

## Chalk Streams - part of the Valued Landscape in crisis around Chesham



Two similar views of the River Chess illustrating the depleted state of the river in recent years.

### BACKGROUND:

- Chesham is named after the River Chess which is a chalk stream river that runs for 16 kms initially as a tributary to the River Colne which itself, after another 18 kms, then flows into the Thames.
- The River Chess has historically been used to generate power for five water mills around the town and has supported cultivation of water cress beds in the valley. As such **the River Chess represents an important part of the historic heritage of the area.** (source River Chess Association)
- Even before the mills, the Chess has been important for both settlement and industry in the area. There were Roman settlements along the valley and an extensive site at Sarratt has been studied by the Chess Valley Archaeological and Historical Society. Saxons settling along the upper reaches of the river named their settlement "the water meadow by the stone heap", or Caesteles-hamm, which today is known as Chesham<sup>1</sup>.
- The River Chess has for centuries displayed the characteristic features of a chalk stream including clear mineral rich water that emerges at a constant temperature of about 10°C.
- **Chalk stream rivers are a rare global resource** that southern parts of the UK have a disproportionate abundance of. There are only around 210 chalk stream rivers that have been identified in the world.<sup>2</sup>
- **85% of the chalk streams on the planet, are found within England.** (source Chiltern AONB <sup>3</sup>)

<sup>1</sup> <http://www.riverchessassociation.co.uk/>

<sup>2</sup> see HANSARD 22-7-19 & WWF - <https://www.wwf.org.uk/where-we-work/places/uk-rivers-and-chalk-streams>

<sup>3</sup> <https://www.chilternsaonb.org/about-chilterns/chalk-streams.html>

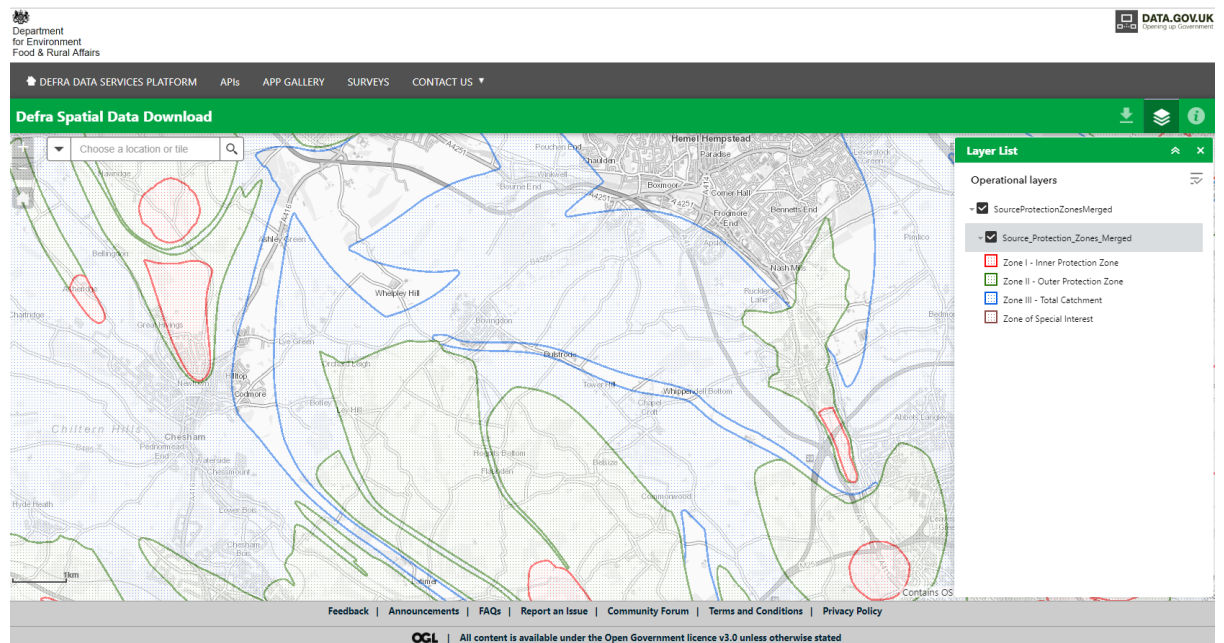
- Most chalk stream rivers are relatively short in length. There are only 35 chalk rivers between 20 and 90 km long in the UK. They are a unique contribution to ecology and support a range of biodiversity in the areas they exist.
- Several chalk streams are a characteristic feature of the Chiltern Area of Outstanding Natural Beauty and as such they represent part of the valued landscape of the AONB. **Chalk streams support a high level of biodiversity.** The River Chess is one such river.
- The chalk strata in the earth provides a natural filter for water as it percolates through the chalk into the subterranean aquifer.
- At key locations the aquifer rises, and water will flow above ground creating the chalk stream river.
- Although climate change is affecting chalk streams, the most significant effect on them comes from **water abstraction** from the aquifer by water companies to serve existing demand for water consumption, mainly from housing. This abstraction reduces the level of water in the aquifer and the chalk stream river dries up. **37 chalk streams are on the UK Governments endangered list.**<sup>4</sup>
- Affinity Water (formerly called Veolia Water and Three Valleys Water) provides the public water supply for the Chilterns area. 99% of the water they abstract from the Chess catchment goes to supply water to the public, most of it to local homes. A big problem is that the demand for water in the Chilterns is very high. For example, the average person in Chesham who lives in a property without a water meter uses **176 litres of water per day**. Compared to the average UK water consumption per person of 148 litres per day.<sup>5</sup>
- The River Chess flows through the town of Chesham and has been predominantly dry for the last 7 years and only starts to flow regularly again at appoint downstream of the town below the water treatment works.
- **Pollution** of the river or **contamination of the aquifer** is also a serious problem for chalk streams which the River Chess has also suffered from. Although water discharged into the river can help water flow, if it contains contaminates, it can be harmful to the biodiversity that the river supports.
- Soil washed into the river from surface water runoff can also be harmful as it can change the pH value or can include pesticides as well as creating a sedimentary layer on the river bed also harmful to the ecology of the river.
- Most significantly, pollution of the aquifer itself will potentially contaminate the outflow into the river. The Environment Agency and Defra have established water **Source Protection Zones** that identify areas where development or discharge that might leach into the ground

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<sup>4</sup> source The Guardian 24-7-2014

<sup>5</sup> source River Chess Association - <http://www.riverchessassociation.co.uk/>

water might cause contamination of the aquifer feeding the chalk stream. In relation to Chesham there is a significant area that represents outer SPZ that potentially could affect the River Chess as shown in the screen shot from the Defra website below;



- A Parliamentary Debate on “*Degraded Chalk Stream Environments*” took place in the House of Commons on 22 July 2019 which included numerous references to the River Chess.
- Significant stretches of the Upper Chess in Chesham have dried up in recent years, including 1992, 1996-97, 2005-06, 2009 and 2011-12 and 2017. It is estimated that it can take up to a decade for stretches to fully recover after drying out<sup>6</sup>.



Two images of the dry River Chess taken in Chesham Town near Germain Street (January 2018)

<sup>6</sup> Source River Chess Association - <http://www.riverchessassociation.co.uk/chess-under-threat/habitat-loss.html>



- The River Chess (like many chalk streams) supports a range of different creatures most notably, water voles, brown trout & kingfisher but the high mineral content of the water also creates an abundance of other flora, fauna & insects on which other local wildlife depend.
- Unsurprisingly, if the water supply is compromised by over abstraction, flow rates decline<sup>7</sup>. If the river runs dry, the biodiversity it supports suffers and declines; The River Chess is one of several chalk streams in crisis. **There is now only enough water in the Chess to meet its environmental needs for around 35% of the time.**
- The aforementioned Parliamentary Debate as recorded by Hansard, recites that; *“across 12 chalk streams in England there has been a 75% decline in caddisfly species, a 54% decline in stonefly species, a 44% decline in dragonfly and damselfly species, and a 40% decline in mayfly species.”* The aforementioned Parliamentary debate also noted that; *“Without insects, we have no fish and no kingfishers; the whole ecosystem and food chain begin to collapse...”*

#### **River Chess & the Emerging Local Plan:**

The River Chess as a chalk stream river, is a globally rare geographical feature that forms part an important characteristic feature of the Chiltern Area of Outstanding Natural Beauty and as such it represents part of a valued landscape. The NPPF requires planning policies to protect and enhance valued landscapes.<sup>8</sup>

The emerging Local Plan for Chiltern & South Bucks (2014- 2036) contains various proposed policies that relate to or which effect the River Chess. **Brown Not Green Chesham Ltd** (BNG) as a not for profit community company has concerns about these policies insofar as they may have impact upon the town and the valued landscape around it of which the River Chess is an important component.

Namely;

**Policy SP BP2** seeks to allocate Green Belt land NE of the town at Lye Green for development of 500 homes plus 15 gypsy traveller pitches, a convenience store and community hub. The site lies within 2.5km of the River Chess and significantly is located at the top of a chalk plateau that is within the water Source Protection Zone that identifies areas where development or any discharge leaching into the ground water might cause contamination of the aquifer feeding the chalk stream.

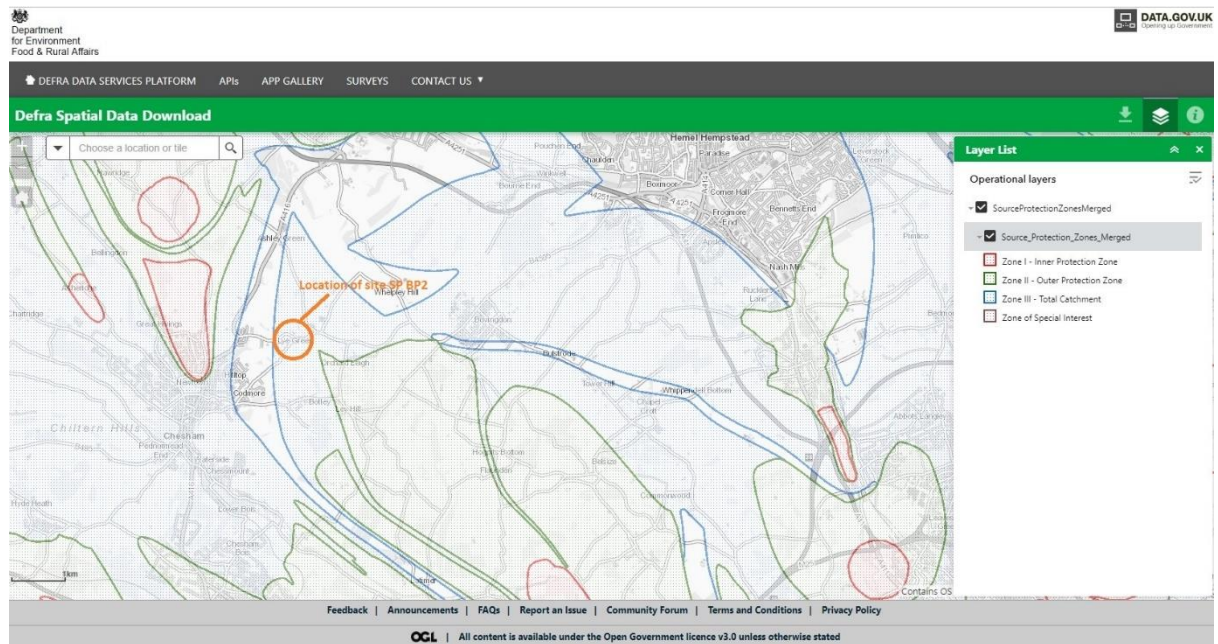
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<sup>7</sup> Source Chiltern AONB - <https://www.chilternsaonb.org/news/70/24/Drought-leads-to-fears-for-local-rivers.html>

<sup>8</sup> National Planning Policy Framework 2018 - NPPF paragraph 170a (page 49)

The site is shown marked in orange on the screen shot below taken from the Defra website and shows the site SP BP2 is located within the outer SPZ. As such there is risk of pollution into the aquifer either during construction or from surface water runoff after completion.

**BNG feel this is an inappropriate location for such a significant development that could indirectly cause harm to the river or the aquifer.**



Whilst it is recognised that a sustainable drainage system might protect the aquifer once the site is developed, there is still risk during development or afterwards should the system fail. Such systems are also costly and may render the development unviable or uneconomic to the developer. Given the various developer contributions that are already earmarked to be necessarily payable by a developer (ie: road improvements, air quality mitigation, contribution to local schools, and other facilities including more sustainable transport such as bus services etc) such issues potentially create a difficult choice between (say) delivering a development with 40% affordable housing or one with no affordable housing but an SDS!

BNG note that not all areas around the town are within the SPZ. Significantly, certain areas nearer the town centre are NOT within the SPZ. Accordingly, this would support alternative development options such as those being promoted by **Chesham Renaissance CIC Masterplan**. Accordingly, BNG recommends that further consideration of these alternative options are appropriate that might provide local housing at more affordable prices. Even if such alternatives cannot progress BNG further RECOMMENDS that the proposed allocation

of the Green Belt site SP BP2 should be REMOVED from consideration as an allocation site for housing.

**Policy DM NP6** (page 139) deals with river character and the water environment includes a policy that the LPA will not permit development that affects the character, flow potential and water quality within 10 metres of the “top of the bank”. BNG feel that this criterion is insufficient and needs tightening.

In light of the aforementioned comments about how development in a SPZ can injuriously affect the aquifer and thereby the River Chess as well as the potential problems from run off, possibly containing pollutants or soil contaminated with pesticides etc, it must make sense for the Policy to reflect these risks and apply not just to development within 10 meters but to ANY development that might threaten the aquifer or the river it supports.

BNG therefore RECOMMENDS that this Policy should be amended to state that the LPA will not permit ANY development that might affect the character, flow & water quality of the River Chess or the aquifer that supports the river, unless it can be demonstrated that adequate measures are being taken and / or the proposed development is NOT within a water Source Protection Zone.

Similarly, **Policy DM NP7** (page 140) dealing with Chesham flood alleviation should be considered and whether it is sufficient merely to consider the effects from development that straddles the Vale Brook Culvert that might affect the capacity, flow or structural integrity of the Culvert.

Why just the culvert? The River Chess can present a flood risk too and greater care of this valued landscape feature should be afforded to prevent it being exposed to flood damage (erosion, soil & other contaminate input etc) in light of the information herein about the sensitivity of the river and the biodiversity it supports.

BNG therefore RECOMMENDS that this Policy should be amended to state that the LPA will not permit ANY development that might affect the capacity, flow or structural integrity of the Culvert or the River Chess or other features in town.



**The River Chess in Chesham at Waterside in May 2019 – a dry riverbed where once water flowed in abundance.**

## **CONCLUSION:**

The River Chess is a very important component of the Valued Landscape in the Chilterns and supports a variety of wildlife and other biodiversity.

The dangers to the river from over abstraction by water companies to meet housing demand should be an important consideration when allocating more housing in the Chilterns.

Similarly, development sites should not place the river at risk either directly from surface run off or indirectly from either development or contamination into the aquifer that feeds the river.

Several emerging Local Plan proposals (notably **SP BP2, DM NP6, & DM NP7** ) require modification to ensure the sustainability of the river and the valued landscape and biodiversity it supports.

An extract from the Report entitled, “**Chalk Streams in Crisis**” (by Salter & Singleton-White) published in June 2019 in which the River Chess was a recited case study,<sup>9</sup> now concludes this Annex by Brown Not Green to its Regulation 19 Submission.

Phillip J Plato FIoD DipSurv MRICS  
August 2019

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<sup>9</sup> see [https://www.rivertrust.org/media/2019/06/Chalk-streams-dossier\\_June-2019\\_FINAL\\_FINAL-1.pdf](https://www.rivertrust.org/media/2019/06/Chalk-streams-dossier_June-2019_FINAL_FINAL-1.pdf)



## Case Study Two – River Chess Association

### River Chess: a Chilterns Chalk Stream

The River Chess is a chalk stream that rises in Chesham in Buckinghamshire and runs for 16km through the Chess Valley to Rickmansworth, where it becomes a tributary of the Colne, that flows into the Thames at Runnymede.

The Chess Valley is part of the Chilterns Area of Outstanding Natural Beauty, of which chalk streams are a characteristic feature. The Chess is home to a variety of important wildlife, such as water voles, brown trout and stream water crowfoot. The scenic river is enjoyed by walkers, fishermen, photographers and wildlife enthusiasts. The river is an important educational asset, school field trips and university data gathering are a regular feature with thousands of student visits every year.

History tells us that Chesham was built on reliable flows in the Chess, three water mills (Amy Mill, Canada Mill and Lords Mill) plus two water-powered saw mills and countless watercress beds were all productive thanks to the river. This would not be possible today. Weather has an impact on flows and groundwater and in recent years the climate has become drier but interspersed with some extremely wet periods.

The Chess faces many threats, including low flows caused by abstraction for the public water supply, pollution, and invasive species such as mink and Japanese knotweed.



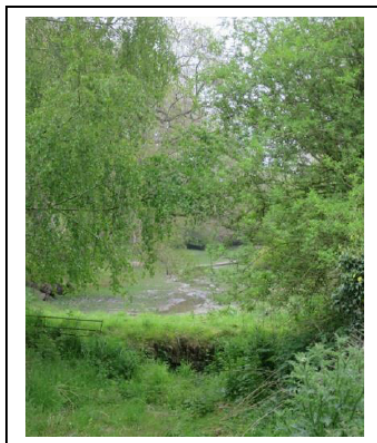


The Water Industry in the South East faces many challenges, maintaining low water prices, climate change bringing more extremes in rainfall both high and low, increasing demand, aging infrastructure, inadequate capacity, especially storage and dry chalk streams. Affinity Water abstracts 16mld from the Chess Catchment to supply locally, in addition Thames Water abstracts 6mld supplying outside the catchment. Affinity sits in the middle of this quandary, heavily dependent on groundwater from the chalk aquifer to meet up to 60% of demand, which competes with our chalk streams. During the extremely hot summer of 2018 we saw unprecedented weekend water demand with Affinity only just managing to meet supply. Many of the chalk streams in the Affinity Central Region have been suffering for years with large stretches frequently drying, some such as the Ver and Misbourne have been permanently dry since 2014. In 2017 we saw record low groundwater levels in the Affinity Central Region; this is set to be repeated in 2019.

Recently we have seen highly variable weather events including frequent drying events in the Chess Catchment.

- The Upper Chess was dry from April 2011 until November 2012
- December 2013 the Upper Chess was again dry despite a very wet summer and winter in 2012 and wet spring in 2013.
- In 2014 we experienced the wettest winter in 250 years with extensive groundwater flooding.
- September 2015 the Chess dried up in Chesham, flows came back February 2016. Major fish kill in Duck Alley.
- October 2016 the Chess dried up again in Chesham, flows did not return until April 2018, no fish in the river to kill this time.
- Flows outside the Queen's Head in Chesham are dry again in Sept 2018, a trickle of flow returned in late spring 2019 but will dry again shortly.
- The impacts on aquatic invertebrates and fish may mean that we are close to or have breached the 'no deterioration' requirements for water bodies.

What follows are pictures showing the current position on the Chess in an around Chesham. Out and about in the Old Town yesterday 17 May 2019, as our friends at Impress the Chess and the Chiltern Society were checking on the riverside bird boxes. It is clear that unless we have a very drastic change in the weather, the Chess is going to be in for a long, dry summer in Chesham.





*The channel leading into the Chesham 1879 Tennis Club; dry as a bone.*



*Bucks County Council and the Chilterns Chalk Streams Project did some great river restoration work at the 1879 Tennis Club. Now it just needs some water...*



*River Chess, Town Bridge, Chesham April 2017*



*Queen's Head February 2014*

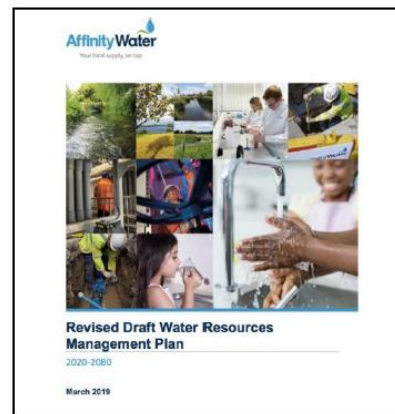


*Queen's Head September 2018*



While reviewing the Affinity Water Water Resources Management Plan we noticed that the cover included some fast flowing chalkrivers. Two pictures were of the River Misbourne. We thought you might want see what these rivers look like today. The pictures were taken at the same locations.

When it comes to the environment we wonder if Affinity are deluding themselves when we see some of the pictures of the River Misbourne used in recent promotional material and the Revised Draft Water Resources Management Plan.



*River Misbourne Chalfont St Peter*



*River Misbourne Chalfont St Giles*

*From the cover of the Affinity Revised Draft Water Resources Management Plan*

*The Misbourne today, pictures taken from the same location 15<sup>th</sup> April 2019*



*River Misbourne Chalfont St Peter April 2019*



*River Misbourne Chalfont St Giles April 2019*

### **New Reservoir Capacity**

We are pleased to see that Thames Water and Affinity Water are planning to work together on a new reservoir project near Oxford. It now features strongly in both their new Water Resource Management Plans and in Thames Water's revised Business Plan 2020-2025. The South East

Region of the UK is the driest and most populated corner of the country with the highest demand for water. It has been in need of this new reservoir capacity for years and it cannot come too soon. The scheme will allow water to be taken from the River Thames at times of high flows and stored to be used when supply from other sources particularly the aquifer that supplies our struggling iconic chalk streams is short.



*Above: The dry River Chess in Chesham*

In our area, domestic supply comes from Affinity Water, of which over 60% is sourced from the aquifer. The aquifer also supplies the flow to our chalk streams such as the Rivers Misbourne, Chess, Ver, Gade and Wye, all of which have long dry sections and very low flows. We are in the Affinity Central Region and their current estimate of supply and demand reveals that we already have greater demand for water than supply. This is why this joint project between Thames Water and Affinity Water to build a new reservoir is so important to ensure water security for the future in times of population growth and climate change and reduces our dependence on groundwater for domestic water supply, saving our chalk rivers. This supports the stated aims of Thames Water and Affinity Water to protect these chalk rivers.

The River Chess Association is urging DEFRA, OFWAT and the Environment Agency to provide support for this project. There is a concerted message coming from the Angling Trust, Rivers Trust, Wild Trout Trust, Salmon and Trout Conservation Trust and various local pressure groups all working together supporting this project.

We could be heading for a crisis this year. Low winter rainfall has meant minimal recharge of the aquifer and our already struggling chalk rivers will further dry up. Less than two years ago we were seeing pictures of a dried up River Colne and it is likely to happen again this year. In Chesham, the River Chess has been dry since September 2018; this is the 5th time the river has dried up since 2011. This is why this reservoir project is so important.

We would encourage both Thames and Affinity Water to accelerate this project, if this reservoir had been in operation today there would have been two opportunities this winter when large volumes of water could have been harvested from the Thames and stored for use later this summer when we fear we will need it most. With this in mind please look at both the Business Plan 2020-2025 and Water Resource Management Plan 2019 and see if there are ways of shortening the lead-time for this critical project. We have looked at other proposals for water transfer from other areas and are concerned by the environmental risk they carry resulting from invasive species and water quality.



“Protecting the Green Belt around Chesham”

[www.brownnotgreen.com](http://www.brownnotgreen.com)

Rt Hon Dame Cheryl Gillan MP  
House of Commons  
London  
SW1A 0AA

19 July 2019

Dear Cheryl,

**Chalk Streams in Crisis: Please act on drought now**

I am concerned at the lack of action from the Westminster Government to tackle the drought affecting England's Chalk Streams. I write on behalf of Brown Not Green who are further concerned by the proposals contained within the emerging Local Plan for Chiltern & S Bucks, to build a significant number of homes in the district including over 500 on Green Belt Land NE of Chesham barely 3 miles from the endangered River Chess. Increased housing around Chesham will (amongst many other things) place further demand for water abstraction.

There is no doubt that we are on the verge of a water shortage crisis in the South and East of England, which is already impacting our rivers. Without urgent and decisive action, we face losing this precious natural resource all together.

England has 85% of the world's chalk streams. These unique freshwater ecosystems are at risk. They are, quite simply, dying from lack of water. Many of these globally rare habitats already have long dry sections and some chalk streams in the Chilterns and Hertfordshire have been dry for years. The River Chess is a clear example of this and has been mostly completely dry for many years. We seem to be moving ever further from the goals set out in the Government's 25-year Environment Plan for 'respecting nature in how we use water'.

For the Government to make good on its pledge, within the Environment Bill, to take new steps to ensure our environment is even better protected in the future, I urge you to support the recommendations of the '[Chalk Streams in Crisis](#)' report and to attend and engage with the forthcoming parliamentary debate on the plight of chalk streams, which is scheduled to take place on Monday 22<sup>nd</sup> July 2019 at 2:30pm.

Please request the Environment Secretary to use his agencies to:

1. Demand the water companies follow their drought plans (where they are currently not observing agreed triggers).

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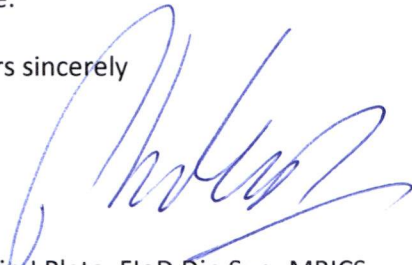
Registered Office 2 Claridge Court c/o Phillip Playle, Lower Kings Road, Berkhamsted, England, HP4 2AF

2. Bring about the immediate Introduction of Temporary Use Bans, in affected regions, including demand management measures such as hosepipe bans and roll out of water saving advice to consumers and businesses to protect the water environment.
3. Undertake a fundamental overhaul of drought management planning to enable a more proactive, precautionary approach that better protects rivers and wetlands in future.
4. Put clear targets in place for replacing aquifer abstraction with alternative supplies in affected river catchments.
5. Actively support the construction of new strategic water storage and supply reservoirs in the South East, as a matter of urgency to meet future demand, and replace unsustainable abstraction.
6. Secure greater protection for England's chalk Streams in the Government's new Environment (Governance and Principles) Bill.

This country and the world are facing a climate crisis: our chalk streams are our front line. Water scarcity concerns in the South East are only going to increase, and urgent action is required to safeguard our natural environment in these circumstances.

I would be grateful if you could reply to my letter and let me know what you will do to support this issue.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Phillip J Plato', written over a faint circular stamp.

Phillip J Plato FloD Dip Surv MRICS  
**Chairman**  
Brown Not Green Chesham Ltd  
07836 201390



Rt Hon Dame Cheryl Gillan DBE MP



HOUSE OF COMMONS

LONDON SW1A 0AA

Phillip J. Plato  
2 Deer Park Walk  
Chesham  
Bucks  
HP5 3LJ

7 August 2019

Dear N. Plato

Thank you very much for your correspondence, dated 19 July.

I appreciate the comments you make in relation to the impact housing development in close proximity will have on our chalk streams. I am delighted I was able to speak on behalf of our River Misbourne and River Chess chalk streams, during an Adjournment debate last month on 'Degraded Chalk Stream Environments.'

As you know, the Chilterns Area of Outstanding Natural Beauty (AONB) has something to offer everyone, we have nationally-important concentrations of chalk grassland, over 11,000 hectares of ancient woodland, nine chalk streams, red kites, water voles, brown trout and plenty of historical and archaeological value. Like you, I am increasingly concerned over the continued degradation of our chalk streams, as some areas in the constituency have completely dried up. This has been a worrying trend for years and made worse by the prospect of HS2 being constructed beneath them in the Chilterns AONB. I understand from the reports over the weekend that Allan Cook, Chairman of HS2's preliminary findings for his internal review, predict the final cost could reach to £85 billion. I believe this to be an increasing taxpayer crisis to our chalk streams and I will continue to argue the case to scrap this project.

I will continue to raise this ongoing issue in Parliament, and I hope the debate will stimulate a greater interest in our chalk streams and the new Government to play its part in protecting them.

You can find my comments on Hansard here [www.hansard.parliament.uk](http://www.hansard.parliament.uk) and type in 'Degraded Chalk Stream Environments.'

Once again, thank you for taking the time to contact me about this very important issue.

Yours sincerely  
Cheryl Gillan