At the personal level we have always found Cambridge Water, to be supportive of our concerns. The commitment is certainly there from you, in our perception, but it is too often ‘too little too late’. We do **value the Cambridge Water Company (Pebble Fund) contributions** to the funding of environmental conservation works, but we are inevitably struck by the irony that it is funded by revenues from some of the harms that are caused by the company’s own operations!

Cam Valley Forum members first expressed our doubts about the sufficiency of water supplies over a decade ago in 2013¹. We expressed grave doubts about the resilience of the water company management’s of supplies

in our *River Cam Manifesto* in 2019 ⁱⁱ. We suggested a *Chalk Streams First* approach and the use of down stream Reservoirs for winter flow in our *Let it Flow!* paper 2021 ⁱⁱⁱ (and now the Fen Reservoir might be a reality). We are however very disappointed that there is **absolutely no mention of the National Chalk Restoration Strategy** ^{iv} which we shall allude to. Your WRMP does not mention it. This is not right.

Our mismanagement of water is reflected in much wider concerns. There is a developing global water crisis - as is manifest in UNESCO water development reports ^v. We need to think and act quickly as it is where such basic systems fail that countries, like ours, will become the poorer.

Given the past dearth of leadership in Cambridge, and nationally, in seeing these problems clearly there is room for **greater ambition in all that you do**. We are encouraged, however, **that some of the planning in your WRMP is seemingly moving in the right direction** for there was, in the past, too much hesitancy by *Cambridge Water* in acknowledging more fully some of the criticism we have offered. What is disappointing to us now is the recognition that the **pace of change in improving environmental management shown by the water companies** needs to outstrip the harm done by the pace of the development that we also are being required to seek. So please heed the authoritative voice of critics such as Sir David King (former Government Chief Scientist) who made it very clear to a recent meeting of Natural Cambridgeshire that unless you first have ecosystem well-being you cannot contemplate any truly sustainable developments.

2. Points within the Plan itself

(a) Evaluation

It is instructive to anyone new to these Water Resource Management Plans to compare those of previous years (2010, 2014, 2019) with that of the present one (2024). Do you evaluate past plans? Surely, yes. What have you learned that can be built on now? In evaluating the tone and the attitude of these successive plans there is **a noted improvement in your interest in environment** but it is still hard to feel that you have not been forced into it when you have only recently been finally forced to cutting abstractions. Your Head Room Licence cannot be utilised without considerable harm being done). The fact that you are over-licensed is not a defence for your actions. Nor is it your fault that demand has become so great, but we do **welcome the reductions** that are now being asked for. **We also heartily welcome that you are at last moving in the right direction.**

(b) Accessibility of the material

There is clearly a great deal more to read in each successive plan. You have tried to keep it simple, but it is still a problem. It is difficult to get through all of it when the Appendices are often pretty important as well.

[WRMP 2010 \(60 pages\)](#)

[WRMP 2014 \(134 pages\)](#)

[WRMP 2019 \(196 pages + 21 appendices\)](#)

[WRMP 2024 \(124 pages + 43 appendices\).](#)

In expecting your readers to get to grips with the many hundreds of presented pages the WRMP should aim for **greater accessibility**. Repeatedly the **water industry acronyms** will not be understood sufficiently without greater explanation. **We noted more than 50 little known water industry acronyms**. In addition to these, in the main draft plan there are 20 or 30 more **source names for deployable outputs** in abbreviation form e.g. in Table 9, these are all referred to without any explanation as to exactly what they refer to at all. If these are indeed Environmental Agency 1 Base Year Licences (as is intimated) it is unclear as to how to even find out what they are! All this drives bewilderment for the reader.

(c) Appendices

It is probably important that you include the large number of appendices. We also note that many of these are a requirement of the regulator. This could have been done more accessibly. For the **Ricardo** report on **Water Framework Directive**, your consultant was presumably required to assess the possible non-compliance of new proposals. We would, however, question **the competence of this particular report or reporter**. We suggest this as there is allusion to options for harvesting grey water at Northstowe (in the Old West River catchment not the Cam catchment); CW2438A & CW2438B do not seem to appear in the main drafts. The consultant's allude to them as large scale (A) and small scale (B) water storage at Northstowe but this cannot possibly impact either Cherry Hinton Brook or Bottisham Lode (which they caution), as they are in an altogether **unrelated** catchment Area. We suggest that the consultant has not done their searches carefully at all. One is tempted to ask whether they have even visited the County! If OfWAT

make such reports conditional for submitting a WRMP someone (you or OfWAT) ought to be critical of what they are feeding to you. In the Ricardo report on **Biological Net Gain**, there is no indication whatsoever of them having consulted with Natural England, the Environment Agency or the Local Wildlife Trust. Cambridge is full of experts on the ground but you are not getting very good advice here.

3. Chalk Streams

Our principal local concern is Chalk stream recovery. The Chalk streams in the UK are, as you know, internationally important in the conservation of biodiversity. As an exceptional variety of spring-fed rivers we know that the UK has about three-quarters of the world's total chalk streams. This includes our Cam, Rhee and Granta and many of their tributaries. For reasons of long standing environmental abuse, in the Cam Valley, these streams are not among the best now but, despite this they are still valued highly for their biodiversity and lowland scenery and for their provision of recreation and well-being for local people. A three-fold assault is being made by the CABA Chalk Stream Restoration Strategy 2021 (see below). **This should be laid out as being at the forefront of your Cambridge Water Company thinking about Chalk Streams.**

1. **Channel Modification** has gone on for centuries, with dams, weirs and mills being the start, but in the past century machine dredging for drainage has been thoughtlessly applied. Too few now have meandering beds over bright gravel. They are often deep cut, shaded, silted and embanked to their detriment. This is the first vital step to remedy. As you know Cambridgeshire is investing in this work with help from you. **This we welcome.** (You have included this problem in your section 11.)

2. **Pollution** is still really bad in rivers . Harmful additions to rivers by humans is not new, we have long done it, but nitrate levels are far higher today than in the past, and, in the environment with added phosphates it becomes eutrophically bad. Much of the environmental problem does not lie at your door but with Anglian Water as sewage treatment works are heavily implicated. Historically the Cam had agrochemical industries that grew up on some former Mill sites, such as at Duxford and Hauxton:- so for example dozens of pesticide contaminants remain still at Hauxton there in the river bed. These contaminants are now joined by industrial pollutants from roads as well as those from our sewage works. Our once pristine ground water is now contaminated as well. You yourselves have had bad problems with water quality as a result of **PFAS/PFOS releases at Duxford**. Although pollution is not part of the WRMP itself, it is a huge part of good management in what you supply. **We welcome the fact** that you do mention this as a supply-side concern. We would not want any let up on nitrate pollution monitoring. We do note however, that **you are adding phosphate**, to the drinking water as a de-plumbisation measure (stopping old lead piping from releasing lead). **Could this practice be reviewed** as lead piping becomes an older aspect of the mains water supply piping network? Is the level of your phosphate additions really needed? For Anglian Water, getting phosphate pollution down to <0.2 mg/l total Phosphorus in sewage outfalls is an aspiration to aim for. Total Phosphorus of at least 0.25 mg/l, will be required by AMP7. This is essential for Chalk Stream recovery. Under the Water Framework Directive, rivers in a lowland (<80m AOD) with high-alkalinity such as the Cam's tributaries, are classified for **phosphate status according to the bands of phosphate-phosphorus.**

Phosphate Status	High	Good	Moderate	Poor	Bad
Bands mg/litre	0.000 - 0.050	0.051 - 0.089	0.090 - 0.211	0.212 - 1.089	> 1.089

Only up stream ends of Chalk streams like the Shep, Mel and Hoffer Brook are presently achieving *Good*. Some of the Cam is *Moderate*, but much of the Cam is *Poor*. The shameful state of this Cam pollution is in large part attributable to our own **very low summer Chalk Stream base flows** which would enormously dilute this pollution were it not for present over abstraction. **This pollution spin-off from over abstraction should certainly be your concern and responsibility to address.**

3. Over Abstraction.

Historical dependency on chalk springs for clean water was how many villages in South Cambridgeshire originated. It is the best water! Hobson's use of a chalk stream, channeled into Cambridge (1609) solved our city's clean water problem for 250 years. Cambridge then pioneered pumped abstraction (1855) from Cherry

Hinton. After bigger pumps and deeper pumps, and more and more pumping stations we are now almost totally dependent on the whole Cambridge Chalk aquifer to deliver well over 100 megalitres per day to yourselves, and Anglian Water and Affinity Water for their supply. Rightly it is appreciated, by all nationally, that **in the long term this is unsustainable with demand going up and up.**

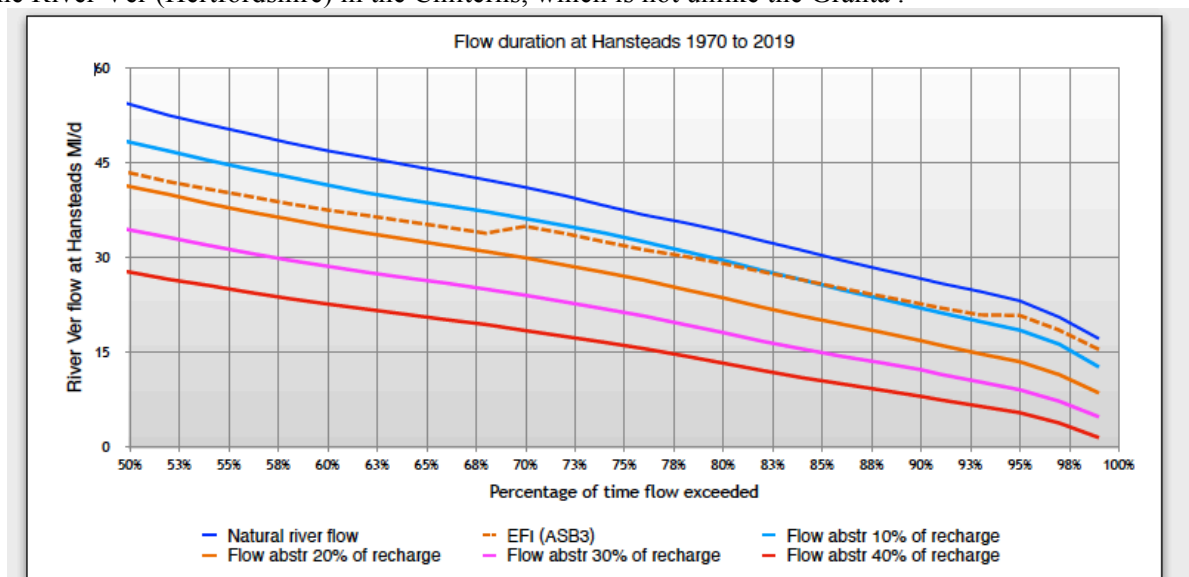
Cambridge Water and the EA have commissioned much research on the Granta Catchment over decades. (see Streetly, Bishop, Bradley and Dunscombe *Managing public water supply abstraction from a Chalk aquifer to minimize risk of deterioration of ecological status*)^{vi} **One might ask why you did not focus more on this as the basis for the cuts in abstraction the EA has required of you?** That research shows very clearly the precarious nature of the ground water and the recent ‘droughts’ on the Granta exemplify that cliff edge provision of water resources. The Granta catchment (115 km²) is small but has a very small river/stream in summer with often low summer flows. That catchment is of concern to everyone in Cambridge as it has dried up completely to **zero flow in 2019** and got close to that again in 2022. The table below is a **‘Balance Sheet for water’ for the Granta Catchment.**

Component	Rainfall	Evapotranspiration to atmosphere	Surface run-off to River	Aquifer recharge	Chalk spring Base Flow	CWC Abstraction from Chalk
Volume / day (mean)	174 MI	144 MI	9.5 MI	21.5 MI	10.5 MI	10 MI

The table is based on abstraction data from you, or from that available from the Meteorological Office (rainfall), the Environment Agency (e.g, flow data) etc.. All is expressed as megalitres per day (MI/d mean) as measured over a period of years. Your Granta abstraction is very variable over the years but has been in the order of **10 megalitres per day.** (10 MI is equivalent to completely re-filling four Olympic sized swimming pools every day).

What is not clear to many people is that 83% (144/174) of rain fall is returned to the atmosphere again through evapotranspiration. There is only about 17% (on average) left for the river and ground water recharge. Other smaller components are STW output (1.5 MI/d), this is added here to run the off flow to the river ; in the summer augmentation (1.5 MI/d) is coming from the Chalk, that this is added into the base flow. Nowhere in your plan do you explain that the **degree of flow of a Chalk stream relates directly to the intensity of abstraction from its aquifer. This needs saying forcibly to customers as it is why alternative sources of supply are so essential for the future.**

The useful figure below is from the *National Chalk Stream Recovery Strategy*. It relates to their work on the River Ver (Hertfordshire) in the Chilterns, which is not unlike the Granta .



The graph shows the relationship between rate of flow (MI/d) and the percentage of the time that that flow is exceeded for a range of conditions of abstraction. This is given, first, as Natural River flow (blue), then successively below that, abstraction at 10% of aquifer recharge (pale blue), 20% (orange), 30% (magenta), 40% red. The dotted (orange) line is Environment Agency’s ‘Environmental Flow

Indicator' (EFI). This rate now plays an important role in evaluating the management of Water Resources in England. **It is used as a target for cutting abstraction to that sustainable level.** It cannot be sensible to take from the Granta catchment more than 40% of the water available from its aquifer recharge. **If half the base flow is taken away by abstraction, as on the Granta, streams will fail and sewage treatment works and their outfall pollutants will continue to be undiluted.** This is the reality against which alternative water sources must be sought at an accelerated pace.

Your Water Resources Management Plan does not begin to acknowledge the *status quo* as being one that is deeply unsatisfactory. For this reason we do find expressions like 'business as usual' or 'no deterioration' as being totally unacceptable. **Improvement on the *status quo* is the only respectable ambition.** Abstraction must be capped at current usage levels and actual abstraction reduced as fast as any alternative sourcing can be found.

4 Climate Change (Temperature, Soil Moisture, Rainfall and Drought)

This element is a great unknown for us all and we would like you to adopt the precautionary principle. No bigger blunder could be made than making unwarranted assumptions about future certainties. We would ask you therefore to follow the dictats of caution. We are wary of an over-reliance on modelling and would encourage the gathering of more local data. There is plenty of evidence of rising summer temperatures, earlier springs and longer summers. This all means greater evapotranspiration and less guarantee of available groundwater.

It is far from clear as to what the **17 sources** (p 67) **that you list as 'vulnerable to climate change'** actually are! (they have only acronyms).

In thinking about water shortage we would urge that much greater attention be given to the soil moisture deficits. If soil moisture deficit (SMD) is the more raised from the higher summer temperatures and longer summer seasons, then the ground-water sourcing of Chalk streams is greatly affected, as will eventually be the sourcing of our own public water supply. **In this the Chalk streams are the canary in the coal mine.** Summer evapotranspiration presently exceeds rainfall in an increasing period of summer months. Our studies attribute part of the Cam's currently falling river flows to these increased soil moisture deficits. I append below our own data on SMD for the past year 2022. This is from Dr Robert Evans* (a soil scientist) on our CVF committee. These are quite frightening figures as winter rain has to make up the deficit before there is any substantial aquifer ground water recharge. (Hodge C.A.H. *et al.* 1984 *Soils and their use in Eastern England*. Harpenden. Soil Survey Bulletin 13.)^{vii} In this past wet winter > 300 mm rain was needed to allow

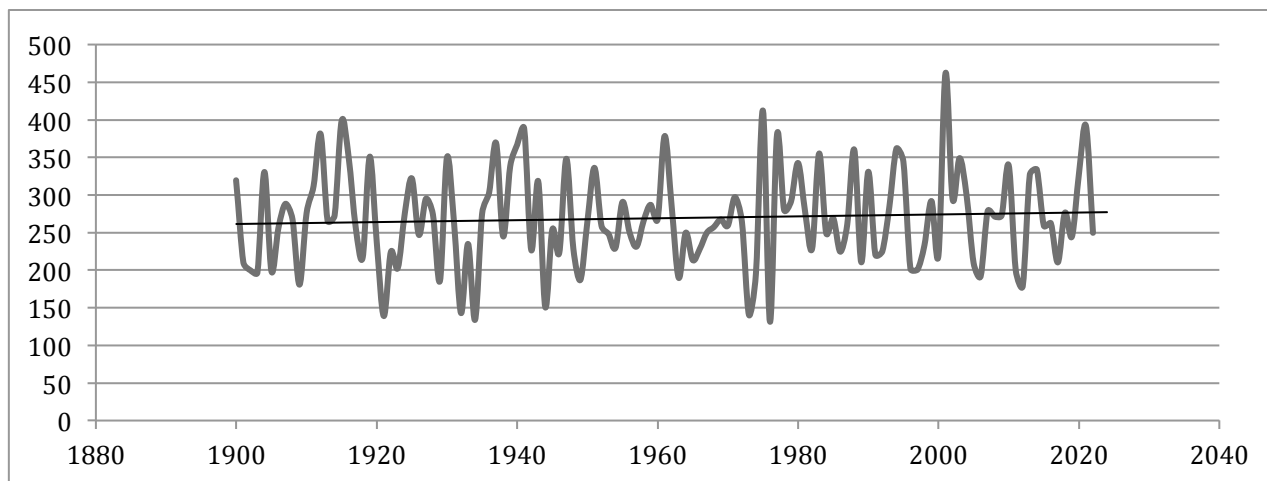
Monthly Soil Moisture Surpluses and Deficits (mm) - 2022-2023 for Cambridge

based upon National institute for Agricultural Botany (Cambridge), rainfall data. NB our local SMDs are much lower than the area means published by the EA across the region. i.e. the Cambridge area is indeed more stressed.

2022		2023	
Jan	+ surplus 66	Jan	-104 "
Feb	+ 16	Feb	c - 104 "
Mar	+17		
Apr	-35 Deficit	July	-246 "
May	-91 "	Aug	-308 "
June	-152 "	Sept	-321 "
		Oct	-269 "
		Nov-	-176 "
		Dec	-135 "

the further rain access to the aquifer. Cam Valley Founm have pointed out already to Robert Bakewell, the EA regional Drought Manager, that the monthly ANG hydrology data sets, that we see, do not record on their colour coded maps an SMD > -100mm as occurring. In fact SMDs of > - 200mm occur regularly here!

Rainfall: As you well recognise, in the Cambridge area annual rainfall is low compared to any other English region and, year on year, is highly variable. That variance you can rely on! Droughts and flood events are to be regularly expected. You are well aware that winter rainfall has a significant impact on ground water. As public water supply in our catchment is still 97% ground water dependent we welcome heartily that that is now going to be reduced by transfers, reservoir support or non-Chalk sources.



Cambridge Winter Rainfall, 1900-2022. (University of Cambridge Botanic Garden data)

The report of the [Cambridgeshire and Peterborough Independent Commission on Climate Change](#) drew on well-founded national research but not, as far as we are aware, on any detailed local meteorological studies. In our view rainfall has changed very little over the last century. The Commission’s report suggests that winter rainfall may increase but the graph above has a trend line showing only a tiny upward trend over the past 120 years; Cambridge Water should not expect any significant increase in winter recharge at present. If anything the inverse trend of drying is in the ascendant - as more ground-water is abstracted and hotter weather increases soil moisture deficits. There have been much greater droughts in the past than anything experienced recently. This is why we are close to crisis without water transfers.

Drought Resilience

Drought is a reality that will always be a natural factor. Although that of summer 2022 drought is in recent memory we have not seen in recent decades a drought comparable to those of either the 1930s or 1970s. Natural variance will assuredly bring greater droughts than we have seen recently. You claim “we have undertaken studies to identify the actions required to make our system resilient to a 1 in 500 year drought, where the previous requirement was a 1 in 200 year drought”. This must be a rather hollow statement when there are so many unknowns. Customers should be very happy just to receive what you provide so cheaply!

5. Customer Engagement, (Customer Expectations and Environmental Ambition).

Cam Valley Forum would like to **endorse the importance of Customer Involvement in planning. It is good to see the extent to which you have given this close attention in Section 4.**

We note that ‘In April 2021 the Panel agreed with the Company (South Staffordshire and Cambridge Water) a plan for an independent challenge by the Panel of the customer engagement to be undertaken by the Company in its water resources planning cycle WRMP24.’ We do feel that this is in one respect the right approach. Since then two of our committee members (at your invitation) have attended meetings of the Challenge Panel but they have not found it easy to question key fundamentals as we see them, but they have pushed for universal metering, which Cam Valley Forum does support fully. The oddity of South Staffs having one Challenge Panel when there are two utterly different water resource regions involved (WRE and WRW) in environmentally different parts of England **is frankly ridiculous** given that Cambridge’s concerns centre principally on your supply-side sustainability. To represent these two different areas of England together when they have such different needs is a not sensible. In Cambridge, we’d like to see a totally local company with wide representation and get back to where we once were. That said **Table 7 is very useful**. We feel that Cambridge customers will become much more welcoming of the environmental improvements that are needed - like higher rates of fixing leakages, more advice on water saving, greater insistence on water saving technologies in new buildings, increased pace of metering, etc. When our local authority is onside, as it is now, in pressing the reality of a “water crisis” there is no point in the Company pussy-footing the message and trying to please everyone.

In Cambridgeshire a **major change now to a water saving culture** will be essential if our Water Company is to fully achieve its WRMP. To achieve that **cultural change** requires forces to impinge on you from the media and Local Authorities as well as from customers. OfWAT (who with the EA and WRE) now have an environmental duty to ensure sustainability will not be slow to ask for General Performance Commitments that may well entail higher pricing for water. We do recognise that water is presently “too cheap”, in terms of the environmental cost to deliver it, and it has not been valued enough or priced well in recognition of its true worth. There are hard times ahead for water users here - not least because we have simply not been managing a model of true sustainability to date. Your performance commitment will need to be judged by achieving environmental benefits. **Customers will be right to demand visible improvements to the presently over exploited Chalk aquifer environment.**

6. Demand and better demand /supply side options

We have no reason to question any of your and Artesia’s research into **Demand**, but it would be good to know the populations sampled and the sample sizes, and when and under what conditions it was done. There is a lot of difference, in measuring attitudinal things, between objective sociometric methods and some sorts of marketing research. **It is obviously difficult for you to assess.** We are of the firm opinion that **growing towards a local water saving culture** and having it in place **with customers** is a very important component in getting this right. Cam Valley Forum itself has a small ‘Water Conservation Group’. As you know they are willing and able to **work with you** in this respect.

Temporary Use Bans

As you know, Cam Valley Forum is strongly in favour of using TUBS as a tool where there is severe shortage. **This needs to bite at a much lower water shortage threshold than your current TUBS trigger levels require.** As we see this it is simply a question of Cambridge Water wanting more disciplined water use from its customers in recognition of the fact that we have an unsustainable and fragile source. If you just maintain that your operation is completely sustainable we just want to know why do the rivers dry up? That question was asked in 2019 and in 2022 when other water companies went into Temporary Use Bans and you resolutely did not. It is a nonsense and we **did not give the right message here.** If you acknowledge the fragility of the ecosystem we are using many more people will cooperate and save water.(see **metering** below). The same is true of the need for better education of all children and adults about water. We understand that the TUBS regulations are in terms only of available supply. That availability needs to have much better environmental triggers to arbitrate on usage.

Development and Water supplies.

Many people in Cam Valley Forum **question the wisdom of such massive projected developments** as that occurring around Cambridge. We do recognise that Cambridge Water Company are not easily able to refuse to supply such developments because of their position as the only supplier, albeit with a monopoly. At the same time, we do not see it at all as the role of our own organisation to oppose all development on principle. We are of the strong opinion, though, that development must be in balance with the environment in terms of honoring Natural Capital and ecological sustainability. Both of these have not been followed in the past to our national detriment. With respect to **Ecosystem Services** water has a special position in needing to be fully available for the natural environment and farming and food production, etc.. Our society is rather mindlessly driven by a physical growth agenda which too easily will drive down the honoring of a **Common Resource like Water.** This is the reason why we have pushed bodies like *Water Resources East* to see that Common Resource management is not subject to market forces alone. We need regulators and regulation to rule over what will otherwise be our undoing. We know nothing of Artesia as your consultants. In 5.10.1 the conclusion ‘Artesia work found that temperature, sunshine and rainfall remain the key explanatory variables for peak week household demand.’ is fairly obvious. Demand cannot just be an entitlement to possession. We did not follow the sense in 5.11 para 1.(it has an incomplete sentence) .

The following in our view are key ways of more fairly reducing demand and upping potential supply.

(a) Reducing Leakage.

Firstly, this is the subject which raises almost the greatest hostility amongst critics of water companies! It is therefore disappointing to be unable to tie down the problem of **actual volumes of water leaked per unit time**. We could find no record of what attainment in saving will be achieved by the close of AMP7 in 2025. We did see, however, that in AMP8 2025 - 2030 the rate of saving leakage will **triple**. **This can only be good**. In the Appendix P, issue 4, **the saving of 50% leakage is tabulated on Table NTST 4 as 6.25 MI per day**. Does this mean that leakage is currently twice that at **12.5 MI per day**? This is an obvious place to secure greater savings but we do fully realise that this **is pretty difficult for the Water Company to do quickly**. Saving water would also save energy. It must be wasteful now. We did note that in the deep drought (with clay shrinkage) that there was an increase in your Company leakage rates in the drier weather. **All this strongly indicates to us that it does represent decades of underinvestment in infrastructure**. We would like to know who should be held to account for this? Can we not urge someone to accelerate the work? We note that the volume seemingly lost to leakage is only a little short of the proposed gain in volume from the 2027 transfer from Grafham!

(b) Increasing Household Water Saving

This is an area that has been well researched locally and nationally. Evidence from Waterwise UK ^{viii} suggests that quite substantial savings can be made. 140 litres per head per day was not unusual in the past. Any household saving water can quickly reduce it to < 120 litres, with more effort <100 litres certainly not impossible and < 80 litres per head per day is obtainable easily with some grey water use. Could not the per capita consumption (PCC) ambition of 110 litres per person per day by 2050 **not be brought forward to an earlier date**? May we emphasise that **this is a social ambition for a society** more than a company responsibility. Local Authorities are already frustrated by not being able to require higher standards of water saving in the built environment. Are you helping them in that will to change the status quo? **May we support you in that ambition**? This is a classic example of how the Company needs popular public support. Can you encourage the Government to bring forward their water (efficiency saving) labelling of white goods and other appliances?

(c) Incentivising Water Recycling.

Cam Valley forum fully supports all your water recycling/reuse options. The water industry should put its energy behind all such modifications to our local building regulations. **Local Authorities need to demand the facility to better influence local planning laws**. Retrospective fitting of total household systems systems is expensive, but it is obvious for example that water butts are an immediate saving. Their underuse is a product of water being so **much cheaper** than the investment cost of rain water storage. In your WRMP **we did note your positive engagement** with grey water recycling on new buildings. Cambridge has the Eddington Estate which was designed with such good design inherent to the whole. One of the worries about large scale development of industry in the Cam Valley is the demand for water for industry. We see your ambition to reduce such non-household water use by **only 9% between 2024 and 2037 is highly unambitious**. Present Chalk aquifer usage by industry is in much demand. For the majority of businesses more in-house re-use and recycling would make good sense.

(d) Metering.

Metering is an obvious gain as metered properties use less per capita than unmetered properties. **This has been well researched for your draft WRMP**. In an inequitable society (and Cambridge City is a national exemplar of one such!) one would not want excessive water prices to fall on heads of the less well off. However, at present OfWAT pricing is so low low that it does not encourage water saving and has the side-effect here of wasting water and harming the environment. We need a water company and citizenry to demand equity in pricing and the best steps in that direction would be smart metering for all. **Again, it is a case of upping the ambition**. If you feel it can be done by 2035 why not sooner - by 2030. Cam Valley Forum is certainly calling for universal metering and the faster the better. **Can you as a company be driven to do the right thing?**

6. New Supply

That Cambridge Water is realising that a total dependency on Chalk sourcing is no longer tenable is a big step forward. In this, we commend Anglian Water for their support of you. We gather that the present incipient licence caps will reduce your current Chalk abstraction by around 26 Ml/d. We heartily welcome this change. We are pleased to see the now displayed (non-Chalk) supply options. We are therefore of course very supportive of the Grafham Transfer and in the longer term of the Fen Reservoir. Any climb down from the present 97% Chalk stream aquifer sourcing is a gain.

New non-Chalk Sources	Maximum possible yields (Ml/d)	Date when coming into relief
Grey Water use (recycled)	0.7 Ml/d	
Rain Water use (water harvesting)	0.7 Ml/d	
Combined Ouse Gravels (non-Chalk ground water)	DYAA 0.5 Ml/d	
River Cam Abstraction and Treatment (River flow sourcing)	DYAA 7.2 Ml/d	
Milton Effluent re-use post Discharge (recycling)	DYAA 7.2 Ml/d	
Potable water from Grafham (transfer)	DYAA 15 Ml/d	2027 or only 2031?
Fens Reservoir (river to reservoir storage)	DYAA 40 Ml/d	2035 or will it be 2040?
	< 71.3 Ml/d	

We recognise fully that these saving are all non-Chalk sources. This we commend. (The actual numbers here in our table) may well be overstated. However, we note that the timescale for achieving this change is still **totally unambitious and actually barely in the time frame of the present plan**. How can we harness more support for saving streams and rivers much more quickly? The volumes envisaged here will not be quickly met and if the capacity it releases goes in to unconstrained development it will not bring any tangible benefit at all.

7. The Future

The Cam Valley Forum would like to predict that, like the gathering momentum to **decarbonise**, there will be a fast growing momentum for **cleaner, rivers with greater biodiversity**. You say that *“to support our WRMP and our environmental ambitions before our supply side options can be effective, we have undertaken an assessment of waterbodies which may be impacted by our abstractions for mitigation measures and improvement work to be included in our Water Industry National Environment Programme (WINEP) proposals for PR24.”* All the sites you have selected are worthy of help by way of channel modification but not one is unscathed by the harm of over-abstraction. That will continue too much.

Your list of waterbodies:- Cherry Hinton Brook, Hoffers Brook, Mill River, River Granta, Mel, Shep and Vicar’s Brook could all do with help. Augmentation has done much for some but whole rivers have effectively died, without help. One of those you have omitted, the Great Wilbraham River is pathetic today. Richard Townley, of the Wilbraham River Protection Society, has consulted with the EA they attest that the water table has gone down by three metres at the Temple Springs at Great Wilbraham and at Shardelowes Well, also, in Fulbourn. To overcome this deficit for their river the Society were told that it would require a reduction of almost 70% in the current rate of abstraction to flow normally again. In the Cam Valley Forum we have heard similar talk from the EA of 60% minimal reduction on current abstraction rates to achieve near normal flows. The National Chalk Streams Restoration Strategy sees a similar picture (see graph for the Ver). There is now a national alliance to improve things and it is going to happen.

A Flagship River Granta?

We note that for WINEP the Granta Catchment has been selected for special investigation and targeted improvement. So far some useful study has been made in increasing the percolation of catchment flow into the aquifer. Cam Valley Forum has assisted with River monitoring which shows that there is Phosphate pollution.

One great need that the Cambridge area has is for a demonstration of an exemplar thriving Chalk Stream; we need something to show our children and to be proud of. Cam Valley Forum would argue strongly that without such a demonstration the environmental gains from saving Chalk Streams will very soon be lost to us all. May we here **propose, here, that for every abstraction licence capping reduction you are required to make it should be allocated to that one Granta catchment until you have greatly increased that one Chalk stream's base flow.** Such an action would be a welcome experiment and would validate your investment in this changed water resource attitude.

Cam Valley Forum

ST/05/2023

<https://camvalleyforum.uk> To contact us please email info@camvalleyforum.uk

Some text references

ⁱ So What? The Water Debate: Issue 4, 2013. Sustainability Institute, Anglia Ruskin University.

ⁱⁱ The River Cam Manifesto: *August 2019*, <https://camvalleyforum.uk/publications/>

ⁱⁱⁱ Let it Flow! <https://camvalleyforum.uk/publications/>

^{iv} CaBA-CSR-Strategy-MAIN-REPORT-FINAL-12.10.21-Low-Res(1).pdf

^v <https://www.unesco.org/reports/wwdr/2023/en>

^{vi} Streetly, Bishop, Bradley and Dunscombe (2022) *Managing public water supply abstraction from a Chalk aquifer to minimize risk of deterioration of ecological status.*

^{vii} Hodge C.A.H. *et al.* 1984 *Soils and their use in Eastern England.* Harpenden. Soil Survey Bulletin 13

^{viii} <https://www.waterwise.org.uk/save-water/>